European Commission

ISSN 1725-3209 (online)
ISSN 1725-3195 (printed)

# EUROPEAN ECONOMY

Occasional Papers 174 | March 2014

## Macroeconomic Imbalances Germany 2014

Economic and Financial Affairs

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

Comments and enquiries should be addressed to:

European Commission
Directorate-General for Economic and Financial Affairs
Unit Communication
B-1049 Brussels
Belgium
E-mail: ecfin-info@ec.europa.eu

**LEGAL NOTICE**



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

More information on the European Union is available on http://europa.eu.

KC-AH-14-174-EN-N
ISBN 978-92-79-35358-1
doi: 10.2765/73362 (online)

KC-AH-14-174-EN-C
ISBN 978-92-79-36131-9
doi: 10.2765/7919 (print)

European Commission
Directorate-General for Economic and Financial Affairs

# Macroeconomic Imbalances

## Germany 2014

EUROPEAN ECONOMY Occasional Papers 174

# ACKNOWLEDGEMENTS

This report was prepared in the Directorate General for Economic and Financial Affairs under the direction of Marco Buti, director-general, Servaas Deroose, deputy director-general, Peter Weiss and Anne Bucher, directors.

Contributors were Alfonso Arpaia, Lovise Bauger, Martijn Brons, Francisco de Castro, Daria Ciriaci, Maria Demertzis, Jakob Wegener Friis, Michael Grams, Isabel Grilo, Jan In't Veld, Anton Jevcak, Fotios Kalantzis, Julius Klüpfel, Robert Krämer, Bettina Kromen, Emmanuelle Maincent, Mercedes de Miguel Cabeza, Alexander Molzahn, Josefina Monteagudo, Balazs Palvolgyi, Peter Pontuch, Werner Roeger, Eric Ruscher, Michael Thiel, Tsvetan Tsalinski, Alessandro Turrini, Lukas Vogel, Rainer Wichern, Markus Wintersteller, Florian Wöhlbier, Stefan Zeugner and Marcin Zogala. Statistical assistance was provided by Yves Bouquiaux, Andrzej Erdmann, Laura Fernandez Vilaseca, Isabelle Homans, William Connell García, Aron Kiss and Vitor Martins.

Comments on the report would be gratefully received and should be sent, by mail or e-mail to:

Jakob Wegener Friis
European Commission
Unit F1
CHAR 12/006
B-1049 Brussels
e-mail: jakob-wegener.friis@ec.europa.eu

The cut-off date for this report was 25 February 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*

# LIST OF TABLES



# LIST OF GRAPHS

## LIST OF BOXES

# 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.

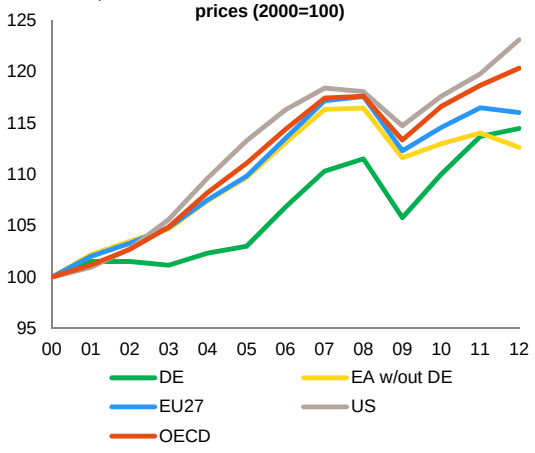
# 2. MACROECONOMIC DEVELOPMENTS

## 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.

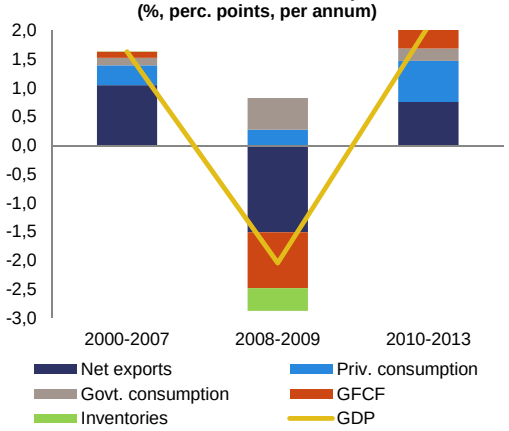
**In a longer term perspective, however, Germany still has room for improving and rebalancing its growth performance**. The relative resilience shown by the economy during the crisis was due to a previous prolonged adjustment process to correct unfavourable post-reunification developments. This involved 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)**



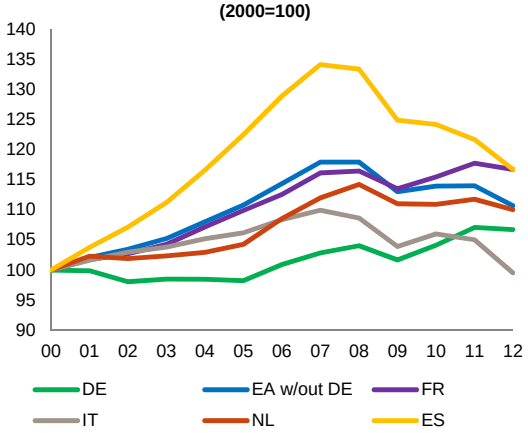

*Source:* Eurostat, Com. serv. calculations

*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)**



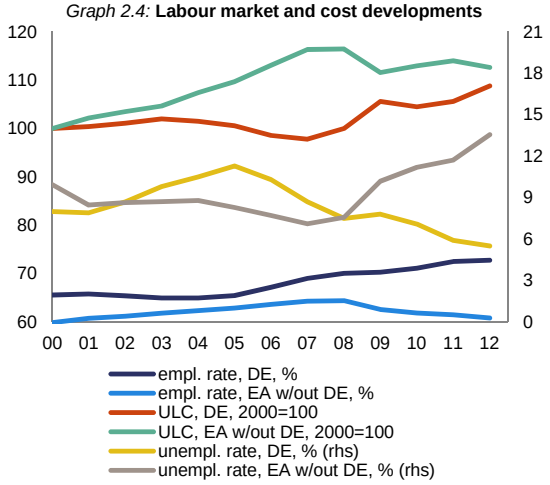

*Note:* Includes inventories

*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.

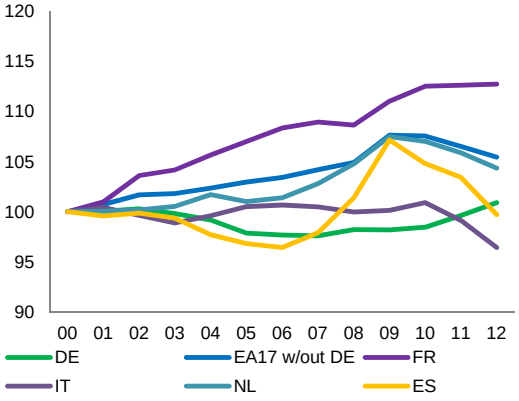
*Graph 2.4:* **Labour market and cost developments**




*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.

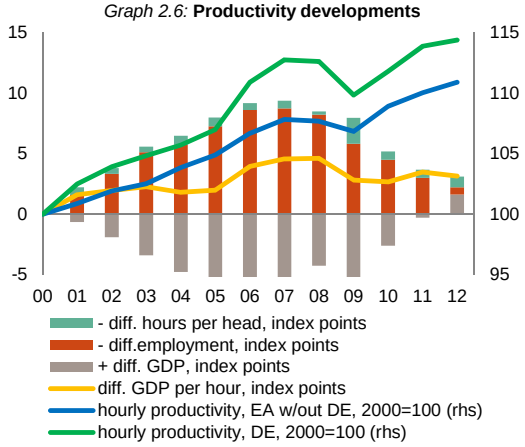
*Graph 2.5:* **Real Wages (2000=100)**




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

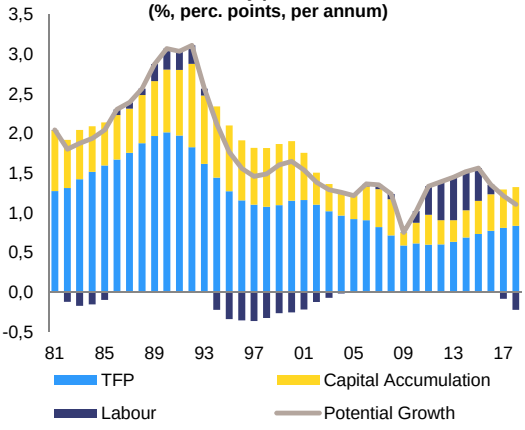
Wage restraint has kept unit labour cost growth low, but the German economy has at the same time sustained a certain hourly productivity edge over euro area-peers, despite increasing employment of low-skilled workers (Graph 2.6). The economic adjustment has borne fruit, strengthening in the first instance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

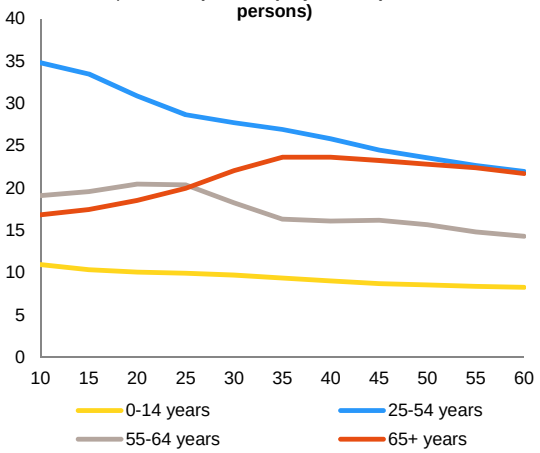
*Graph 2.7:* **Potential output growth and contributions by production factors (%, perc. points, per annum)**




*Source:* Eurostat, Com. serv. calculations

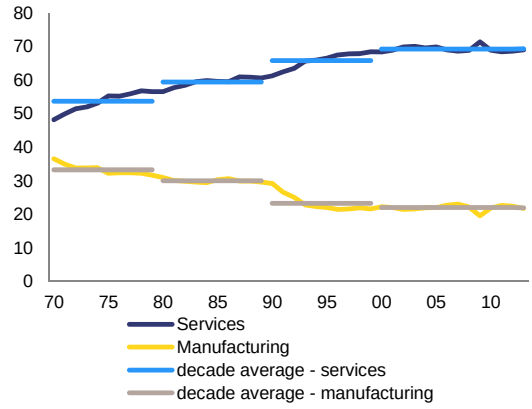
**Germany's potential growth has declined markedly and demographic change is a key challenge going forward.** A spurt in labour supply helped prop up potential growth in the aftermath of the crisis compensating still modest investment (Graph 2.7 and Table 2.1). However, intensifying population ageing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

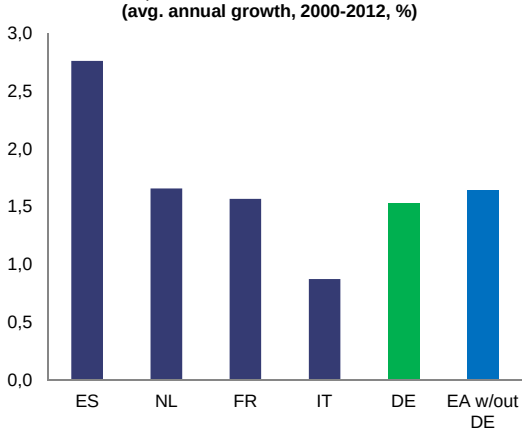



*Note:* Data prior to 1991 refer to West Germany
*Source:* AMECO

## 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).

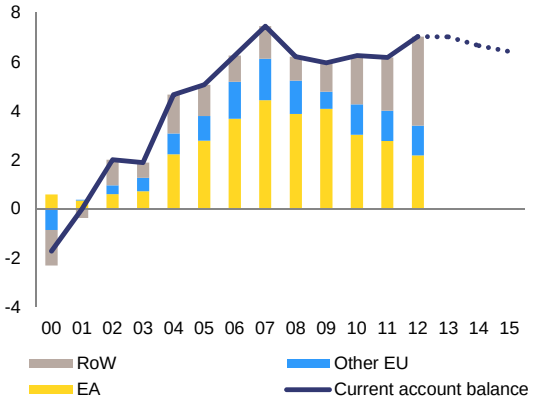
*Table 2.1:*
**Potential growth**

| | 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.

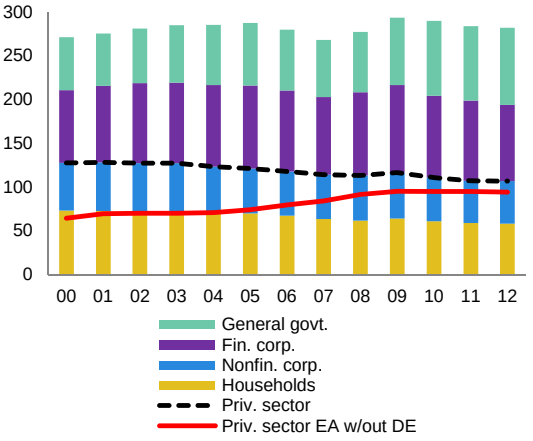
*Graph 2.11:* **Current account balance by geographical counterpart (% of GDP)**




*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.

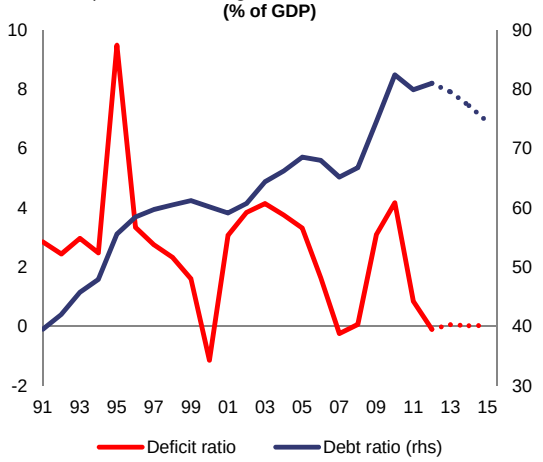
*Graph 2.12:* **Composition of debt by institutional sector (consolidated, % of GDP)**




*Source:* Eurostat, Com. serv. calculations

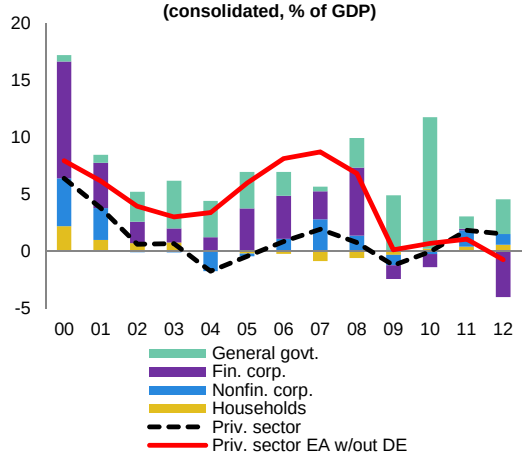
**Credit growth has been subdued and remains muted in spite of very favourable financing conditions.** The provision of credit to the household and corporate sector has been negligible for over a decade. Net credit continues to expand at a comparatively slow pace in spite of healthy balance sheets and 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.*

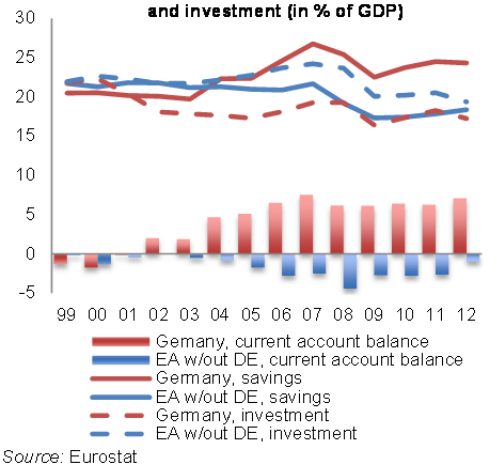
*Public sector investment has been falling for a long time in Germany and net investment has been negative in the last decade, resulting in a sizeable investment differential to the euro area having cumulated over time. The low investment rate in particularly reflects the gradual scaling back of public 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.

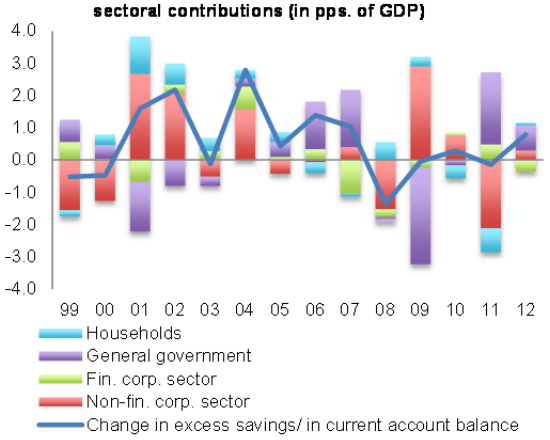
*Graph 3.1:* **Current account balance, national savings and investment (in % of GDP)**




*Source:* Eurostat

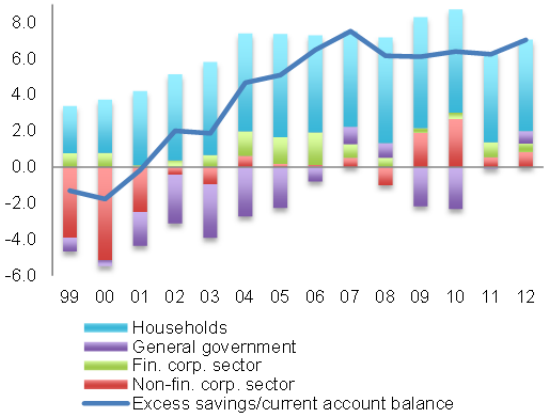
([2]) Defined as saving minus investment.
([3]) Excluding Germany.

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




*Source:* Eurostat

*Graph 3.3:* **Sectoral excess savings and current 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

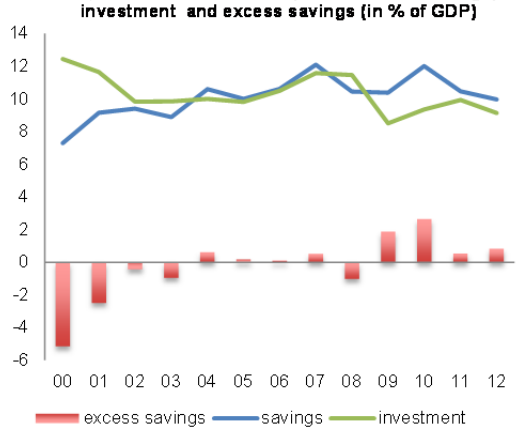
*Table 3.2:*
**German fundamental current account estimates from various sources**

| 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

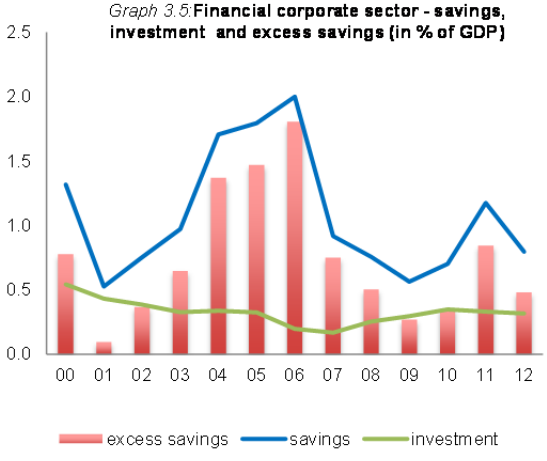
while savings peaked in 2008, resulting in a slight reduction in households' excess savings since 2009. Finally, *general government* excess savings were largely driven by saving dynamics, which in turn reflected both changes in the fiscal stance and cyclical effects. At the same time, the public investment 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)**



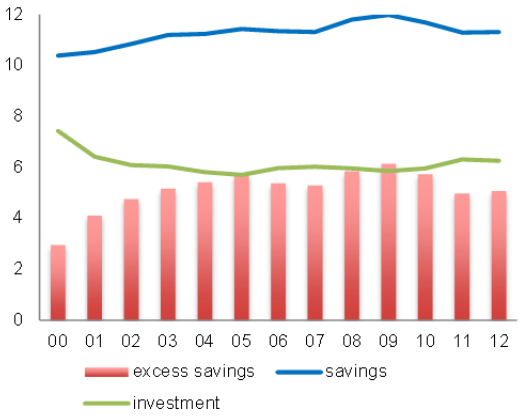

*Source:* Eurostat

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



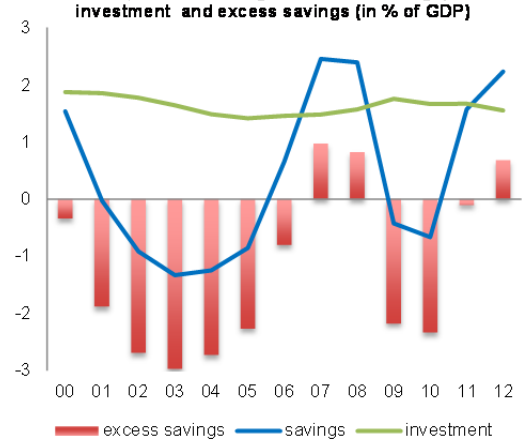

*Source:* Eurostat

*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)**

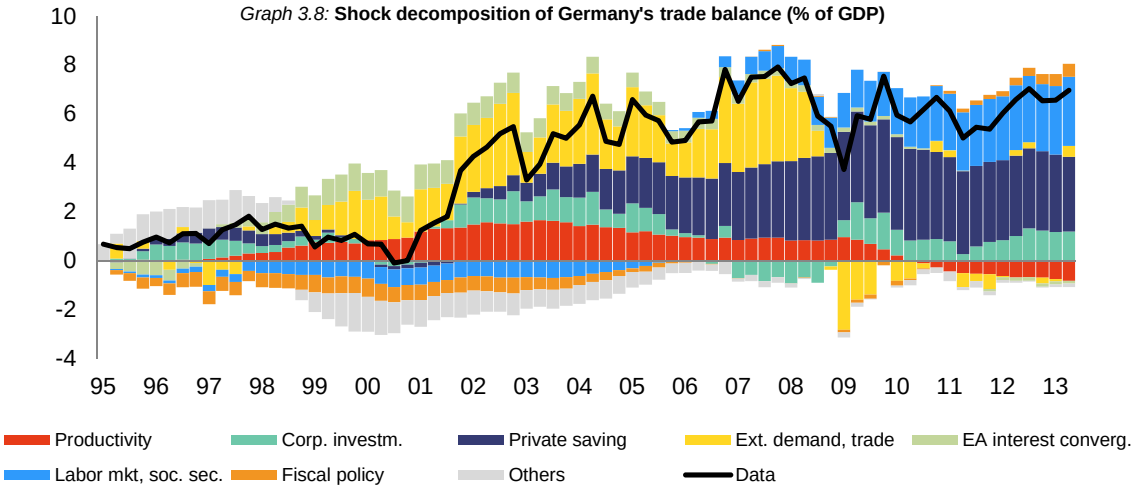



*Source:* Eurostat

**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.

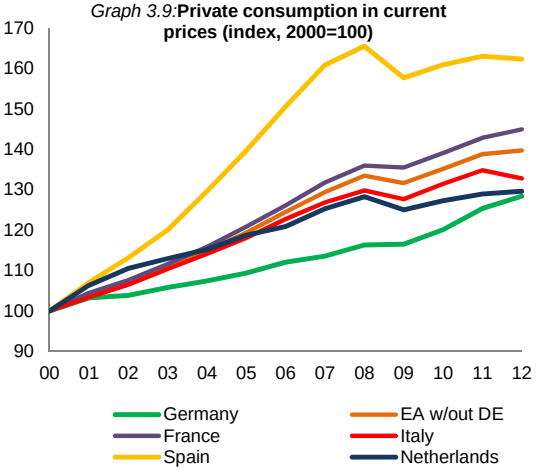
The high level of current account surplus, including during a period of significant swings in world trade and the composition of global import demand, give support to the notion that the drivers of the surplus are first and foremost found in the saving and investment behaviours of domestic economic agents. 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)**

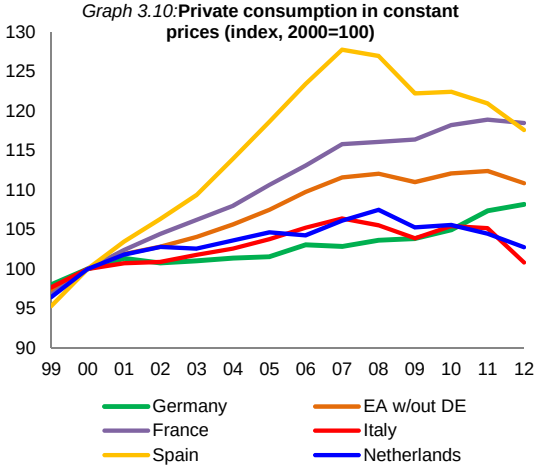



*Source:* Eurostat

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

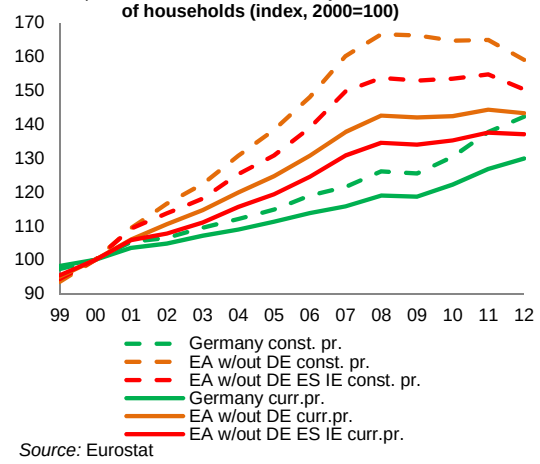
([8]) Unless otherwise specified, the euro area average in this section refers to the EA17 excluding Germany.

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



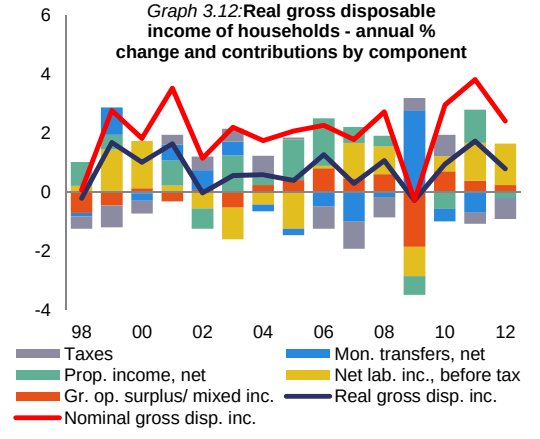

*Source:* Eurostat

*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.

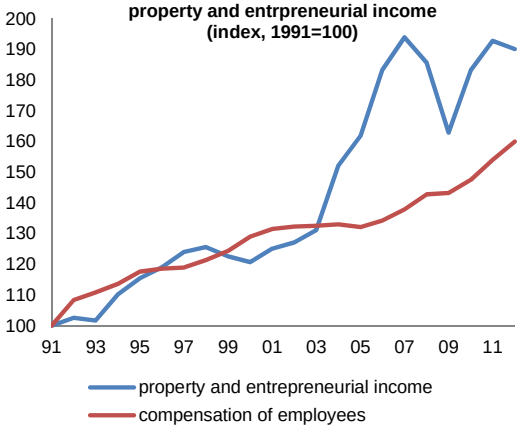
([10]) See European Commission (2007). Eppendorfer and Stierle (2008) found that employment and wages were the key drivers of slow consumption growth in the first half of the 2000s.

([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).

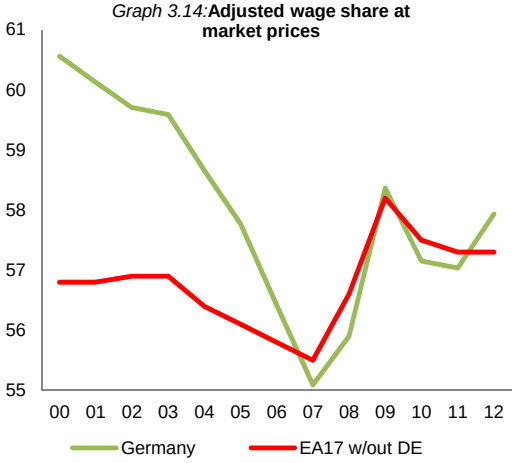
wages is well above that out of capital income, the steep fall in the wage share over a longer period of time is likely to have exercised a downward pressure on household consumption (see for example the review of recent literature by Papadia, 2013). Since reaching its historic trough in 2007, the German 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

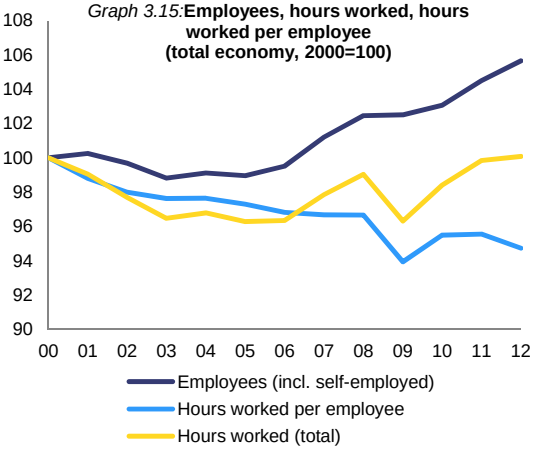
an obstacle to full-time labour participation of parents.

**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])

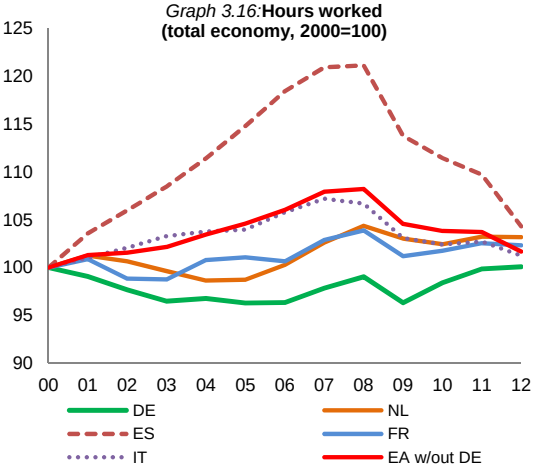
The favourable fiscal conditions of mini-jobs may create some distortions, for instance by causing lower upward wage mobility, discouraging people from increasing the number of hours they work, or increasing involuntary part-time work by discouraging companies from opting for other types of contract. ([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%.

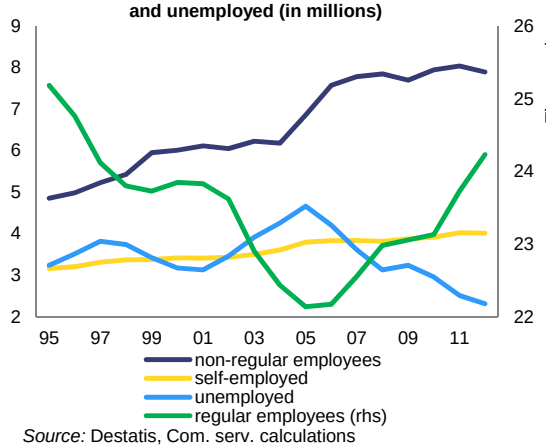
([14]) Based on data from the Mikrozensus (Federal Statistical Office), including part time employees working less than 32 hours per week.

([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)).

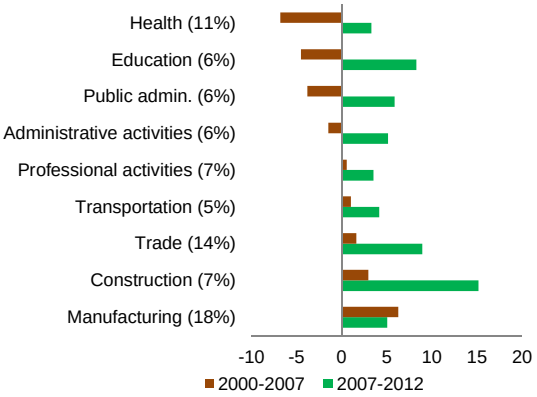
*Graph 3.17:* **Regular employment, non-regular employment, self-employed and unemployed (in millions)**




*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:*

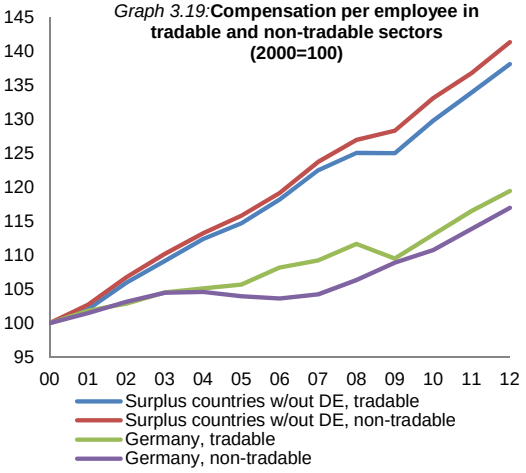
**Annual average differences between the growth rate in compensation per employee and wage benchmarks**

| | 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**

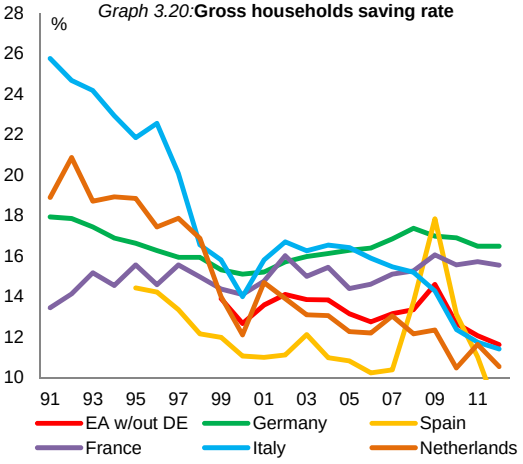
| Household per income decile (monthly income) | 2001 | | 2006 | | 2011 | | Saving rate (2011) |
|---|---|---|---|---|---|---|---|
| | Non weighted | Equivalent weighted | Non weighted | Equivalent weighted | Non weighted | Equivalent weighted | |
| lower tenth | 1.0 | 0.8 | 0.8 | 0.7 | 0.5 | 0.5 | 1.8 |
| 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.

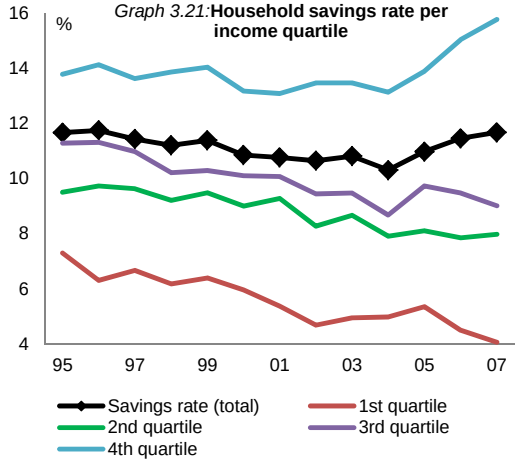
*Graph 3.20:* **Gross households saving rate**




*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).

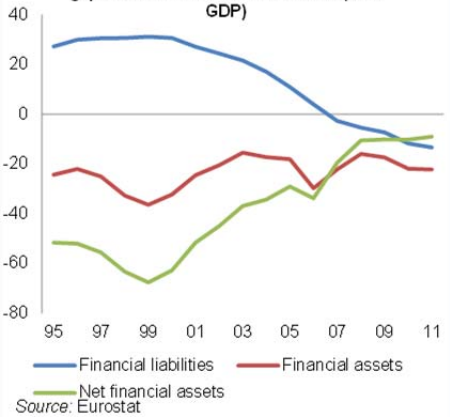
([30]) Other studies find also significant differences in the saving rates of different income groups, for instance Weber (2013) using SOEP data for 2011 and Gräf and Schneider (2011) using data from the Federal Statistical Office's 2008 Income and Consumer Survey (EVS 2008). Weber (2013) also finds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

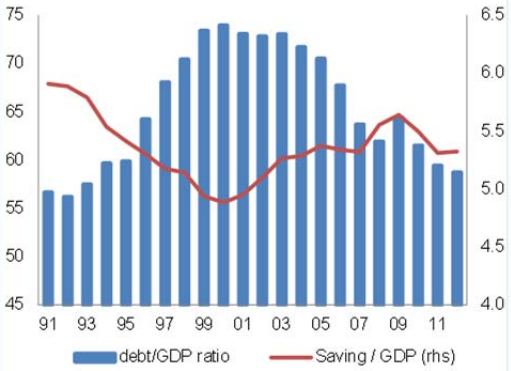
A look at German households' financial balance sheets reveals that net financial assets are lower than those of their euro area peers, although the gap has been narrowing significantly by close to 50 pps. of GDP, since its peak in the early 2000s (graph 1a). The trend in households' overall financial 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

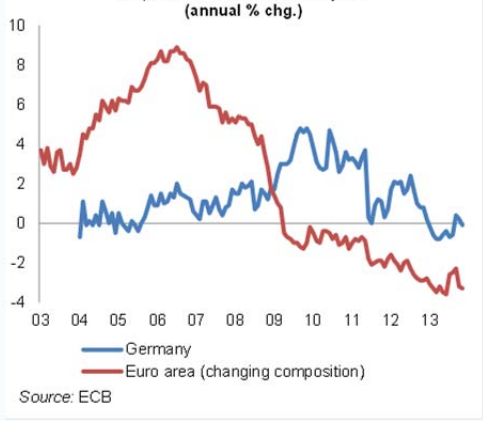
At the same time, there are noteworthy differences in the composition of assets in Germany vis-à-vis the euro area average. Currency and deposits as well as insurance technical reserves ([1]) are relatively more important assets in Germany. Also, somewhat riskier assets account for a higher share at 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)*

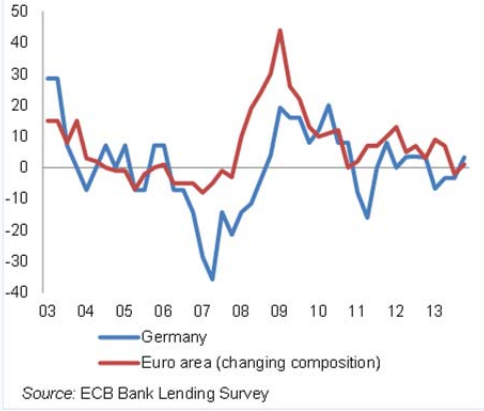
*Box (continued)*

*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.

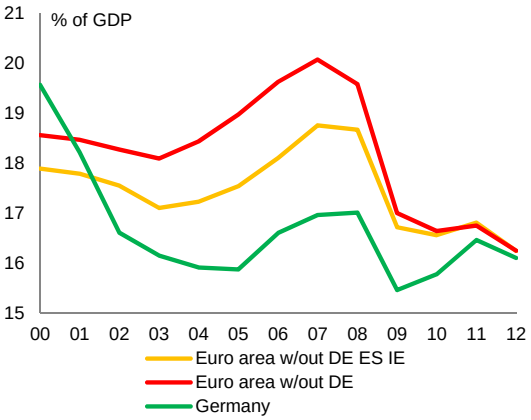
## 3.3. A CLOSER LOOK AT PRIVATE INVESTMENT DYNAMICS

**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%.

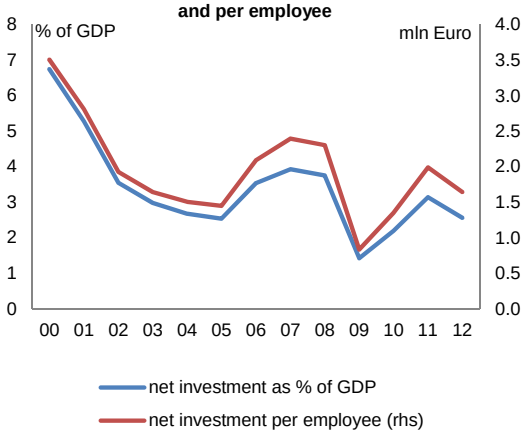
This has implied that the increase in the net capital stock has been muted over 2000-2012 and the expansion of the capital stock per employee has been rather low and on a descending trend (Graph 3.23).

*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**

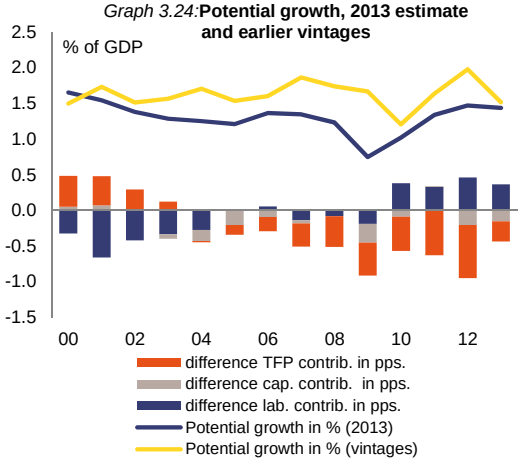



*Source:* Destatis and AMECO

**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.

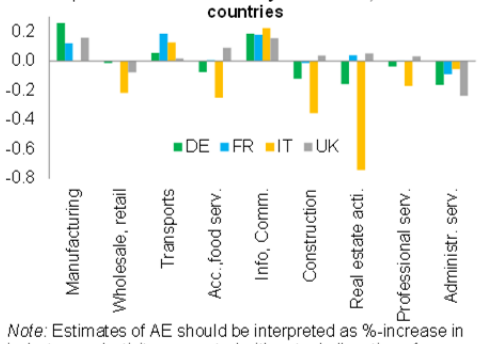
([7]) Latest available year.

([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**

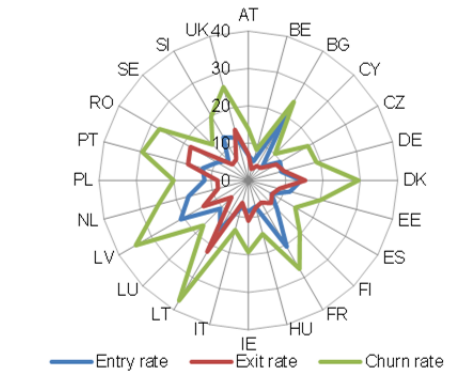



*Note:* Estimates of AE should be interpreted as %-increase in industry productivity connected with actual allocation of employment across firm size classes, relative to a baseline scenario in which employment is allocated randomly across different firm size categories

*Source:* ECFIN SPI database, Com. serv. calculations

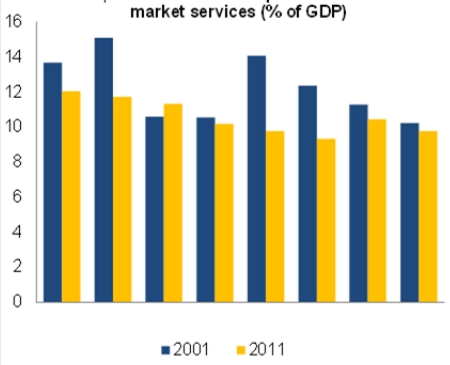
**Improvements to productivity in Germany's services sector would contribute to higher efficiency, investment and growth.** Fostering competition, including by addressing unjustified protection of sheltered sub-sectors, would positively affect productivity and would by various economic channels have 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

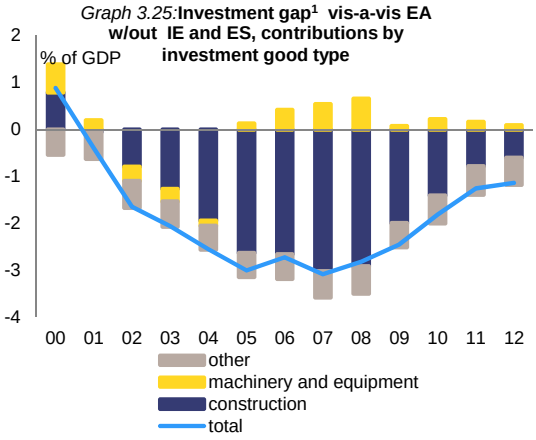
*Graph 3:* **Gross fixed capital formation in market services (% of GDP)**




*Source:* Eurostat

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

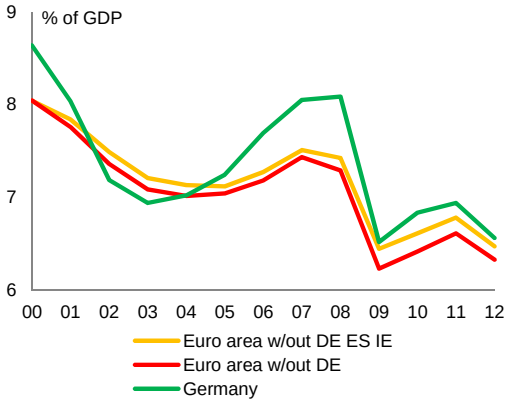
*Graph 3.25:* **Investment gap[1] vis-a-vis EA w/out IE and ES, contributions by investment good type**




*Source:* Eurostat, Com. serv. calculations

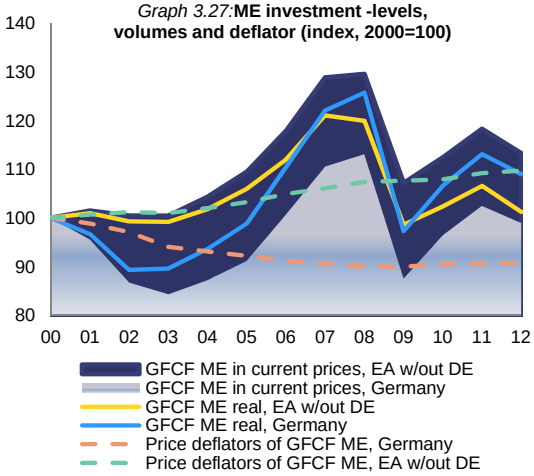
[1]Diff. in pps. between shares of GFCF in GDP in current prices

*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.

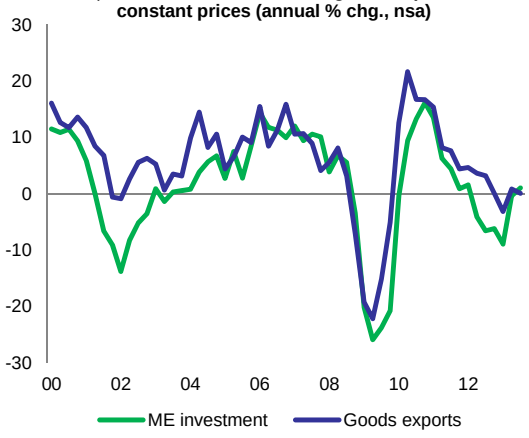
**Investment in machinery and equipment is driven by a small number of key branches, notably manufacturing**. A small subset of branches accounted for three quarters of the investment in 2000-2012, with manufacturing alone accounting for close to one quarter. In addition, the increasing use of leasing 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).

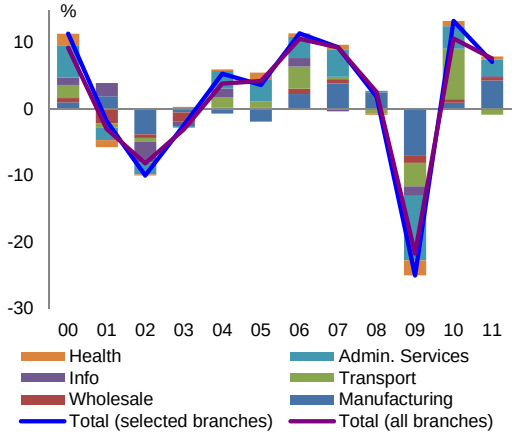
exports sector plays a pivotal role for total machinery and equipment investment across all key branches (Graphs 3.28 and 3.29). The strong drive in Germany's goods exports to its global markets may therefore explain why the investment weakness has not manifested itself for machinery and equipment throughout 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

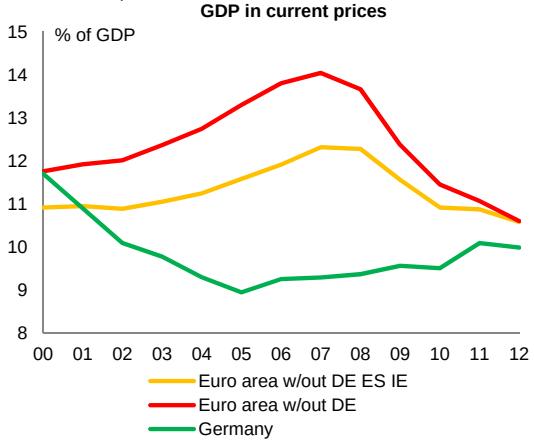
*Graph 3.29:* **ME investment in current prices: annual % chg. and contributions by branches**




*Source:* Eurostat

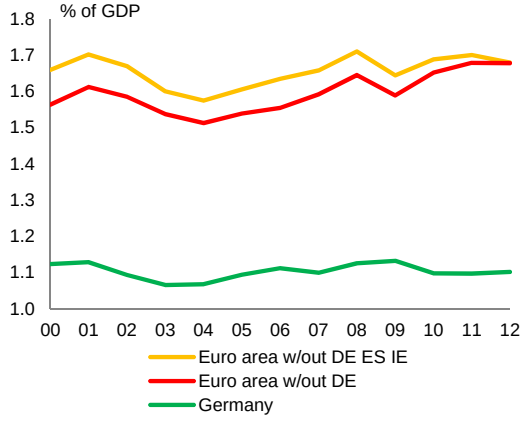
**The bulk of the investment gap between Germany and the euro area is due to lower German investment in construction.** A disaggregation of the investment share by investment good type shows that the significant gap in the investment share between Germany and euro area peers (excluding Ireland and Spain) 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**



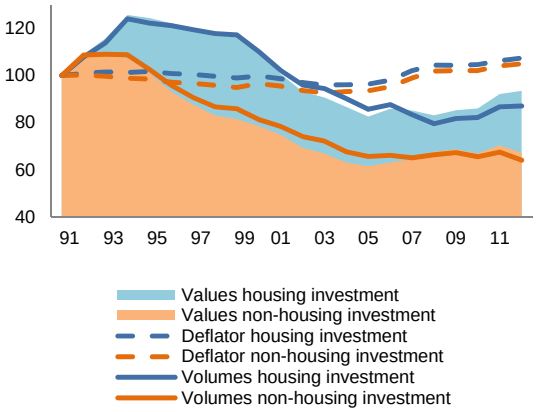

*Source:* Eurostat

**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).

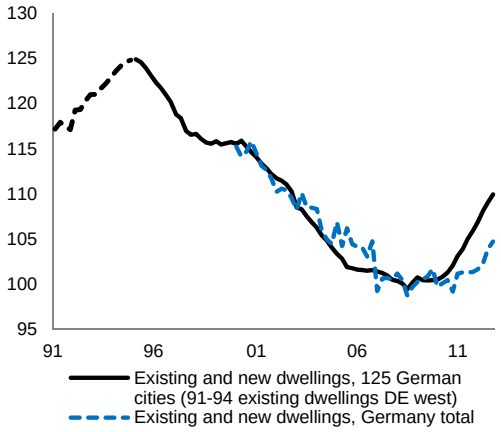
2007, which indicates that Germany's construction boom nearly two decades ago had a longer-lasting impact on the construction of new dwelling. Also, average net migration fell during the 2000s to almost one third compared to the preceding decade and net births were on a downward trend. The gradual increase 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)**

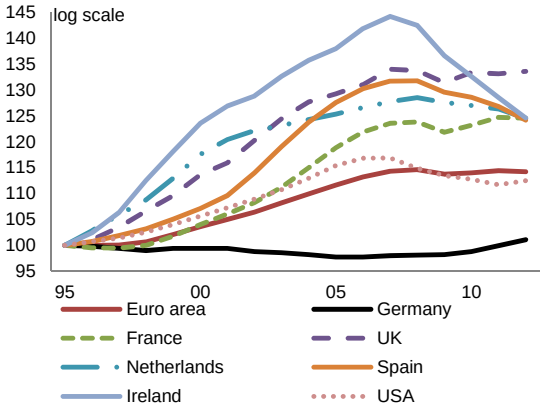



*Sources:* Bundesbank, Destatis

**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).

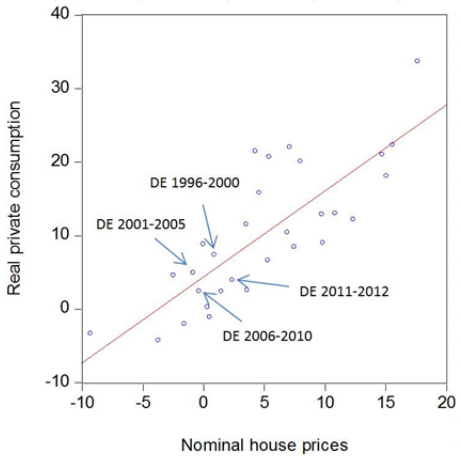
**As of 2010, housing investment has been experiencing a rebound, underpinned also by the search for safe investments.** The latest pick-up in housing investment, with German housing investment exceeding the euro area average, reflects the need for additional dwellings arising from stronger migration 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

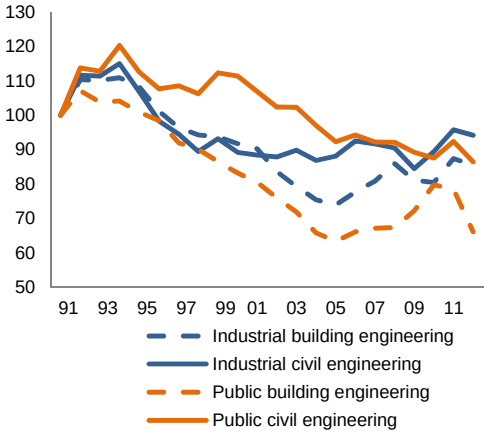
***Graph 3.35:*** **House prices vs. private consumption**




*Source:* OECD, Eurostat, Commission calculations

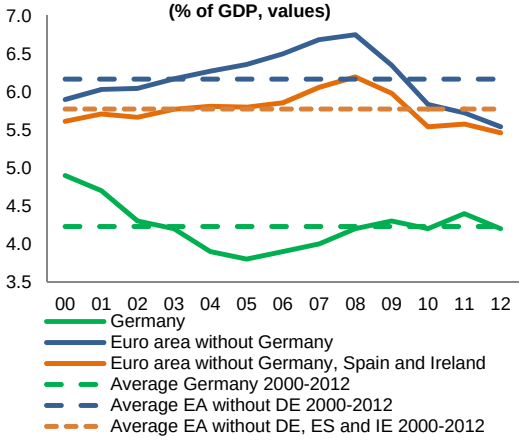
**Real non-housing construction investment ([41]) has also been going through a long-lasting decline before stabilising in the mid-2000s.** The weakness has been generalised, spanning over most private sectors and with the fall in investment in industrial and public buildings engineering being most pronounced. 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.

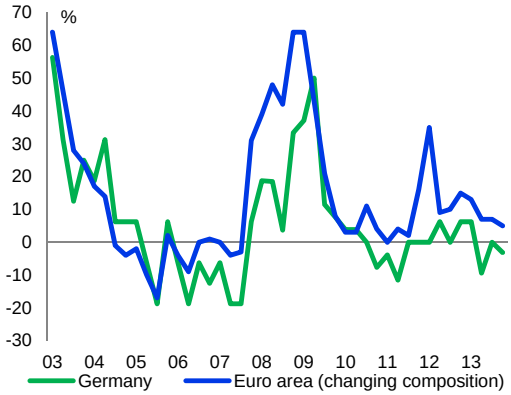
([42]) For more details on public non-housing investment see Section 3.2.3.2. With regard to possible over-capacities impacting private investment, see also Gluch (2005).

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.

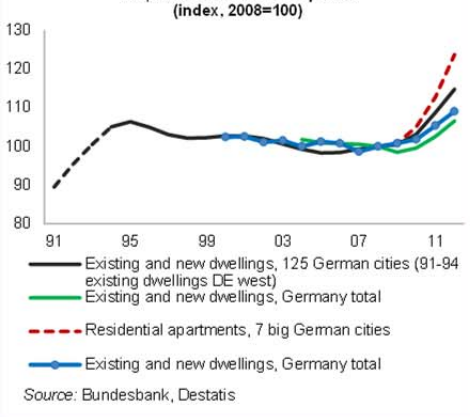
### *Box 3.4:* House prices in Germany

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.

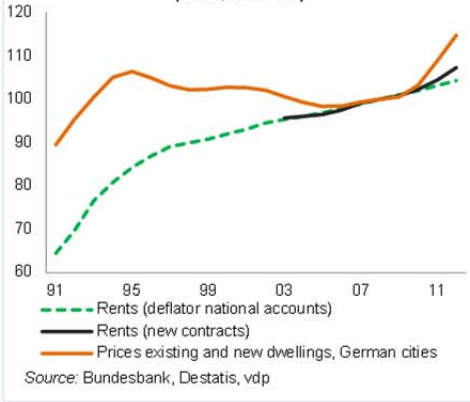
Changing property prices would usually be reflected in rental contracts and over time a co-movement should typically occur. In Germany, an anomaly has occurred until the late 2000s, as rents increased steadily while house prices dwindled. The dynamics in rents do not show an unusual pattern as rents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

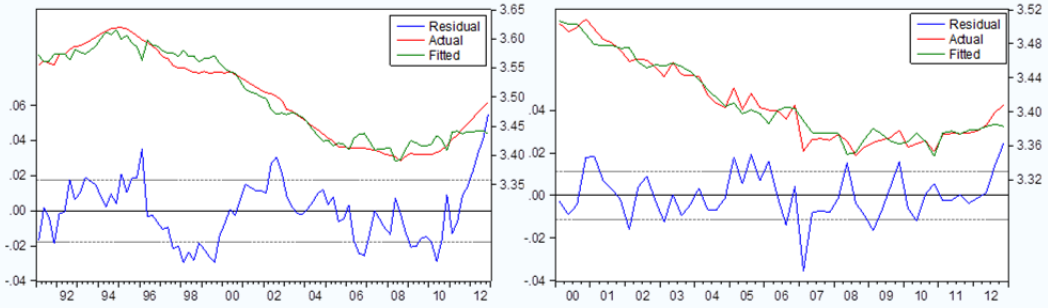
$$hpi_t = \alpha_0 c + \alpha_1 pop_t + \alpha_2 y_t + \alpha_3 inv_t + ec_t$$

*(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.

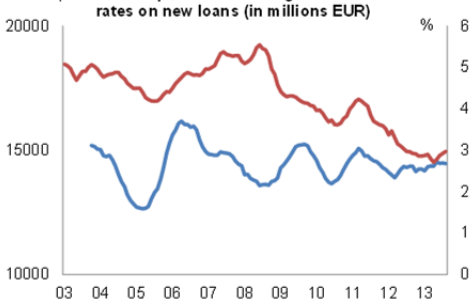
With respect to recent developments, it cannot be ruled out that property price increases are not entirely supported by fundamentals, in particular in big cities. Kajuth et al. (2013) conclude that for Germany as a whole apartment prices show a moderate overvaluation while this is not the case for single-family 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)*

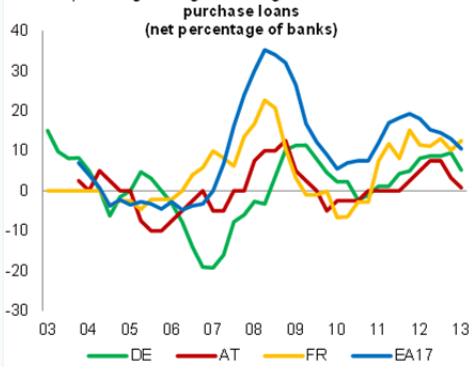
*Box (continued)*

*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.

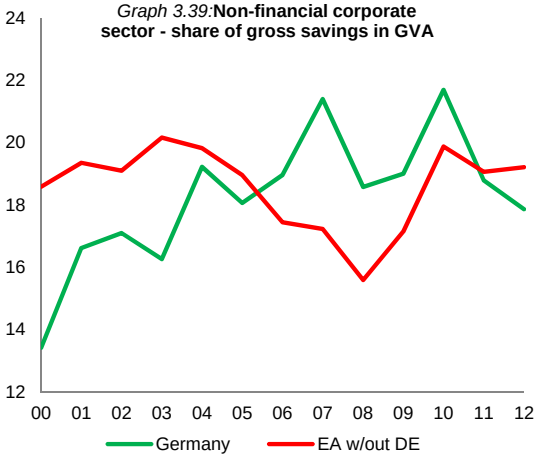
([56]) See e.g. Deutscher Industrie- und Handelskammertag (2014).

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

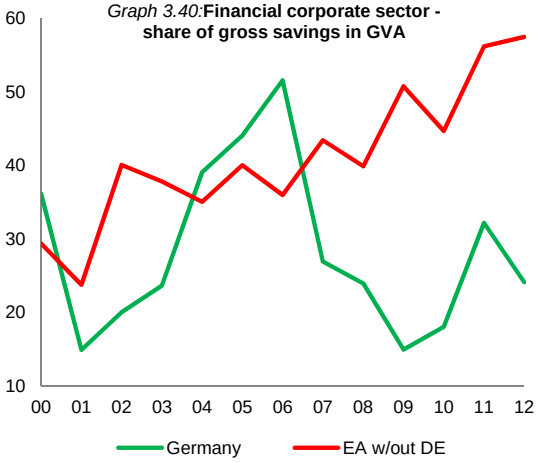
The rise in non-financial corporate (NFC) sector savings made the largest individual contribution to the build-up of the current account surplus before the crisis (5½ p.p. of GDP during 2000-2007). Although coming down slightly after the crisis, the level of corporate savings remains high and it is too 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.

---

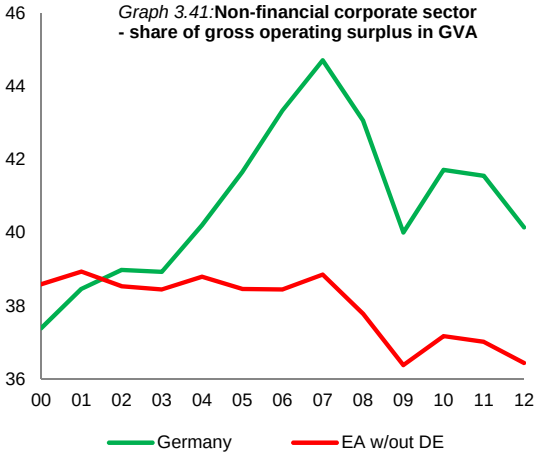
([1]) Blazejczak et al. (2013) estimate total annual investment of approximately 31 to 38 billion euros, of which 17 to 19 billion euros would be needed for the expansion of renewable electricity and heat generation, around 6 billion euros for power grids, between 6 and 13 billion euros for energy-efficient 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.

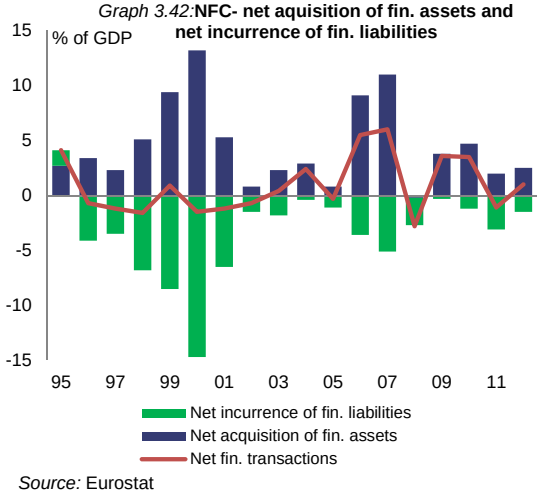
**The increase in the share of operating profits was not matched by a corresponding rise in the share of profit taxes paid and dividend pay-outs were insufficient to contain the surge in corporate savings**. A strong increase in operating profitability before the crisis (see Graph 3.41) was supported 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

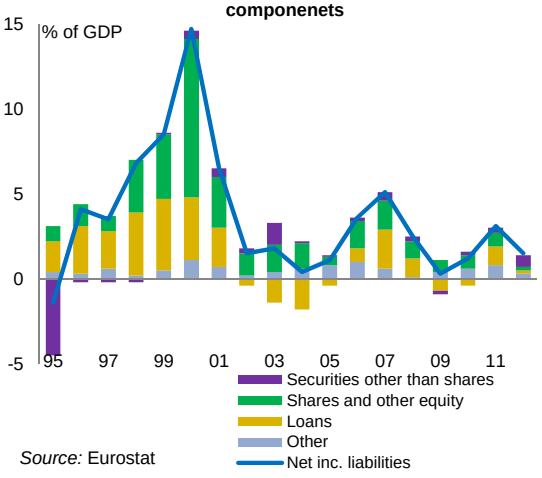
*Graph 3.42:* **NFC- net aquisition of fin. assets and net incurrence of fin. liabilities**




*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).

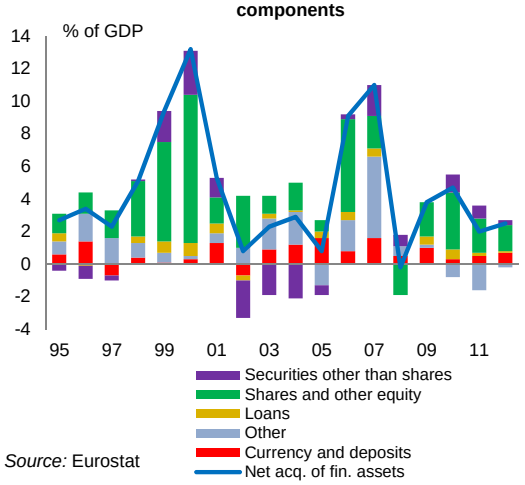
*Graph 3.43:* **NFC - net incurrence of fin. liabilities and componenets**




*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

([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.

2008. 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.

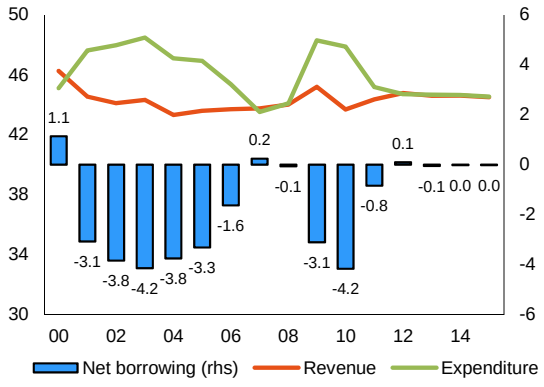
before the crisis and has declined in the aftermath of the crisis. Precautionary motives would also be expected to diminish as the uncertainty entailed by the current crisis fades away.

## 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.

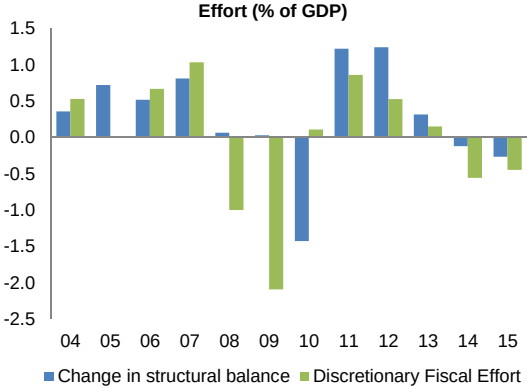
**Germany's budgetary position since the beginning of the millennium has mirrored both cyclical and more structural developments**. Weak growth and adverse labour market developments in the first half of the last decade and the global financial and economic crisis in the second half resulted in general 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.

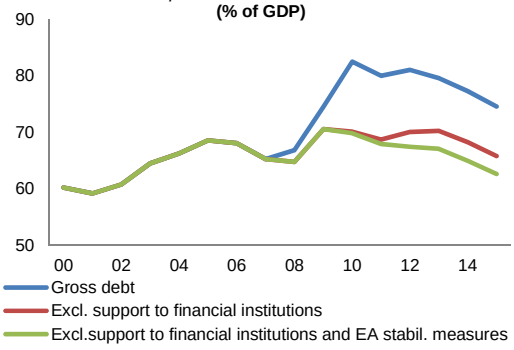
([76]) For a more detailed description of consolidation efforts during this period see Devries et al. (2011).

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).

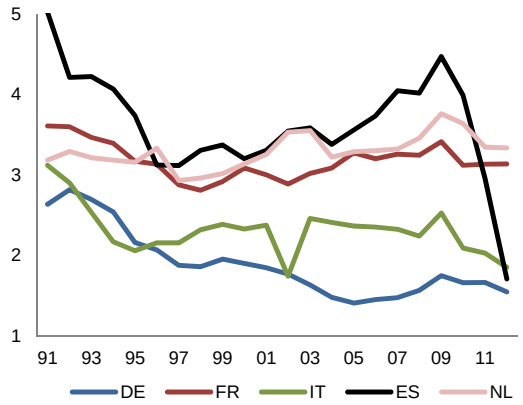
([79]) The constitutional structural deficit ceiling for the federal budget of 0.35% of GDP is being phased in until 2016. Accordingly, the deficit recorded in 2010 needs to be reduced in equal steps until 2016. The constitutional requirement of (structurally) balanced *Länder* budgets takes effect in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

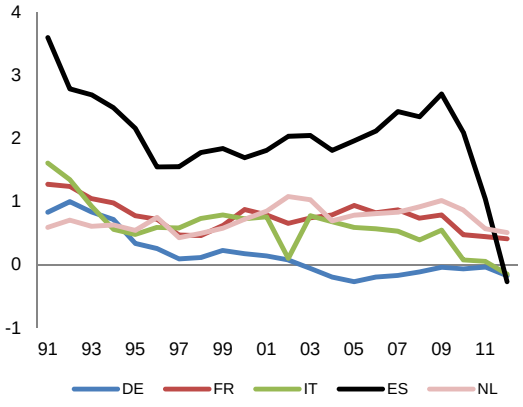
gross or net terms - has been low not only in comparison with countries still in need of upgrading their infrastructure, but also with countries with well-developed infrastructure like France and the Netherlands. German public net investment has even turned slightly negative in most years since 2003,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

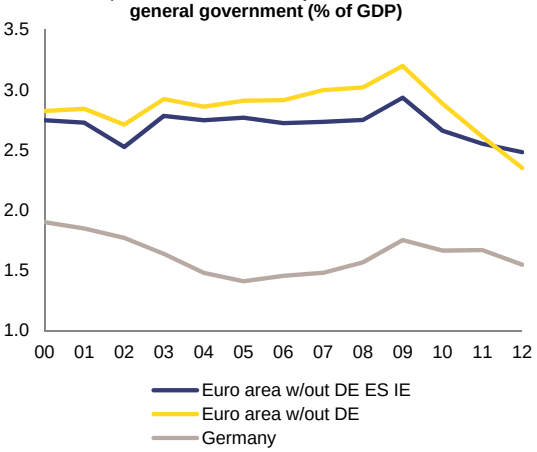
*Graph 3.49:* **Net fixed capital formation of general government (% of GDP)**




*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**

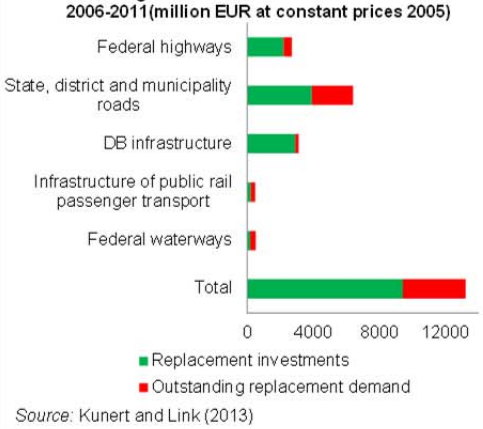
Reidenbach et al. (2008) assessed the investment backlog as well as extension and replacement needs of municipalities for the period 2006-2020, including their special purpose associations and corporations, with respect to drinking water infrastructure, wastewater systems, schools, administration buildings, 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.

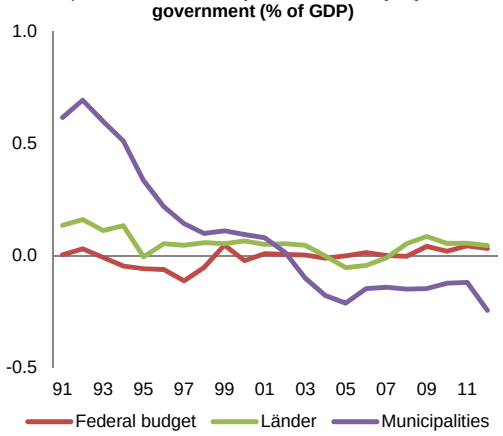
Similarly, based on an assessment of fixed assets, asset disposals and depreciation of transport infrastructure, Kunert and Link (2013) calculate a funding gap of 3.8 bn euros annually (replacement needs not met by investment), of which almost 40% concerns *Länder*, county and municipal roads. The reduction 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

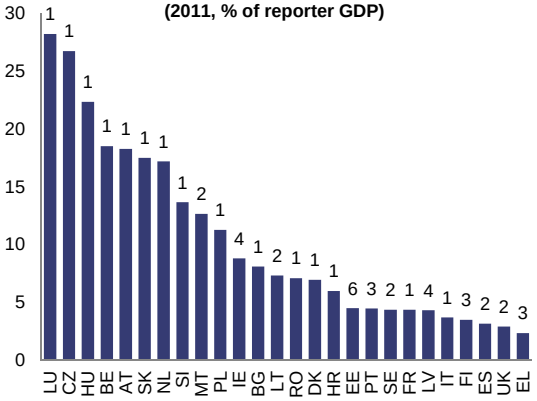
**This section examines the interlinkages between the German economy and the euro area and how they can affect their recovery and growth prospects.** After a protracted period of slow growth, as a result of the financial crisis, the euro area is only now beginning to see the first signs of recovery. 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.

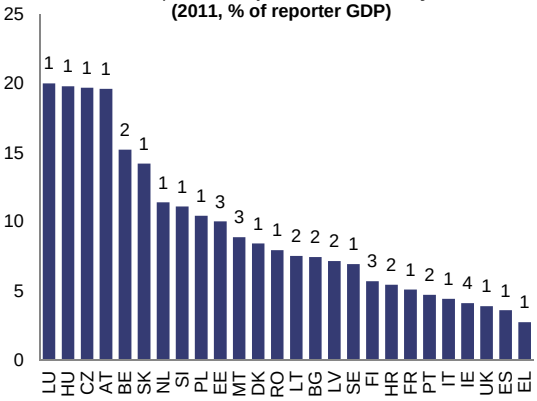
*Graph 3.52:* **Exports to Germany (2011, % of reporter GDP)**




*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

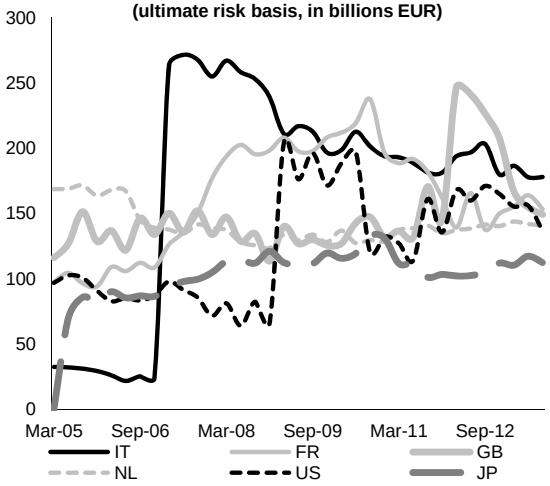
which is included in education expenditure (Statistisches Bundesamt, 2012b).

([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)**



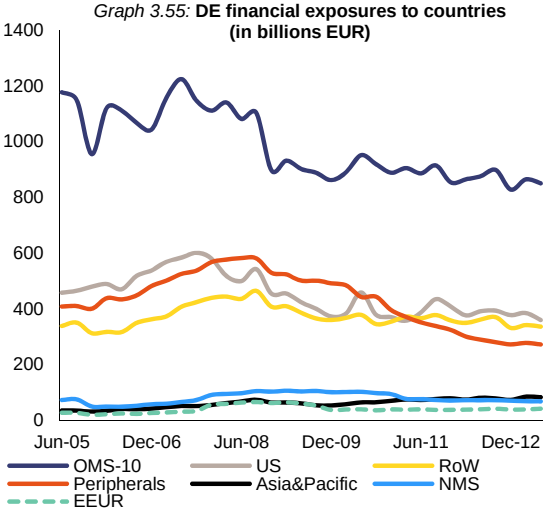

*Source*: BIS, Com. serv. calculations

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.

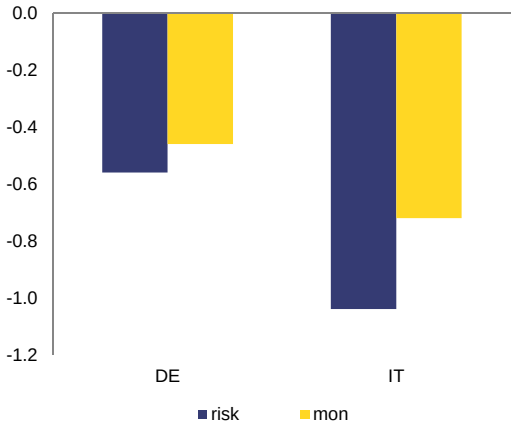
**Countries are different in the way the demand for their exports is affected by changes in relative prices.** In this respect the analysis shows that German exports are less sensitive than other euro area countries', and are therefore better equipped to maintain their market shares as the currency appreciates. 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.

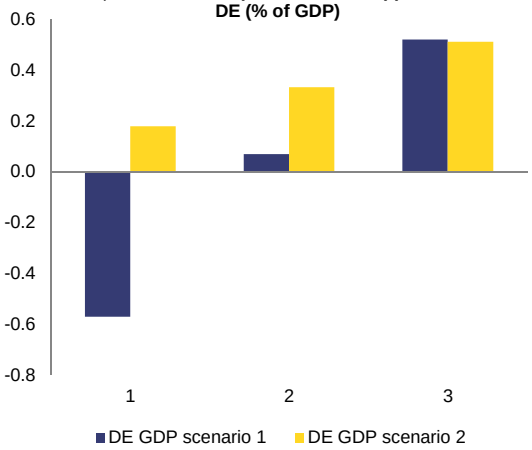
**In both cases, there is an increase in the demand for euro area assets.** Capital flows in, which in itself causes the euro to appreciate. However, these effects transmit to the economy at different speeds and with different second round effects. A key driver of this difference is the way that euro 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

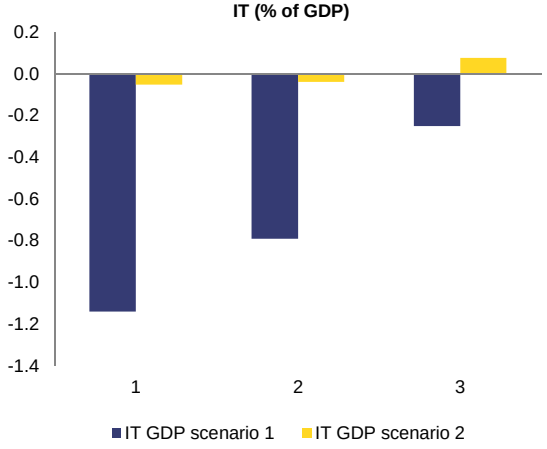
*Graph 3.57:* **GDP impact of 5% real appreciation DE (% of GDP)**




*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

# 4. INTERNATIONAL FINANCIAL FLOWS AND THE ROLE OF FINANCIAL INTERMEDIATION

*Banks are important actors on the financing side of the German current account. Before the crisis, the banking sector strengthened its net lending position vis-à-vis the rest of the world, switching from a net debtor to a net creditor position. German banks' incentive to increase international exposure and accept risks in that time can be attributed to push and pull factors. Relevant push factors that have incentivised banks to search for higher return abroad were the weak growth performance of Germany, the low domestic profitability of the banking system and the re-orientation of business models by "Landesbanken". The introduction of the euro, low funding costs, diffusion of information and communication technologies, financial innovation and reliance on ratings were pull factors at work. In comparison to the internationalisation of banks observed in other countries in the pre-crisis period the German banks' increase in foreign investment was not outstanding, suggesting that the pace of global economic and financial integration decisively pulled the increase of German banks' foreign activity.*

*The financial crisis eventually disclosed the excessive risk-taking by German banks in their foreign investment positions. German banks were among the hardest hit during the Lehman crisis. Profitability of the aggregate banking sector turned negative in 2008 and 2009 and various banks requested and received public support to overcome losses. Germany provided substantial fiscal means to recapitalise banks, to establish bad bank schemes and to provide state guarantees to banks. Around half of the net investment position that banks had been built up from 1999 was eroded between 2007 and 2013. In this sense a misallocation of capital had occurred.*

*The impact of the banking crisis found reflection in the funding of current account imbalances. Deleveraging pressure and impaired foreign markets led German banks to retreat from foreign investment and the role of the Bundesbank in intermediating net financial flows abroad increased accordingly. Freezing of euro area money markets at the outset of the global financial crisis led to an increased reliance on the Eurosystem refinancing operations and an increase in TARGET2 balances, which increasingly replaced market funding. Although banks' sudden withdrawal from cross-border interbank lending, which was not limited to German banks, fostered banks' balance-sheet repair, it deepened fragmentation on banking markets, obliging foreign banks to borrow from the ECB while the German banking sector accumulated a large liquidity buffer.*

*The lower foreign lending by German banks in the last years has not led to any noticeable domestic credit expansion despite excess liquidity held by the banking sector and low lending rates. Recent survey results indicate that there are no serious credit constraints. Hence, the continuously weak credit growth appears to reflect the currently low credit demand rather than credit supply constraints It may be the consequence of ongoing and past adjustment to financial and real sector imbalances as crisis-related uncertainty and previous deleveraging in the corporate sector seem to have triggered a high level of precautionary savings and a low propensity to incur new debt.*

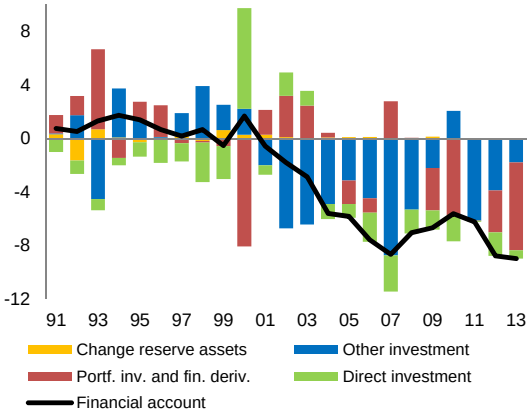
This section analyses whether and why German banks have intermediated significant part of domestic savings to foreign rather than to domestic investments and to what extent shortcomings in financial intermediation or in the role that financial institutions have played lie behind Germany's remarkable net lending to the rest of the World. After a description of international financial flows, the possible reasons for the rising share of foreign claims in banks' portfolios before the financial crisis and the withdrawal thereafter are reviewed. The former may potentially signal a macroeconomic imbalance in form of excess risk taking in important parts of the German banking sector whereas the latter could be the consequence of the protracted adjustment required to resolve banks' viability. Of particular interest is whether, in the pre-crisis period and more recently, banks' perception of more profitable investments abroad induced a crowding out of investments in Germany or whether it reveals a lack of investment opportunities in Germany. While the combination of excess liquidity in banks, low lending rates and surveys not-indicating credit constraints makes it difficult to attribute the recent weakness in credit growth to bank supply factors, it is remarkable that

bank credit declined over the last decade from 107% of GDP in 2002 to just above 90% in 2013, whereas it increased in almost all other EU Member States.

## 4.1. ANATOMY OF GERMANY'S CROSS-BORDER FINANCIAL FLOWS

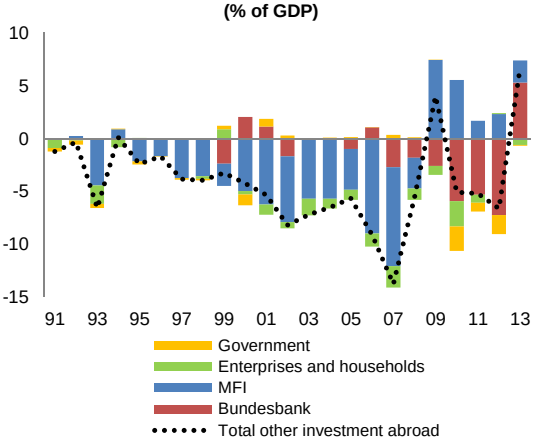
**The financial account shows high capital exports via inter-bank and loans in the pre-crisis period and a comeback of portfolio investments and financial derivatives in recent years**. During 2002-2007, the strong increase in other investment strikes the eye (see Graph 4.1). ([105]) This investment type dominates in the structure of Germany's capital export and mainly consists of cross-border loans between banking institutions. Financial corporations were the driving force behind both the accumulation of foreign assets and the reduction of German other investment liabilities, e.g. trade credits and bank deposits. This pattern should be understood in the context of German investments into US financial assets and into a strong exposure towards certain euro area countries (see European Commission 2012). The willingness of banks (MFI in Graph 4.2) to provide capital reversed abruptly in the wake of the financial crises. The period 2008-2013 is marked by a comeback of net capital exports via portfolio investments and financial derivatives, which had not contributed to building up of the current account surplus until 2007. The aftermath of the crisis was also marked by the increasing replacement of German banks' other investment by the TARGET2 claims of the Bundesbank. This was accompanied by claims of the general government resulting from EFSF loans as well as the funding of the European Stability Mechanism (ESM).

*Graph 4.1:* **Balance on financial account and components (% of GDP)**




*Source:* Bundesbank

*Graph 4.2:* **German other investment abroad by sectors (% of GDP)**



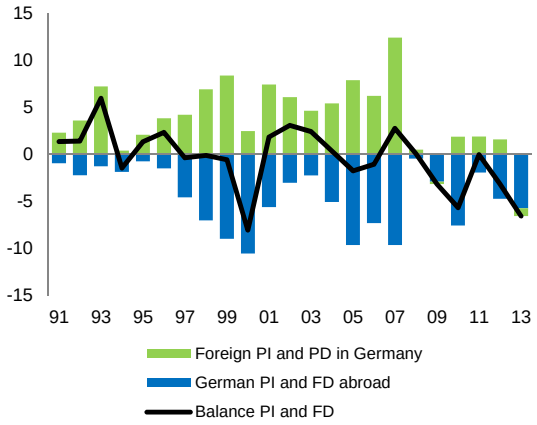

*Source:* Bundesbank

**Net FDI abroad has played a limited role in Germany's capital exports but has been somewhat more pronounced in recent years.** Net capital export via foreign direct investment (FDI) was as a whole uneven and moderate during the 2000s compared to the total financial account. ([106]) German FDI abroad was, however, comparatively stronger in the second half of the 2000s and driven in particular by equity capital acquisitions and re-invested earnings abroad. At the same time, foreign direct investment in Germany has been receding, with both equity capital investments and reinvested earnings having weakened after the crisis.

([105]) The financial account balance stood at 9.0% of GDP in 2013. This is somewhat higher than the current account balance due to a noticeable amount of statistical errors and omissions by 1.6% of GDP.

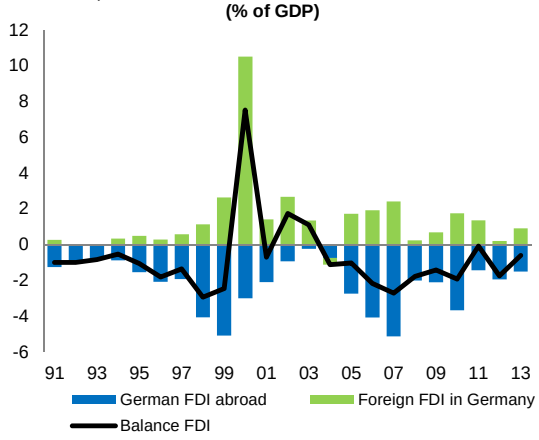
([106]) In 2000 an exceptionally huge acquisition of a German firm by a foreign investor took place. Taking this inward FDI into account, the balance of German FDI between 2000 and 2010 was only -0.2% per year on average.

*Graph 4.3:* **Inward and outward portfolio investment and financial derivatives (% of GDP)**



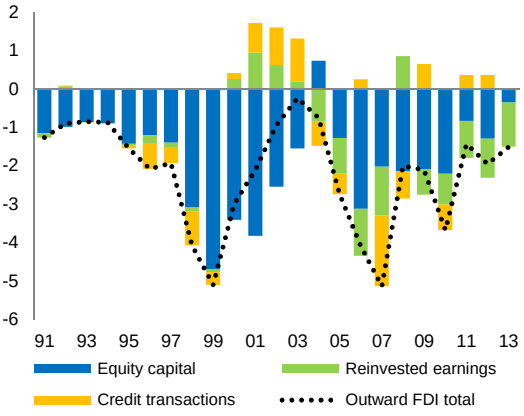

*Source:* Bundesbank

*Graph 4.4:* **Inward and outward direct investment (% of GDP)**



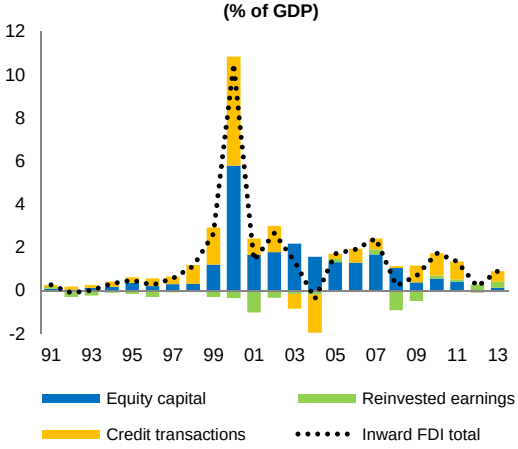

*Source:* Bundesbank

*Graph 4.5:* **Outward direct investment and components (% of GDP)**




*Source:* Bundesbank

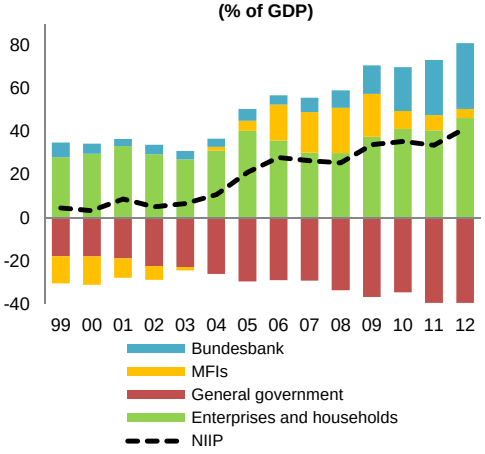
*Graph 4.6:* **Inward direct investment and components (% of GDP)**




*Source:* Bundesbank

**Germany's net international investment position (NIIP) has increased more than 10-fold in a bit more than a decade.** At the end of the year 2000, it stood at 3% of GDP. Mirroring the surpluses of the current account, a strong increase in the stock of German foreign claims followed and the NIIP reached 42% of GDP in 2012. If valuation losses had not occurred, the NIIP would have been roughly half time higher (see Box 4.1).

*Graph 4.7:* **Germany's NIIP by sectors (% of GDP)**

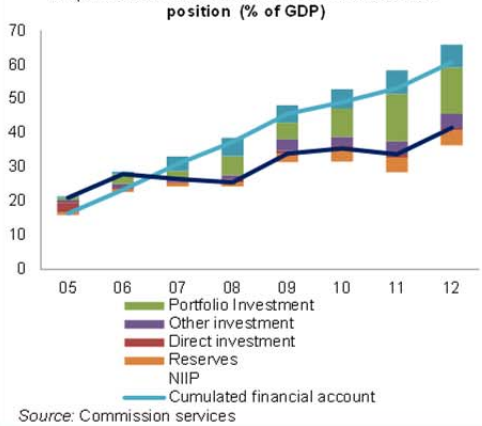



*Source:* Bundesbank

### *Box 4.1:* The impact of valuation changes on the NIIP

The difference between the cumulated financial account and the NIIP position represents the valuation losses incurred by Germany, decomposed by instrument. All instruments have experienced losses in the period shown with the exception of reserves (Graph 1).

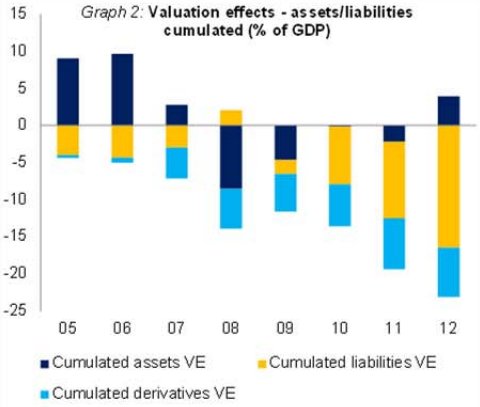
Graph 1: **Cumulated financial account and the NIIP position (% of GDP)**




*Source:* Commission services

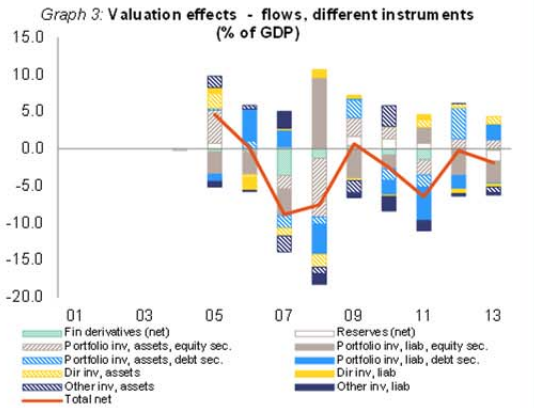
Graph 2 shows the exact same cumulated losses but this time decomposed in assets and liabilities (as well as derivatives). Positive (negative) numbers represent gains (losses) for Germany. Graph 3 shows the flows (non-cumulated) numbers for recent years.

*Graph 2:* **Valuation effects - assets/liabilities cumulated (% of GDP)**




*Source:* Commission services

*Graph 3:* **Valuation effects - flows, different instruments (% of GDP)**




*Source:* Commission services

At the start of the crisis in 2007, Germany saw big losses in its assets and financial derivatives position due to the collapse of the credit derivative market. In the year after that, big losses occurred in all asset positions, particularly markedly in equity. After that however, the valuation losses accrued (2010 and 2011) are due mainly to the increase in the debt liabilities and to a lesser extent to sustained losses on assets and financial derivatives. For the most part this reflects an increase in demand for debt issued in Germany (flight-to-safety) and is a mirror image of the declining interest rate on German bonds. The changes to the market value of the German net international investment position in 2010-11 are therefore very different to the earlier losses and account in cumulated terms for most of the losses (Graph 2). The contribution of losses on derivatives has also been important since 2008 and is also most likely irrecoverable. By contrast as German bond interest rate has somewhat picked up in 2013, the cumulative contribution of liabilities in the valuation effects will also decrease.

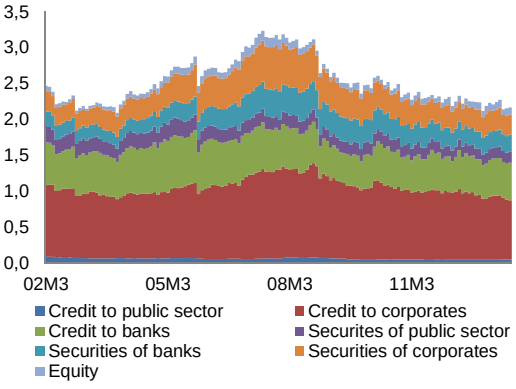
**Since mid-2012, a partial repair of the financial fragmentation that was triggered by the crisis is taking place.** Before the crisis, the banking sector strengthened its net lending position vis-à-vis the rest of the world, switching from a net debtor to a net creditor position. However, since the outbreak of the crisis around half of the net position that banks had been built up from 1999 has been eroded (see Graph 4.7). Net payment inflows through TARGET2 were to a large extent driven by "flight-to-safety" as non-residents increased their holdings of German government securities while the domestic financial sector reduced its exposure to other parts of the euro area. ([107]) The NIIP of the Bundesbank peaked in mid-2012 and has contracted considerably since. The NIIP of the general government sector also improved in recent quarters, suggesting that "flight-to-safety" flows have reversed again. The decomposition of the NIIP also shows a pronounced increase in gross foreign asset holdings of the household and enterprise sector since 2007, pointing to Germany's non-bank sector having today a strong net lending position, which leads it to build up substantial foreign assets. ([108])

## 4.2. THE INTERMEDIATING ROLE OF THE GERMAN BANKING SECTOR

**The banking sector has a large role in Germany as the inter-sectoral allocation of savings and provision of external funding occurs predominantly through banks. In addition, the sectoral breakdown of net international financial flows demonstrates that banks are important actors on the financing side of the current account**. Especially in the years 2001-2007 when the German current account surplus built up, lending by German banks to foreign borrowers accounted for the overriding share of net capital outflows. Other private actors than banks, i.e. corporations, private persons and other financial intermediaries, were also net exporters of capital in almost all years (Graph 4.2), but their share was until 2008 dwarfed by the capital outflows by banks.

**Bank credit had a leading role for financing foreigners' current account transactions with Germany in the pre-crisis period.** If the banking sector's capital net outflows are further broken down into investment category, it appears that "other investments" constitute the dominant part (Graph 4.9). That is, very little foreign investment by banks occurred through FDI or the acquisition of foreign securities. A similar picture emerges from the decomposition of financial outflows by financial instrument. On average over 1999-2006, banks provided credit to foreign borrowers amounting to 5% of GDP, peaking in 2006 and 2007 at 9% of GDP. Remarkably, on average about two third of this bank credit was short-term, suggesting an important role for money market transactions in the external funding.

*Graph 4.8:* **Foreign claims of consolidated German banks in trillion EUR**

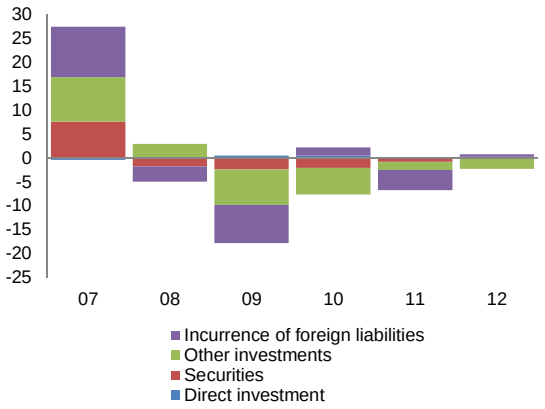



*Source:* Bundesbank

([107]) After having increased from less than EUR 130bn in early 1999 to above EUR 580bn by late 2008, claims of banks located in Germany on entities located in peripheral euro-area member states (EL, IE, IT, ES, PT, CY, SL) started declining rapidly, falling to below EUR 270bn by end-2012. They then remained broadly stable at around EUR 270bn throughout 2013.

([108]) In this investor group, institutional investors such as insurance companies and other financial intermediaries bear much more weight than non-financial corporations or households. The Balance of Payments statistics follows a different breakdown than the national accounts, distinguishing between monetary financial institutions (MFI = banks), government and other, with the latter sometimes labelled as corporations and private persons. The national accounts decompose into non-financial corporations, financial corporations (MFI and non-MFIs), government and households.

*Graph 4.9:* **Net acquisition of foreign assets by German banks, in % of GDP (net outflow: +)**




*Source:* Bundesbank

**In the period when the German current account surplus became persistent, German banks retreated from their international engagements.** In all years since 2008, German banks sold more foreign assets than they acquired and their foreign claims declined from a peak level of more than 3 trillion EUR in 2007 to about 2 trillion EUR in 2013 (Graph 4.8). Though the structural change is largely attributed to the financial crisis, it is notable that the peak in foreign claims was in spring 2008, i.e. half a year before the Lehman failure. ([109]) The ensuing financial disinvestment of German banks was spread over all asset classes, larger for credit positions than for securities and larger for claims against corporates and foreign banks than against the public sector (Graph 4.8). Credits to foreigners, being a key component of the other investments category, turned around markedly in the short-term market segment: They changed from an average capital outflow of 3.7% of GDP 1999-2007 to an average inflow of 2.6% of GDP 2008-2012. Long-term bank credit outflows declined more moderately from 2.2% to 0.1% over the same periods.

**However, this structural break does not amount to a fundamental reduction of the role of German banking in channelling domestic savings abroad**. The impact of banking crisis found reflection in the funding of current account imbalances. Over the last years, the role of the Bundesbank in intermediating net financial flows has increased considerably (see Graph 4.2). This does not imply significant changes in its official reserves, but is linked to the design of the TARGET2 payment system. ([110]) Freezing of euro area money markets at the outset of the global financial crisis led to an increased reliance on the Eurosystem refinancing operations which increasingly replaced market funding, in particular in banking systems of the most stressed euro-area countries. Via TARGET2 system, liquidity created in other parts of the euro area was up to mid-2012 to a large extent transferred to Germany in flight-to-safety flows implying higher TARGET2 claims of the Bundesbank (for more details on the TARGET2 system, see Box 4.2)

## 4.3. THE PRE-CRISIS PERIOD: PUSH AND PULL FACTORS

**The environment German banks faced in the pre-crisis period may have induced them to increase international exposure and accept higher risk.** The literature describes a number of forces at work when the German current account accumulated: the introduction of the euro, low funding costs and changes to banks' capital regulation. ([111]) The euro introduction is relevant because banks entered EMU with a strong home bias and the elimination of currency risk reduced risk premia on investments in other euro area Member States. Both banks and private non-bank debtors benefitted from lower risk premia, especially in countries that experienced rising asset prices and strong economic growth. German banks' foreign claims indeed increased over-proportionally, though from low shares in the pre-crisis period against some euro area countries that turned up as vulnerable later on, suggesting that German banks had helped finance the real estate booms and current account deficits in these countries. ([112]) A second set of reasons builds on global factors such as accommodative monetary environment, technological progress fostering

([109]) The market exit of US investment bank Bear-Stearns in March 2008 was a particularly relevant event in the financial crisis chronology.

([110]) See also Deutsche Bundesbank (2012b), Cecchetti, et al. (2012), and the literature quoted therein.

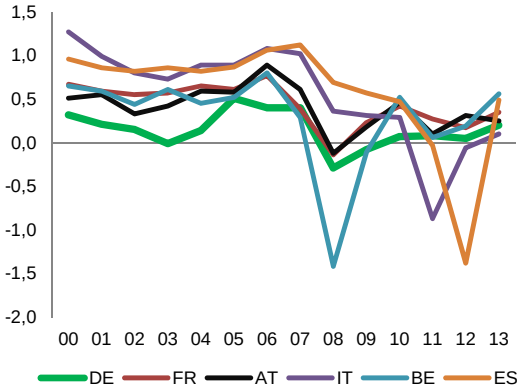
([111]) Part of the economic literature has labelled banks' decisions to search for investment opportunities abroad rather than on domestic markets as banking glut. See for example, Bernanke et al. (2011), Shin (2011), Bruno and Shin (2012), Noeth and Sengupta (2012).

([112]) For more detailed analysis on the German financial position against vulnerable Member States, see Bibow (2013).

lower information and communication costs and financial innovation. ([113]) The diffusion of information and communication technologies may have accelerated the integration of international trade and international finance alike. In this context, financial innovation in the form of structured securities allowed higher yields than conventional securities of equal ratings. In the search for yield, European banks, including German ones, have been important users of the new security class. A third point put forward in the literature related to the implementation of Basel II capital rules in the EU, which set incentives to circumvent the rules by establishing off-balance sheet structured investment vehicles. ([114])

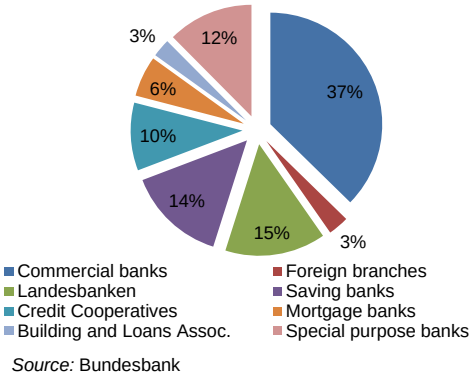
**German-specific factors that may have incentivised banks to search for business abroad were the low profitability of its banking sector and the re-orientation of business models by *Landesbanken*.** Taking standard measures of banks' profitability such as return on assets or return on equity, German banks turn out to be less profitable than their peers in other Member States (Graph 4.10). Differences in profitability are also pronounced across the different segments of the German banking market, which is traditionally structured across three pillars: private commercial banks, Sparkassen and *Landesbanken*, and credit cooperatives and their central institutions. To what extent the reason for the low profitability is due to the large number of banks and competition among them has been subject of debate. ([115]) Second pillar, savings banks, with roughly more than 1/3 market share in deposits, and the third pillar, the cooperative sector, with roughly 1/6 of deposits, are usually considered as less profit-oriented, for following also public interest objectives and solidarity among its members. Banks in these two pillars are numerous and most of them small and well-anchored in local retail business (Graph 4.11). They are intertwined with centralised institutions inter alia through ownership linkages, with the latter competing with private commercial banks. Despite the relatively low profitability and the relatively low number of assets per branch, the German banking sector's downsizing in terms of number of employees and branches was less strong than the euro area average between 2008 and 2012.

*Graph 4.10:* **Banks return on assets (in %)**




*Source:* OECD (2000-2007), ECB (2008-2012)

*Graph 4.11:* **Share in total assets and number of institutes across banking categories**




*Source:* Bundesbank

**Low profitability on domestic markets creates incentives to invest abroad as returns might be higher, especially considering that the German growth performance in the early 2000s was one of the weakest in the EU.** Thus, participating in higher growth elsewhere looked like a rational choice for banks, especially as they had to compete on increasingly integrated funding and ownership markets with peers domiciled in more prosperous domestic markets. This may have fostered the international orientation of German banks'

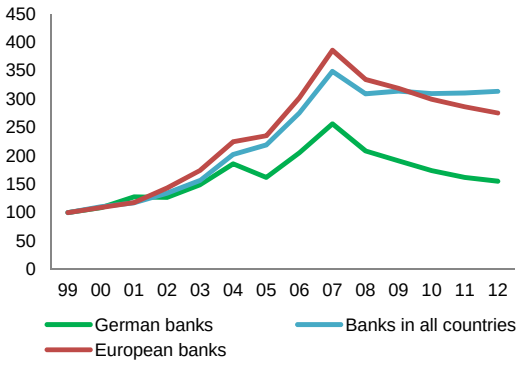
([113]) In this context, Bruno and Shin (2012) note that cross-border lending booms have taken place in very different countries, which suggests that EMU may not be the main determinant.

([114]) See Bernanke et al. (2011), Shin (2011), and the literature quoted therein.

([115]) See International Monetary Fund (2003), Sachverständigenrat (2008), Gilquin (2013).

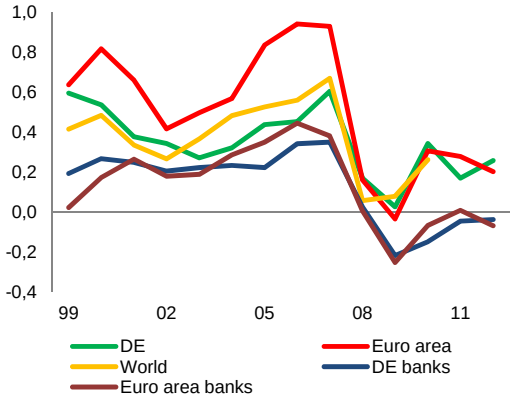
business models, especially after the launch of EMU. The long phasing-out period of government guarantees for *Landesbanken* may also have triggered foreign investment. Since refinancing costs would increase once the state guarantees were phased out in 2005, *Landesbanken* increased their capital market refinancing and accumulated excess liquidity for lending to foreign banks or buying foreign securities. ([116])

*Graph 4.12:* **Foreign claims of banks (1999=100)**




*Source:* BIS, Com. serv. calculations
*Note:* immediate risk basis

*Graph 4.13:* **Ratio of foreign investment to exports (annual flows)**




*Source*: Eurostat

**The pace of global economic and financial integration may have decisively pulled the increase of German banks' foreign activity as much as the low profit prospects on domestic markets had pushed them.** The pre-crisis expansion of German banks foreign claims does not look excessive when judged against the integration of global banking markets. Comparing German banks' foreign claims to those of all banks reporting to BIS shows that both grew broadly in tandem between 1999 and 2004 (see Graph 4.12). ([117]) Foreign claims of European banks outpaced those of German banks from 2002 onwards, reaching a peak of 4 times the 1999 level in 2007, compared to 2.5 for Germany. ([118]) Also when compared to the pace of trade integration over this period, the increase in German banks' foreign exposure does not look excessively strong. Between 1999 and 2007, Germany invested less per unit earned through trade than the euro area. Also German banks' foreign investment to export ratio was lower or comparable to its euro area counterpart (see Graph 4.13).

**Returns from German investment abroad seemed to have slightly over-performed that of the euro area at large, the flip-side being higher risk-taking by German banks.** When calculating the ratio between investment income as recorded in the capital accounts and the stock of the financial assets registered in the net international investment position the previous year, it turns out that over most years, German returns on foreign investments were at about 3% and therewith a few basis points higher than that of the euro area (Graph 4.14). The result from the total economy's positions is consistent with higher returns from the "other investment" account, which largely covers banks' activity and can serve as a proxy for banks' foreign profitability in the absence of headline data on banks' profits from foreign versus domestic operations. The yield was also higher than banks' return on total assets, i.e. from domestic and foreign sources, also if this established indicator of banks' profitability is corrected for the impact of provisioning (Graph 4.15). The high valuation losses in the German international investment position referred to in Box 4.1 motivates the perspective of higher returns as a sign of risk-taking. The enormous losses resulting from credit exposures to US markets and from avalanching refinancing costs on wholesale funding markets

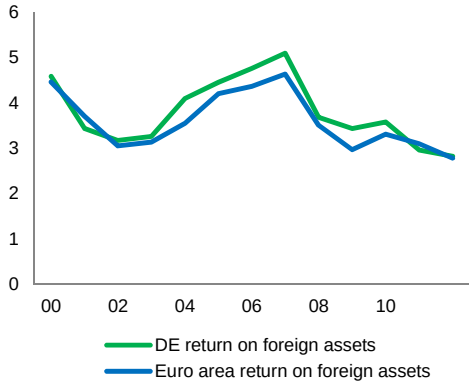
([116]) Hüfner (2010).

([117]) A statistical break in 2005 impedes the comparison. It is due to a large German bank being acquired by an Italian bank and German banks reorganising their CEEC claims. Between 2005 and 2007 the pace of German banks' foreign activity appears marginally lower than for all reporting banks.

([118]) The BIS definition of Europe is more encompassing than the EU. Most importantly it includes Swiss banks.

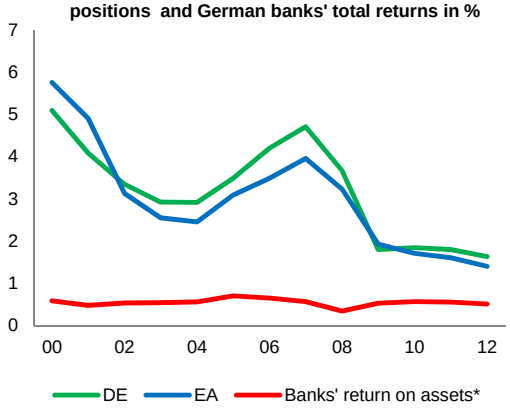
revealed that banks have underestimated the risks they took, likely due to strong reliance on credit ratings. The contrast between low rates charged on interbank loans and bonds issued by banks before the crisis and the drying out of liquidity on interbank markets and high yields on some banks' debt securities during the crisis suggest that investors considerably re-assessed their risks.

*Graph 4.14:* **Total foreign investment returns: investment income from capital account to previous year's asset investment position**




*Source:* Eurostat

*Graph 4.15:* **Return from foreign other investment positions and German banks' total returns in %**




* excluding provisioning
*Source:* Bundesbank, ECB,Com. serv. calculations

**The financial crisis eventually disclosed the imbalance in form of excess risk-taking that German banks had accumulated in their foreign investment positions. ([119])** German banks were among the hardest hit during the Lehman crisis. Profitability of the aggregate banking sector measured as return on assets was negative in 2008 and 2009 (see Graph 4.10), largely driven by losses that accrued in the commercial banks, *Landesbanken* and mortgage banks. Even as early as summer 2007, IKB Deutsche Industriebank, a mid-sized bank in Germany, requested public support to overcome losses related to its exposure to US home markets. Eleven other banks followed suit, revealing the heavy maturity transformation these conduits were run with and the strong reliance on credit ratings in investment decisions. In order to stabilise the banking system, Germany provided almost 2.5% of GDP to recapitalise banks, established a bad bank scheme that covered 2% of GDP and provided state guarantees to banks amounting to more than 7% of GDP.

## 4.4. SINCE THE FINANCIAL CRISIS: DELEVERAGING PRESSURE LED TO A RETREAT FROM FOREIGN INVESTMENT

**German banks radically shifted their international position with the financial crisis and the reduction in foreign positions suggests that deleveraging pressure may have played a major role.** To some extent, the withdrawal from foreign activity can be seen motivated by impaired foreign markets, higher risks and weaker expected profitability, which is most evident with respect to the growth outlook in vulnerable Member States. Although banks' sudden withdrawal from cross-border interbank lending from 2008 onwards was not limited to German banks, the magnitude of the decline in foreign exposure is somewhat puzzling. It is among the weakest of all countries reporting to the BIS statistics. ([120])The absence of any cross-country correlation between the magnitude of the pre-crisis accumulation and correction in the aftermath of the financial crisis suggests that the correction of prior excess exposures is unlikely to be the sole explanation for the magnitude of the retreat from international lending.

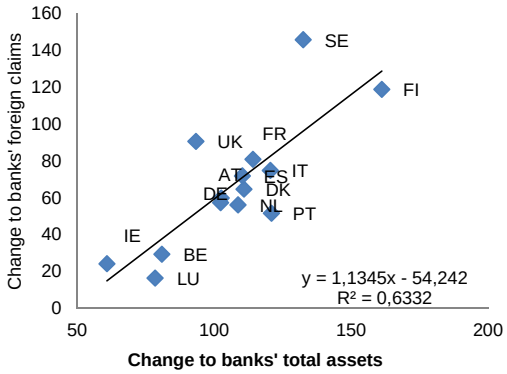
([119]) see European Commission (2009a) for an early analysis of the causes and consequences of the financial crisis, and European Commission (2009b) on how the crisis would impact on banking.

([120]) The decline in foreign exposure was much less pronounced for US, UK, French, Spanish and Italian banks. Other countries that recorded a comparable decline were Austria, Netherlands and Switzerland.

At the same time, there was a significant correlation between balance sheet shrinkage and overall international exposure, which supports the micro evidence that banks' deleveraging occurred initially via trimming down external positions (Graph 4.16). ([121]) German big banks and *Landesbanken* reduced their cross-border lending to non-German banks considerably in 2009; *Landesbanken* and mortgage banks contributed most to the decline in 2010/11 (Graph 4.17). The continuous shrinkage of total assets in these three banking categories throughout 2013 suggests that adjustment to structural imbalances in the financial sector is still ongoing.

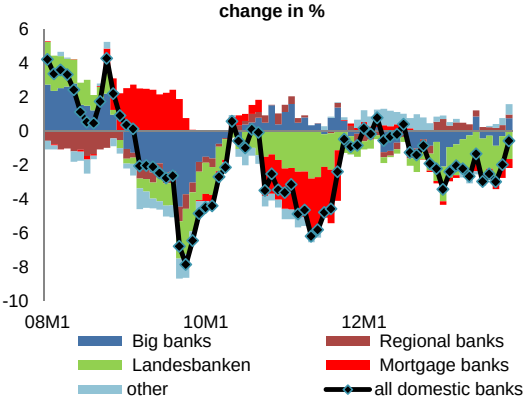
**Public policy or the anticipation of public policy may have impacted on German banks' withdrawal from international credit.** The observation that those countries that witnessed a comparable decline, namely Belgium, Netherlands, Switzerland and Austria were strongly hit by the financial crisis and implemented substantial public support packages gives some support to the notion that the design of public support measures may have had an impact too. ([122]) The literature emphasised a number of factors that have been at play. ([123]) For example, the significant write downs on international positions during the subprime and Lehman crises had led to a bias against activity on foreign markets among risk controllers. The justification for public support to banks, which were set up at national level, to support the domestic economy may have reinforced home bias. Moreover, banks received state aid under restructuring obligations, which often covered the requirement to off-load non-core activities. Selling parts of international business appeared for some banks a suitable approach to fulfil restructuring obligations. The restructuring of *Landesbanken* and the transfer of assets to the German bad bank scheme may have had a direct effect on the concerned banks' cross-border lending. ([124]) Stigma effects may also have played a role, especially when banks' exposures to vulnerable Member States' sovereigns and banks located in these countries were assessed as non-warranted. In stress tests, banks had an incentive not to reveal strong exposure to weak sovereigns, weak economies and banks located therein. Anticipation of investors' and possibly also of supervisors' preferences for low foreign exposure is likely to have contributed to the turnaround in banks foreign business strategies.

*Graph 4.16:* **Banks deleveraging and reduction in foreign claims, peak 2008Q1 (=100) to 2013Q2**




*Source:* BIS, ECB

*Graph 4.17:* **German banks 'supply of credit to non-German banks, contribution to annual change in %**




Source: Bundesbank

([121]) The empirical analysis of Düwel et al. (2011) finds that cross-border lending during the financial crisis declined with rising banks' risk aversion and a identify a threshold of banks' capital ratio above which an increase in risk aversion does not further reduce cross-border lending.

([122]) Note, however, that the time series used were not corrected for structural breaks in the bank population.

([123]) See CEPS (2010), Dewatripoint et al. (2010), Shoenmaker (2013).

([124]) For example, mortgage banks in October 2010 more than halved their lending to non-German banks while holding their lending to German counterparts constant. At the same time, a bad bank for Hypo Real Estate (HRE) was established.

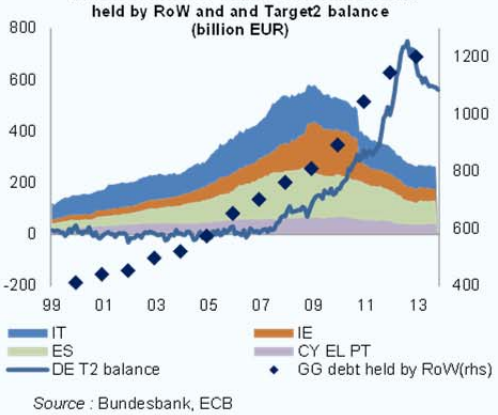
### *Box 4.2:* The role of the Target2 balances

One of the basic tasks carried out by the European System of Central Banks (ESCB) is "to promote the smooth operation of payment systems." ([1]) To this end, the Trans-European Automated Real-time Gross settlement Express Transfer system (TARGET) for the settlement of large-value payments in euro became operational on 4 January 1999, just after the introduction of the euro. Between November 2007 and May 2008, the second generation of the system (TARGET2) was progressively introduced. TARGET2 offered new liquidity management features, making it possible for multinational banks to further consolidate their internal processes by grouping their accounts and thus pooling the available intraday liquidity for the whole banking group.

Apart from the settlement of Eurosystem central bank operations, the TARGET2 system enables commercial banks to settle payment transactions in central bank money by crediting/debiting their current accounts at the respective national central banks. At the same time, cross-border transfers of central bank deposits through the TARGET2 system also generate counter-balancing credit claims (intra-Eurosystem balances) between each national central bank and the ECB, which are automatically aggregated and netted out at the end of each day, and result in a single net bilateral position. If a national central bank is a net claimant from these transfers, the claim appears as an asset on the ECB on its own balance sheet under the entry "Intra-Eurosystem claims" and vice versa. Accumulated net claims or liabilities resulting from cross-border TARGET2 payments (TARGET2 balances) are included in the monetary authority's contribution to the international investment position of a given country, whereas their (transactional) changes are recorded in the balance of payments, in the category "other investments: loans/currency and deposits."

The TARGET2 balance of the Bundesbank remained broadly stable up to the eruption of the financial crisis in mid-2007, on average amounting to just about EUR 4.6bn between January 1999 and July 2007. Thereafter, as a result of increased liquidity provision by the Eurosystem and net TARGET2 payment inflows to Germany, it followed an upward trend, peaking at just above EUR 750bn in August 2012. In the most recent period, the TARGET2 balance of the Bundesbank has been declining, falling to EUR 510bn in December 2013, as a gradual stabilisation of the financial market situation in the euro area led to a reversal in liquidity flows.

*Graph 1 :* **Claims of German banks on vulnerable Member States. Government debt held by RoW and and Target2 balance (billion EUR)**




*Source* : Bundesbank, ECB

([1]) Article 127 of the Treaty on the Function of the European Union (TFEU).

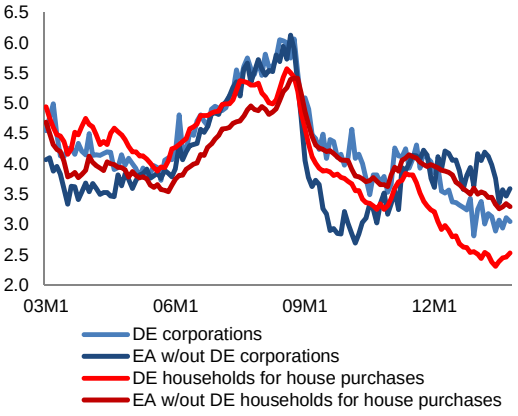
**The implications of the shift in the behaviour of German banks vis-à-vis their external exposure for policy as well as for the external surplus are debatable.** If the credit risks of the rapid pace of integration into global banking markets had been more correctly predicted, the losses that accrued with the banking crisis could have been avoided or at least been decisively smaller. A higher risk

premium charged on foreign credit may also have contributed to a less marked increase in the German external surplus. In this sense a misallocation of capital occurred and proper credit risk analysis of the funding provided to both financial and non-financial counterparts has come to the forefront as essential. Although banks' sudden withdrawal from cross-border interbank lending from 2008 onwards fostered banks' balance-sheet repair, it also deepened disintermediation and fragmentation on banking markets, obliging foreign banks to borrow from the ECB while the German banking sector accumulated a large liquidity buffer. ([125])

## 4.5. THE ROLE OF CREDIT DEMAND AND CREDIT SUPPLY IN GERMAN PRIVATE SECTOR DELEVERAGING

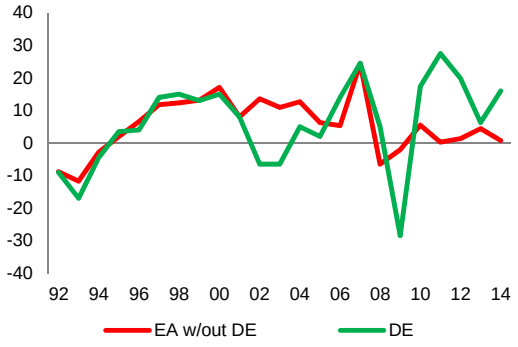
**The lower foreign lending by German banks in the last years has not led to a noticeable domestic credit expansion despite excess liquidity held by the banking sector at the Bundesbank at low returns.** Since banks play an important role in devising domestic savings between investment in Germany and financing the external surplus, analysis of bank lending developments in Germany appears an essential complement to the assessment of current account developments. Usually, one would expect high liquidity and low funding costs for banks to lead to a visible increase in lending to corporations and households. However**,** German banks' lending to the non-financial private sector grew only moderately over the last years, peaking at a mere 1.8% in July 2012 and then declined gradually, with hardly any growth in the second half of 2013. At the same time, headline data do not point to bank lending in Germany being particularly expensive or constrained through non-price factors. Interest rates on bank loans are among the lowest in the euro area (Graph 4.18) and surveys do not indicate Germans viewing themselves as exposed to credit constrains. The EC's investment survey in manufacturing (Graph 4.19), the ECB's bank lending survey (BLS) and the EC/ECBs Survey on Access of Finance of SMEs (SAFE) show that German respondents see financial factors as far more supportive than the euro area average. Recent vintages of surveys conducted by IFO and KfW among German firms reveal the most favourable assessment of access to credit since insertion of the surveys. Yet, lending volumes have remained broadly stable in nominal terms, falling to non-financial corporations and marginally expanding to households. The private loan-to-GDP ratio dropped by about 10 percentage points between 2008 and 2013, which is one of the highest declines among those Member States that did not encounter stress on sovereign debt markets.

*Graph 4.18:* **Interest rates on loans (1 to 5 years maturity)**




*Source:* Commission services

*Graph 4.19:* **EC investment survey: Financial factors supportive to investment in manufacturing, Balance of replies**



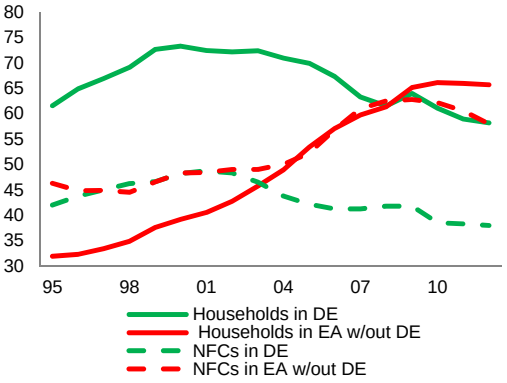

*Note:* Tighter conditions are visible in a lower index
*Source:* Commission services

**For the pre-crisis years, there is some evidence that weak bank lending went hand in hand with sluggish economic growth and deleveraging in the non-financial sector.** Interest rates on bank loans became among the lowest in the euro area

([125]) For an analysis of trends in financial integration in the EU, see European Commission (2013e) and earlier vintages of this series.

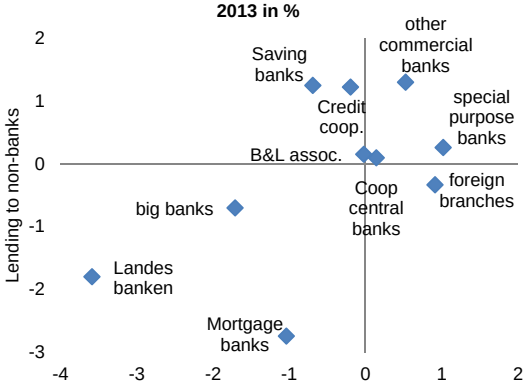
only over the last years. When harmonised interest rate statistics made cross-country comparison of retail rates first possible in 2003, German rates were slightly above the euro area average, which stands somewhat at odds with the low interest rates of German benchmark bonds. Replies to the EC's investment survey, the BLS and IFO reveal that the indication of fewer credit constraints in Germany than in the euro area is a rather recent phenomenon. The assessment of credit constraints was clearly more negative in the early 2000s. ([126]) Most research findings suggest that actual credit developments in Germany were in line with economic fundamentals. The relatively weak bank lending was instead related to weak investment in housing as a consequence of the post-unification construction boom, which had pushed lending to households to high levels (Graph 4.20). ([127]) A factor impacting especially on corporate investment and subsequently small demand for credit was the low equity base in large parts of the German corporate sector, which implied loans to corporates were perceived as risky. The introduction of risk-weights with the Basel II capital requirements enticed banks to review the riskiness of lending positions. ([128]) The rising attention to risk weights in conjunction with low equity positions and a subdued economic outlook seem to have initiated a deleveraging process in the German corporate sector. ([129]) The relatively high lending rates, the shift towards a corporate net saving position and the increase of the self-funding ratio may be indicative of this.

*Graph 4.20:* **Loans by households and non-financial corporations (NFCs) in % of GDP**




*Note:* net loan liabilities for NFCs, EA= BE, EL, ES, FR, IT, NL, AT, PT, FI
*Source:* Commission services

*Graph 4.21:* **Credit and assets across banking categories, contribution to total change 2011-2013 in %**




*Source:* Bundesbank

**Continuously weak credit growth may reflect a heritage of ongoing and past adjustments to financial sector imbalances.** The combination of excess liquidity in banks, low lending rates and surveys not-indicating credit constraints makes it difficult to attribute the recent weakness in credit growth to bank supply factors. Yet, it is striking that lending to non-banks declined strongest in those part of the banking system in which other assets also shrank, namely *Landesbanken*, mortgage banks and big banks (Graph 4.21). These were the banks most exposed to the imbalance in risk-taking that had been revealed by the financial crisis. Their opportunity to increase capital buffers through earnings depends on adjustments to their individual business models as well as on the pace of consolidation in the German banking sector. Thus, deleveraging pressure in the banking sector, especially in the part that received state aid, took

([126]) BLS and IFO start in 2003, SAFE in 2009. The EC investment survey asks about finance as a factor supporting investment in manufacturing since 1991.
([127]) The sectoral breakdown of the IFO indicator shows that the 75% of construction firms perceived credit as constrained in 2003-04.
([128]) Basel 2 led to the implementation of credit scoring techniques and other means to standardise credit risk for investments that were not rated by credit rating agencies.
([129]) See Sachverständigenrat (2008), Deutsche Bundesbank (2013f).

its toll on the supply of bank lending also in Germany.

**The most apparent possible reasons for the weak credit demand are crisis-related uncertainty and corporate sector deleveraging pressures in the past, which triggered precautionary savings and a low propensity to incur new debt.** Respondents to surveys may not consider themselves being credit constrained because demand for credit is low and supply constraints are therefore not binding. Flight to safety seems to have enticed wealthier households to substitute financial wealth through real estate, implying a smaller share of house purchases financed through bank lending. ([130]) Along comparable lines, the high self-funding ratio of German corporates may be the consequence of firms having faced financial constraints for implementing investment plans in the past and adjusted by boosting savings in order to reduce dependence on banks. As firms found that during the banking crisis high self-funding ratio paid off in making them resilient to financial turmoil, they may have become reluctant to take bank loans when at the same time banks are under deleveraging pressure.

([130]) See Deutsche Bundesbank (2013e).

# 5. GERMANY'S EXTERNAL POSITION AND TRADE PERFORMANCE

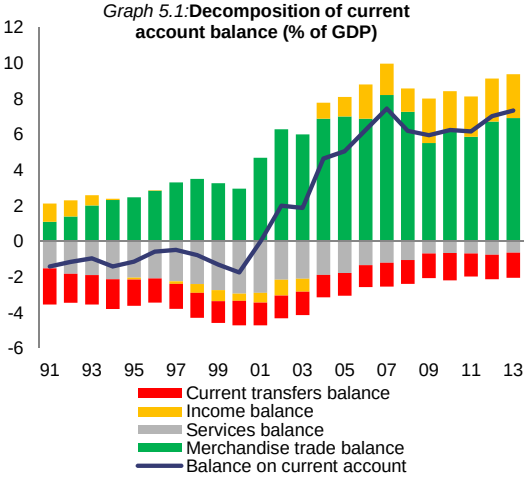
*Following a decade of deficits in the aftermath of reunification, Germany built up a large current account surplus in the period until 2007 which has remained by and large unchanged at a level of 6-7 % of GDP. The strengthening of Germany's external position was largely driven by the strong export performance, but also by relatively subdued import growth in some years as well as the improvement in the income and services balances. Germany is more open than other large economies, benefitted from a favourable geographical specialisation and was able to gain market shares from other advanced economies before the crisis, but has since then performed less strongly. Export growth vis-à-vis the euro area before the crisis was supported by favourable price competitiveness, while Germany has re-gained price competitiveness towards the rest of the world since the crisis, which has facilitated the redirection of exports. Non-price factors such as product quality along with a comparatively high degree of innovation capability and business sophistication are also playing an important role vis-á-vis all trading partners. German companies' high degree of integration in global value chains also sustains its trade performance. Since the start of the crisis the current account surplus with other European countries has fallen, while the surplus vis-à-vis the rest of the world is on a steep increase. The decreasing trade surplus vis-à-vis the vulnerable countries reflected initially a sharp demand contraction in those countries, but German imports have risen more strongly in recent years, thereby contributing to rebalancing in the euro area. The current account deficit with China has dropped sharply in the last years, and the surplus vis-à-vis other emerging markets and developing countries as well as vis-à-vis the USA are growing.*

High current account surpluses are often associated with strong export performance. A well-developed export capacity, based on the performance of globally competitive manufacturing industries or services, is highly desirable in view of the growing worldwide competition pressures. External demand and trade in goods, as well as the improvement in the income and services balances, are important elements for understanding Germany's external position. At the same time, while trade flows appear to explain a certain part of the strengthening of Germany's current account until the crisis (see Section 3.1), other elements appear to have been relatively more important, and in recent years trade flows would a priori have tended to reduce Germany's surplus. In this light, a further analysis of the anatomy of Germany's current account and export performance is warranted.

## 5.1. ANATOMY OF GERMANY'S CURRENT ACCOUNT

**Germany's persistently high current account surplus reflects not only developments in the balance of merchandise trade.** Following a decade of deficits in the aftermath of reunification, the current account balance rose sharply since 2000, reached a peak in 2007 (7.4 % of GDP), encountered a moderation to around 6% of GDP in the following years and has since returned close to its peak level (Graph 5.1). The large improvement in the current account by around 9 p.p. of GDP from 2000 to 2013 shifted Germany from a position of deficit country to currently featuring one of the largest current account surpluses of non-oil producing countries in the World. This development reflects in particular a noteworthy 5 p.p. of GDP increase in the trade surplus of goods up to 2007. In recent years, the gradual narrowing of the traditionally sizeable deficit in the services balance and the improvement in the income balance have become more important drivers of the current account (Graph 5.1).

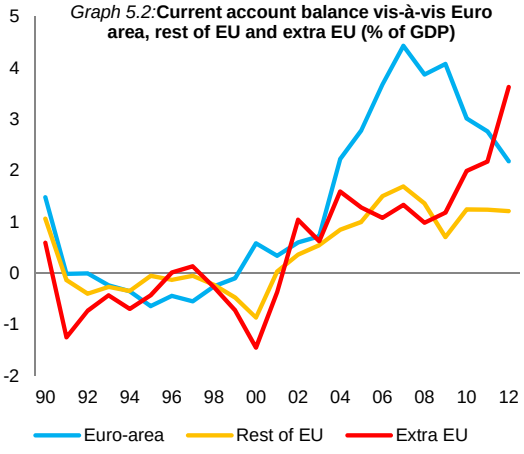
*Graph 5.1:* **Decomposition of current account balance (% of GDP)**




*Source:* Bundesbank, Eurostat, Com. serv. calculations

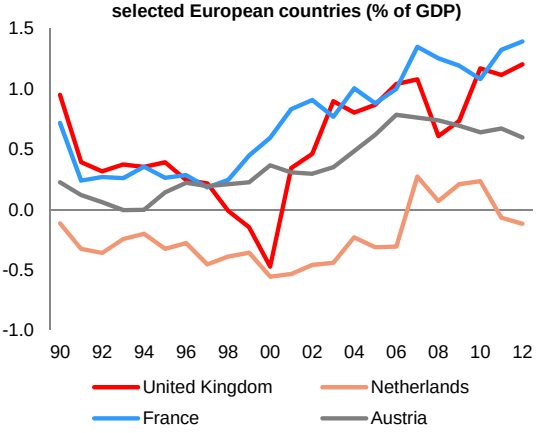
**While the surplus with other European countries has fallen since the crisis, that with the rest of the World is on a steep increase** (Graph 5.2). The surplus vis-à-vis the rest of the euro area increased significantly in the years preceding the crisis, explaining almost 60 % of the total current account surplus in 2007 (4.4 % of GDP). Since then, it has nearly halved in absolute terms and in 2012 represented less than one third of the total current account surplus (2.2 % of GDP). The development of the German current account vis-à-vis the euro area is largely explained by declining balances vis-à-vis Spain, Italy and the Netherlands, while the surplus vis-à-vis France continues to increase (Graphs 5.3 and 5.4). Germany's increasing trade deficit with the Netherlands, which to a large extent is due to an increasing deficit in oil products, has been partially offset by an improvement in the income balance, and the current account balance has turned again into deficit (Graph 5.5). The surplus vis-à-vis the rest of the European Union also reached a peak in 2007 and has generally also been receding in recent years, although it continues to rise vis-à-vis the UK. In contrast, the surplus vis-à-vis the rest of the World developed more moderately before the crisis, but has increased sharply in the last years, representing more than half of the total current account surplus in 2012 (3.6 % of GDP).

*Graph 5.2:* **Current account balance vis-à-vis Euro area, rest of EU and extra EU (% of GDP)**



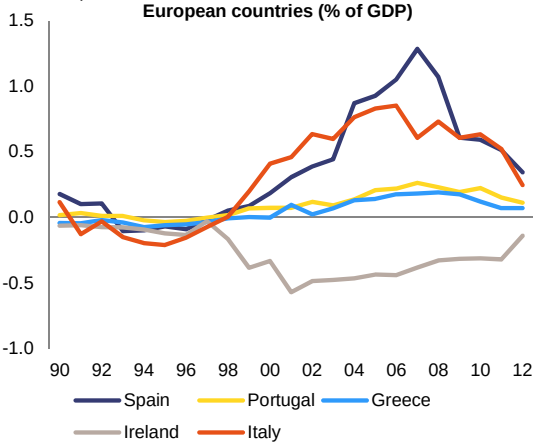

*Source:* Bundesbank, Eurostat, Com. serv. calculations

*Graph 5.3:* **Current account balance vis-à-vis selected European countries (% of GDP)**



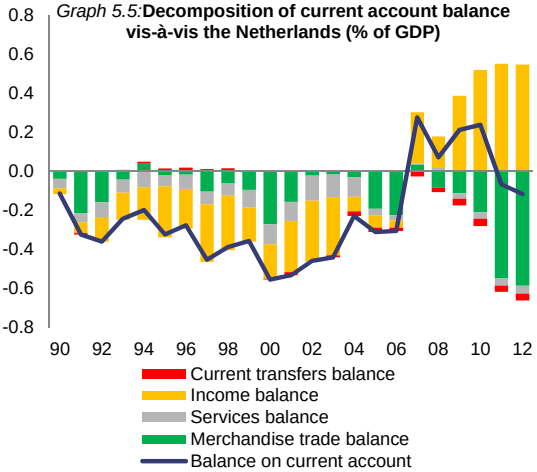

*Source:* Bundesbank, Eurostat, Com. serv. calculations

*Graph 5.4:* **Current account balance vis-à-vis selected European countries (% of GDP)**




*Source:* Bundesbank, Eurostat, Com. serv. calculations

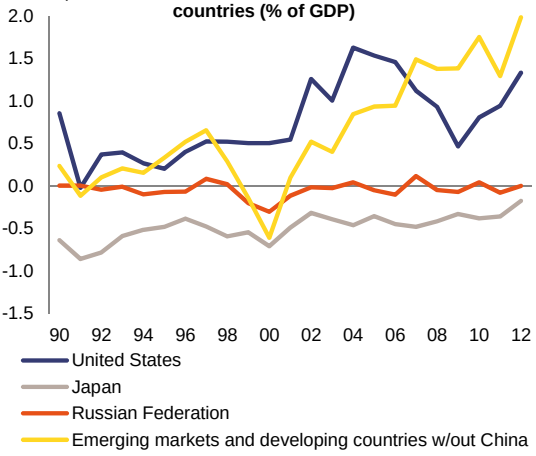
*Graph 5.5:* **Decomposition of current account balance vis-à-vis the Netherlands (% of GDP)**




*Source:* Bundesbank, Eurostat, Com. serv. calculations

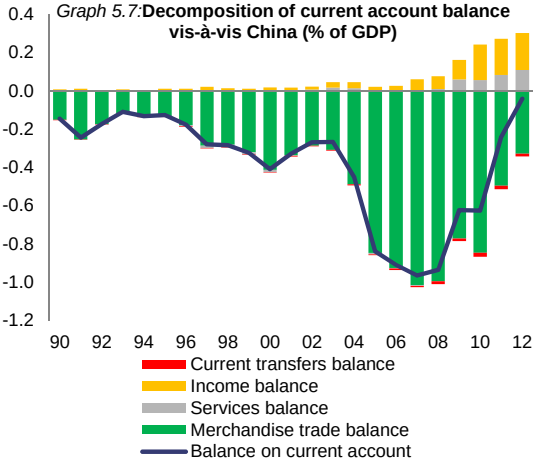
**Germany's rising surplus vis-à-vis the rest of the World in the last years mainly reflects a growing surplus with the US and emerging and developing countries, combined with a sharp drop in the deficit with China** (Graphs 5.6 and 5.7)**.** The increase in the current account balance vis-à-vis emerging markets and developing countries reflects at one and the same time higher merchandise trade surpluses, an increasing income balance and an improvement in the services balance. The current account vis-à-vis China was close to balance in 2012, mainly due to a sharply declining trade deficit but also to an increasing surplus in the income balance (Graph 5.7).

*Graph 5.6:* **Current account balance vis-à-vis selected countries (% of GDP)**




*Source:* Bundesbank, Eurostat, Com. serv. calculations

*Graph 5.7:* **Decomposition of current account balance vis-à-vis China (% of GDP)**

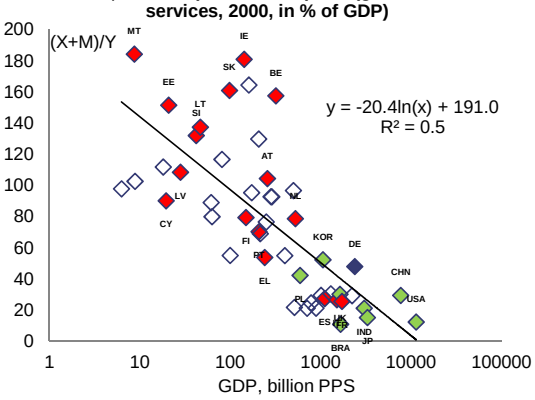



*Source:* Bundesbank, Eurostat, Com. serv. calculations

## 5.2. GERMANY'S EXPORT AND IMPORT PERFORMANCE

**Germany is more open than other large economies and was able to win market shares from other industrialised countries until the crisis, but has since then performed less strongly.** Germany is one of the most open economies world-wide in size adjusted terms (Graph 5.8) ([131]). Germany's export market shares in goods and services rose at the beginning of the last decade, notably vis-à-vis OECD countries (Graph 5.9). Market share losses in the last years are partly driven by relative price developments and reflect the increasing integration of emerging and developing economies in world trade. ([132])

*Graph 5.8:* **Exports and imports (goods and services, 2000, in % of GDP)**

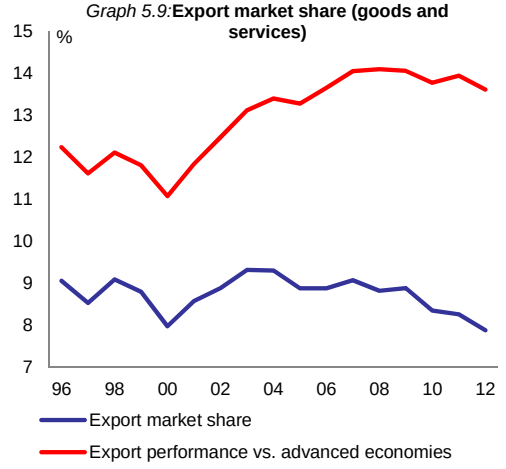



*Note:* Highlighted dots represent EA countries and selected large economies
*Source:* AMECO

([131]) Germany's trade-to-GDP ratio is significantly higher than that of other large economies and grew from 33.2 % in 2000 to 44.3 % in 2008 (see OECD, 2011b).

([132]) Germany's export market shares in goods, computed using the UN COMTRADE data, decreased by more than 2 p.p. in the period 2007-2012 (from 10.7 to 8.6 %).

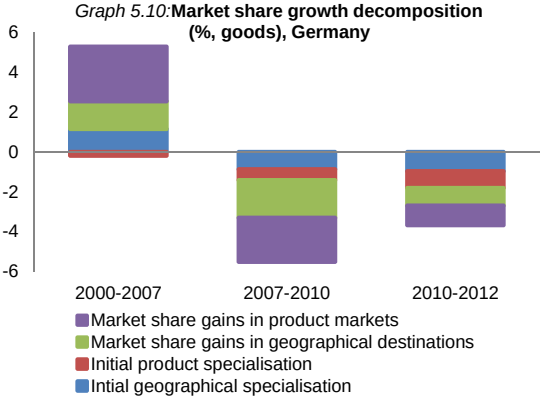
*Graph 5.9:* **Export market share (goods and services)**




*Source:* AMECO, Eurostat, Com. serv. calculations

**Germany has benefitted from a favourable geographical specialisation and competitiveness gains, but it has lost market shares in the last years, albeit less than other advanced economies.** A decomposition of merchandise exports growth rates into initial specialisation and competitiveness factors (*shift-share analysis*) ([133]) shows that Germany benefited from a favourable geographical composition, which however made a negative contribution to export growth during the crisis, reflecting the less dynamic growth of European destination markets (Graph 5.10). Germany was able to gain market shares in geographical and product destinations before the crisis, but its advantage in terms of geographical specialisation and competitiveness gains appears to have vanished since the crisis. Vehicles, machinery, chemicals and pharmaceuticals accounted for almost half of total German exports in 2012. Yet, although traditionally being considered as a driving force behind Germany's overall strong export performance, product specialisation has made a negative contribution to export growth according to this analysis, in particular in recent years. ([134]) Compared with other EU countries, competitiveness effects played a significant role in the case of Germany before the crisis, but Germany's performance deteriorated in the crisis-hit global environment (Graph 5.11).

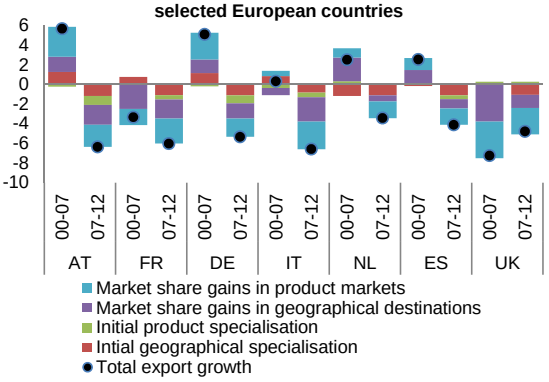
*Graph 5.10:* **Market share growth decomposition (%, goods), Germany**




*Source:* UN Comtrade (nominal USD), Com. serv. calculations

*Note:* Market share growth is proxied by the difference between the annual (arithmetic average) growth rates of German exports and the world exports.

*Graph 5.11:* **Market share decomposition (%, goods), selected European countries**




*Source:* UN Comtrade (nominal USD), Com. serv. calculations

*Note:* Market share growth is proxied by the difference between the annual (arithmetic average) growth rates of German exports and the world exports.

**Germany's trade performance benefits from strong trade links with neighbouring countries, but also with other major economic regions.** Bilateral trade flows with European peers shows strong spill-over effects from Germany's trade links with its closest neighbours, including via close ties with Central and Eastern European countries. As an example of Germany's ability to

([133]) The shift-share analysis decomposes total nominal export growth per country (net of the global import growth) into four components: (i) destination markets dynamism, (ii) product specialization dynamism, (iii) export growth to destination markets above their average growth, (iv) export growth in product markets above their average growth. The decomposition tells whether a country was initially specialised in geographical destinations and/or sectors with dynamic or sluggish demand (*initial specialisation*) as well as whether a country has increased or decreased its share in these geographical or product markets (*competitiveness*). See also European Commission (2012b).

([134]) This is mainly due to the low demand growth for vehicles and machinery in 2007-2010. Demand for vehicles, machinery and chemistry was high in 2010-2012, but still lower than the average product demand growth.

build trade linkages with all major economies, trade intensity with China increased rapidly in the last decade. In 2012, 5.7 % of German exports went to China compared to 1.6 % in 2000 and imports have been growing at rapid pace over the last decade (Table 5.1). German exports have benefitted strongly from increasing demand for machinery and equipment by China and the oil producing countries (Chen et al., 2013). This was generally not the case for euro area current account deficit countries, which contributed to the increasing external imbalances in the euro area. However, exports to China are expected to grow less strongly in the future, as Chinese demand gradually shifts from investment to consumption goods and German automobile manufacturers establish more production plants in China (Deutsche Bundesbank, 2013g).

**German companies are increasingly integrated in global value chains, including in Eastern Europe.** The German industry has increasingly specialised in the costumer-oriented final stages of production and shifted production to countries with lower labour costs, notably in Asia and Eastern Europe (see for example Sinn, 2003). The strong increase in German exports was therefore accompanied by a growing share of value added in exports produced in low-wage countries. ([135]) Companies may also have shifted production to get closer to the markets. A study on the German-Central European supply chain finds that Germany is less exposed to final demand in European countries than what would be expected from bilateral trade relations, due to its high degree of integration in global value chains (International Monetary Fund, 2013). Vertical specialisation leading to new trade patterns is particularly evident in the automobile industry.

**The increasing integration of German companies in global value chains is reflected in the increasing import content and the decreasing local content of German exports.** According to Commission services' estimates, in 2008 the share of intermediate imports in German exports was 29 %, similar to other large countries such as France, Italy or Spain. ([136]),([137]) The share of total imports in exports was around 40 % in 2008 (Federal Statistical Office). The domestic value added content in German exports decreased over time and at 73 % in 2009 was slightly lower than in other large countries (OECD/WTO, 2013).

**The traditionally negative trade balance in services narrowed significantly in the last decade.** This reflects a reduction in the deficit of travel and other services and a rising surplus in the balance of merchanting (transit trade) ([138]) (Graph 5.12). The reduction in the travel-related deficit in the last decade reflects lower expenditure in business travel abroad and a higher number of foreign tourists in Germany. Merchanting grew strongly in the last decade and has gradually become a more important driver of the current account balance, albeit the balance of merchanting decreased in 2013. ([139])

([135]) Timmer et al. (2013) argue that exports growth overestimates the related income growth of countries that rely heavily on imported intermediates, in particular for Germany and small open economies.

([136]) Commission services' estimates using WIOD Input-Output tables. The import content of exports refers to the intermediate inputs of foreign origin which are, both directly and indirectly, embedded in the goods and services exported by a country. Imports of final goods and services are not considered in this estimate. The import content in German exports declined in 2009, the last year considered, as in most Member States.

([137]) The OECD (2011b) estimates a share of imports in German exports of 27.2 % in 2005 from 20.4 % in 1995, using the OECD's harmonised Input-Output Database STAN. Stirböck (2006) also finds an increasing marginal import content of German exports, while the marginal propensity to import for domestic demand increased only slightly. She also finds that the marginal propensity to import is higher for imports from third countries than for imports from euro area countries.

([138]) Merchanting is the purchase of goods by a resident from a non-resident seller and the subsequent resale to another non-resident without the good entering or leaving the merchant's economy. The mark-up in value of the good acquired and sold is recorded as merchanting services. For an analysis on the impact of merchanting on the current account of small open economies, see E. Beusch et al. (2013).

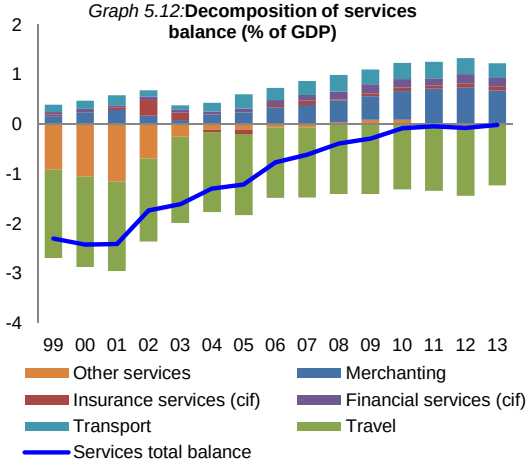
([139]) Because merchanting firms usually reinvest their earnings abroad, this practice tends to raise national savings in the home country without increasing domestic investment.

*Table 5.1:*
**Change in German exports and imports vis-à-vis selected countries (% change)**

| | German exports | | | German imports | | |
|---|---|---|---|---|---|---|
| | 2000-2007 | 2007-2009 | 2009-2012 | 2000-2007 | 2007-2009 | 2009-2012 |
| Euro area | 59.8 | -17.0 | 19.6 | 41.4 | -13.2 | 32.4 |
| United States | 22.0 | -25.8 | 69.3 | 5.4 | -14.5 | 35.1 |
| China | 223.0 | 24.7 | 79.4 | 208.0 | 1.9 | 35.8 |
| Emerging markets and developing countries w/out China | 100.6 | -12.6 | 50.4 | 52.8 | -13.5 | 50.6 |
| Japan | -0.1 | -16.4 | 59.4 | -6.7 | -22.4 | 18.4 |
| Russian Federation | 313.5 | -27.7 | 82.5 | 101.1 | -12.7 | 71.1 |
| Spain | 80.0 | -34.0 | -0.5 | 30.2 | -5.9 | 21.0 |
| Portugal | 35.6 | -25.2 | -1.1 | -26.0 | -12.5 | 37.8 |
| Greece | 71.7 | -16.3 | -29.1 | 30.4 | -15.8 | 3.4 |
| Italy | 45.0 | -20.2 | 8.6 | 26.6 | -14.7 | 28.2 |
| Ireland | 72.9 | -41.4 | 26.7 | 61.6 | -19.7 | -27.3 |
| Aggregate (ES, PT, EL, IT) | 57.1 | -25.4 | 2.4 | 22.9 | -12.1 | 25.8 |

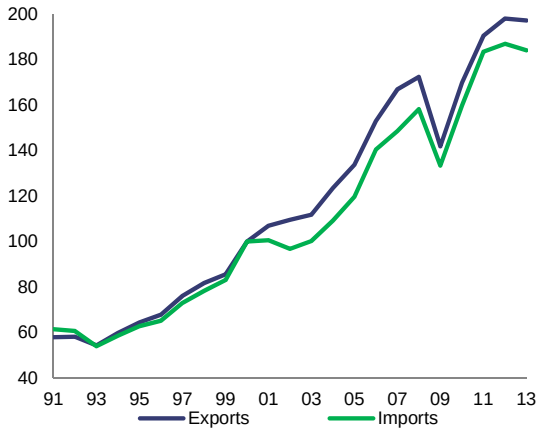
*Source:* Bundesbank, Commission services calculations

*Graph 5.12:* **Decomposition of services balance (% of GDP)**




*Source:* Bundesbank, Eurostat, Com. serv. calculations

*Graph 5.13:* **Exports, imports (2000=100, goods)**

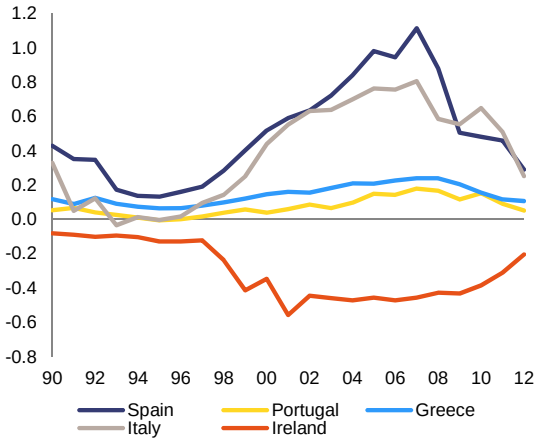



*Source:* Bundesbank, Eurostat, Com. serv. calculations

**Germany's exports did indeed grow rapidly, but relatively subdued import growth in some years also played a role for the surging trade surplus, including in recent years.** Exports and imports of goods rose at a similar pace during the 90s, while imports grew less strongly than exports at the beginning of the 2000s, a period of weak domestic demand, and to a lesser extent again in 2007, even recording negative growth rates in nominal terms in 2002 (Graph 5.13). In recent years, the pace of import growth has slowed, both in price adjusted and nominal terms. This also reflects the low gross fixed capital formation, which is particularly import heavy. Moreover, while exports to China have grown strongly in recent years, import growth from China is well below the pre-crisis rate, which has a large impact on the trade balance (Table 5.1).

**The decrease in the German trade surplus vis-à-vis the vulnerable countries reflected initially a sharp decrease in German exports, but more recently imports have been growing**. Following the pre-crisis boom, demand contraction in these countries reduced sharply their imports from Germany (Table 5.1 and Graph 5.14). German imports from these countries had grown less than exports also before the crisis. In recent years, imports have risen more strongly, thereby contributing to the rebalancing vis-à-vis the vulnerable countries. The trade balance vis-à-vis the euro area as a whole has followed a similar, but more attenuated path over time. In the last years, the rise in German imports contributes to the declining trade balance vis-à-vis the euro area.

*Graph 5.14:* **Trade balance (% of GDP, goods)**

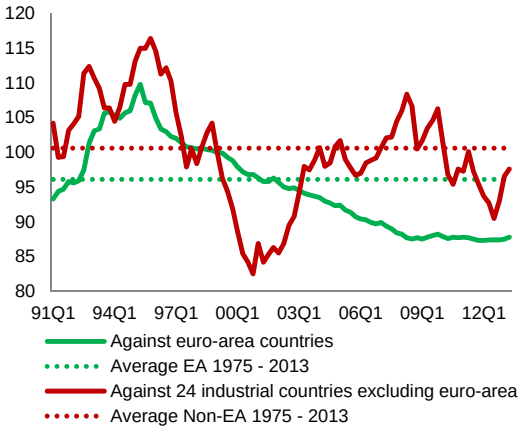



*Source:* Bundesbank, Eurostat, Com. serv. calculations

## 5.3. PRICE COMPETITIVENESS

**Germany's price competitiveness ([140]) stood at a favourable level throughout the 2000s.** According to the real effective exchange rate (REER) deflated by total sales in trading partner countries, Germany's price competitiveness stabilised in the 2000s at a level well below its long-run average. This underpinned German exports, ([141]) but price competitiveness trends also masked diverging developments. Against the euro-area countries, price competitiveness strongly improved and since the beginning of the 2000s has been steadily stronger than the long-term average. Within a currency union, good price developments are decisive. Prices of tradable goods increased less strongly in Germany than in partner countries from the mid-90s until 2008. In the wake of the crisis, the price dynamics of tradable goods declined in other member states, in particular in vulnerable countries, and have been moving along with German tradables. As a consequence, price competitiveness has stabilised at a favourable level (see Graph 5.13), which is compatible with the declining trade surplus with the euro area. With regard to non-euro area countries, also nominal exchange rates are decisive. Price competitiveness reversed vis-à-vis non-euro area industrial economies in the 2000s due to the considerable appreciation of the euro, but Germany's competitive edge was overall still stronger than its long-term average until the crisis. Since 2008, price competitiveness has recovered, which has coincided with the redirection of German exports towards third countries.

*Graph 5.15:* **Germany's price competitiveness based on deflators of total sales (99Q1=100)**



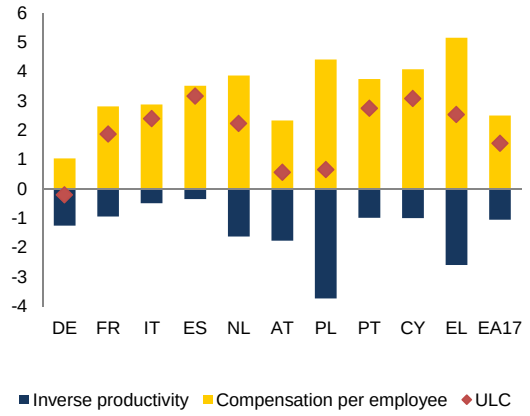

*Source:* Bundesbank

**Unit labour cost developments have significant explanatory power for Germany's competitiveness towards the rest of the euro area.** On the basis of unit labour costs, the REER against non-euro area countries (EER-21 group) shows the same pattern as for other standard deflators, indicating that nominal exchange rate movements outweigh price effects. Within the euro area, however, labour costs are a key driver of prices of goods and services. Hence, the rising gap in nominal unit labour costs compared to other member states before the crisis clearly improved Germany's cost and price competitiveness, also due to wage growth being above productivity in many other countries. What emerges in the post-crisis period is a much larger similarity between Germany and most other European peers, notably the surplus economies (Graphs 5.16 and 5.17), which again suggests that more synchronous cost and price developments between Germany and its euro area peers have helped to reduce trade imbalances.

([140]) There are different definitions of competitiveness (for a brief summary see for instance Aiginger (2008) and Deutsche Bundesbank (2013h)). This analysis focuses on factors that influence demand for goods and services. In principle, the price, quality and the variety are decisive for the demand decision. As indicator for price competitiveness, usually real effective exchange rates are taken into consideration with a decline indicating an improvement in the competitiveness position.

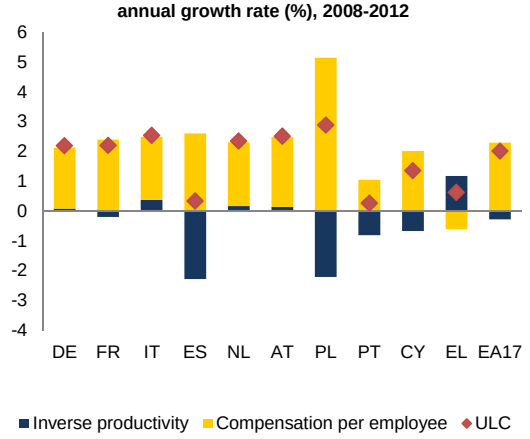
([141]) Estrada et al. (2013) find that an increase in relative prices (relative price of tradeables and unit labour costs) tend to be associated with increasing current account deficits in the case of euro area countries, while the relation between external imbalances and price competitiveness weakens in the case of other developed countries.

*Graph 5.16:* **ULC, labour productivity and labour cost annual growth rate (%), 2000-2007**




*Source:* AMECO

*Graph 5.17:* **ULC, labour productivity and labour cost annual growth rate (%), 2008-2012**



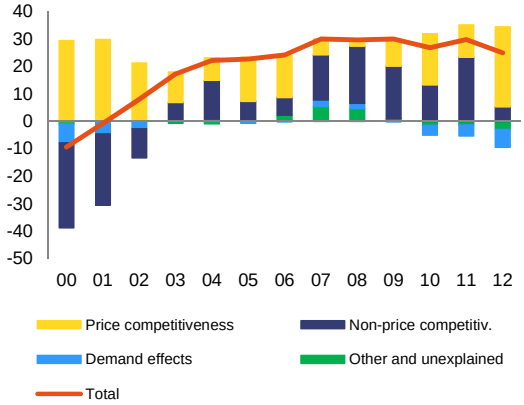

*Source:* AMECO

## 5.4. NON-PRICE COMPETITIVENESS

**Quality of goods and services as well as the product range also decisively determine competitiveness.** Prices alone do not tell much about the desirability of goods and services. Despite having a comparatively high price, a certain good can still be relatively cheap if quality outweighs the negative price effect. The same argument applies to the variety of products if close substitutes are lacking and, hence, a certain good becomes relatively rare. Quality and variety, or in other words technological knowledge, is in turn affected by various conditions like education of workers, infrastructure or institutional settings.

**Non-price competitiveness has gradually become more important in sustaining Germany's export performance.** Among the G7 group of comparably developed countries, a decomposition of the difference of export market shares into price and non-price contributions shows that Germany's gain in market shares towards the G7 (excluding Germany) has been driven by both components over the last decade. ([142]) Notably, the impact of non-price factors has turned positive and its relative importance has grown since the beginning of the last decade and in some recent years has dominated price factors (Graph 5.18).

*Graph 5.18:* **Germany's export market share vs. G7 excl. DE (cumulated, in pp.)**




*Source:* Calculations based on Benkovskis and Wörz (2014)

**Competitiveness indicators give an idea, which factors might have been conducive.** The *World Economic Forum's (WEF) competitiveness indicator* consolidates a set of various factors that are likely to explain the competitiveness of a country in a harmonised way which allow for an international comparison and ranking. ([143])

([142]) Compared to all trading partners, Germany has been losing nominal market shares during the last decade. This, however, applies to all G7 countries, while emerging market countries increased their nominal export performance (see Benkovskis and Wörz, 2014).

([143]) Since 2004, the overall index comprises three subcategories which in total are based on 12 pillars: Basic requirements (Institutions, Infrastructure, Macroeconomic environment, Health and primary education), Efficiency enhancers (Higher education and training, Goods market efficiency, Labour market efficiency, Financial market development, Technological readiness, Market size), Innovation and sophisticated factors (Business sophistication, Innovation). Previously, two different competitiveness indicators have been constructed: Growth competitiveness (structures, institutions and policies

*Table 5.2:*
**World Economic Forum Competitiveness Indicators - Ranking of Germany**

| | Global Competitiveness (overall index) | Basic requirements [1] | Efficiency enhancers [2] | Innovation and sophisticated factors [3] | Countries considered |
|---|---|---|---|---|---|
| 2013-2014 | 4 | 9 | 8 | 4 | 148 |
| 2010-2011 | 5 | 6 | 13 | 5 | 139 |
| 2006-2007 | 8 | 9 | 17 | 3 | 125 |
| 2004-2005 | 6 | 10 | 14 | 3 | 104 |
| | | | Growth competitiveness | Business / Current competitiveness | Countries considered |
| 2003-2004 | - | - | 13 | 5 | 102/101 |
| 2001-2002 | - | - | 17 | 4 | 75 |
| 2000 | - | - | 15 | 3 | 59/58 |
| 1999 | - | - | 25 | 6 | 53/58 |

*Source:* World Economic Forum (2013 and previous issues), Cesifo DICE Report 3/2005 (database global competitiveness)

*Note:* Weight in overall index (2013 report): [1] 20% [2] 50% [3] 30%

According to Estrada et al. (2013), it seems to have significant power to explain current account positions. Table 5.2 displays the ranking of Germany's competitiveness according to the *WEF*. Germany has been particularly good at business sophistication and innovation over the 2000s and in recent years, which should be positively linked with product quality and variety. In the most recent assessment, also infrastructure and higher education and training are outstanding.

**Factors that support medium-term growth have been less favourable, notably with regard to efficiency enhancing factors.** In the most recent assessment, three such efficiency enhancers are relatively weak. Labour market efficiency shows the lowest ranking (41 out of 148 countries) among all twelve subcategories under consideration, followed by financial market development (29) and goods market efficiency (21). This group also comprises technological readiness, market size as well as higher education and training, which are in contrast quite favourable. Still, Germany is doing rather well with regard to efficiency enhancers when comparing with other large EU economies (UK, FR, IT, ES, NL, AT).

**The overall picture, however, still confirms an overall high non-price competitiveness of the German economy.** In particular in those categories that, according to Estrada et al. (2013), seem to have the highest explanatory power for current account performance, the German economy is comparatively well-placed. These authors identify four factors that are outstanding with regard to their explanatory power for current account performance: Goods market efficiency, technological readiness, business sophistication and innovation capabilities – with Germany being in a high international position, in particular for the two last-mentioned.

**The assessment of overall favourable competitiveness according to the *WEF* indicator is broadly supported by the *IMD* and the *World Bank.* ([144])** The *IMD Competitiveness Yearbook 2013* ranks Germany at the ninth rank out of 60 countries in 2013, well ahead of comparable EU peers. Although this is the best grade ever granted by this institution, it is still a somewhat less favourable assessment than by the *WEF*. The World Bank regularly assesses the business regulations for domestic small and mediums-size enterprises in its *Doing Business* report. With regard to the ease of doing business, the World Bank (2013) ranks Germany 21 out of 189 countries under consideration, which also compares well with other EU economies.

supporting economic growth over the medium term) and Current or Business competitiveness (Company operations and strategy ranking, Quality of the national business environment ranking). Owing to index revisions, a year-to-year comparison should be interpreted with caution.

([144]) A recent analysis on competitiveness of euro area countries based on these and other indicators can also be found in Bundesministerium der Finanzen (2013b).

# 6. POLICY CHALLENGES

**The analysis of this review shows that Germany's large and persistent external surplus stems primarily from a lack of domestic demand, which in turn poses risks to the growth potential of the German economy**. The surplus reflects a low level of both private and public sector investment combined with subdued private consumption growth over a longer period of time. In the perspective of more than a decade, the relatively weak impetus from these key components of domestic demand has resulted in growth that has been less strong than what could have been attained with a more balanced growth pattern. Germany's international competitiveness is an asset both for itself and for the EU's economy as a whole, so anything that Germany does or can do to improve it is for the common good.

**As shown by Germany's low and falling trend growth, however, the heavy reliance in the past on external demand to drive growth may not have secured Germany's future economic potential.** The capacity of the economy to grow in the future, provide jobs and ensure rising living standards in an era of ageing and fierce global competition depends on tapping more into domestic sources of future growth. For this reason, Germany's overarching challenge is to identify and implement measures that help strengthen domestic demand and the economy's growth potential. Higher investment in physical and human capital, further strengthening of the supply of labour and promoting efficiency gains in all sectors of the economy, including by unleashing the growth potential of the services sector, are therefore central policy challenges.

**More efficient corporate taxation and improved framework conditions could strengthen private investment incentives.** Corporate tax reforms over the last decade have improved conditions for investment, but the efficiency of corporate taxation could be further enhanced by reducing the tax bias towards debt-financing, minimising the administrative burden for businesses and addressing inefficiencies in the trade tax that arise from the inclusion of non-profit elements in the tax base. It would be useful for Germany to review the effects of its tax system, e.g. if it unduly favours the accumulation of retained earnings and discourages companies from paying out dividends. It is essential to be cautious with regard to policy steps that may have a negative impact on investment, while continued incentives for energy-efficient building refurbishment would promote investment in dwellings and at the same time help to meet energy and climate policy objectives. Cutting bureaucracy and removing bottlenecks, such as insufficient risk capital for start-up companies, would also facilitate private investment. In line with Germany's policy intentions, a cost-effective strategy for the *Energiewende* could have a longer-lasting positive effect on investment, both by boosting construction investment directly related to energy infrastructure and by reducing the policy-related uncertainty that has weighed on business confidence. In the same vein, continued contribution to policy actions that help dissipate uncertainty throughout the euro area, including in relation to the future architecture of EMU, would positively contribute to investment activity. Since firms' sales expectations are a key driver of investment decisions, bringing an end to the weakness in intra-EU import demand would help further boost German companies' confidence.

**Germany's intention to step up public investment is welcome, but additional measures appear needed to deal with the accumulated backlog.** In view of the sound public sector balance sheet, Germany would be well-advised to use the window of opportunity to invest in sound future-oriented projects that yield a sufficient rate of return. In particular, it will be important to uphold and further strengthen recent increases in public infrastructure investment. Further steps are indeed being planned by the new federal government with a view to reinforcing public investment. Yet, these plans at the federal level fall short of the estimated additional annual investment needs of ½ to 1% of GDP for the public sector as a whole, implying a need for further steps over the coming years to maintain and modernise its public infrastructure.

**The biggest investment needs are at the municipal level, which strengthens the case for ensuring the sustainable funding of public infrastructure as part of the envisaged reform of fiscal relations.** The federal government has taken steps in recent years to partly compensate municipalities for social expenditure. Additional transfers are planned to this end over the upcoming

legislative term, which should increase municipalities' fiscal space for investment. However, existing investment planning and financing mechanisms and ad-hoc transfers have not prevented a public sector investment gap from emerging. The planned review of the allocation of revenue and expenditure competences between the federation, *Länder* and municipalities is an opportunity to tackle this issue and provide policy clarity well ahead of the expiry in 2019 of the current provisions for the fiscal equalisation system and special transfers from the federal budget under the Solidarity Pact II.

**Efforts to support human capital formation and ensure the economy's potential to innovate need to be maintained.** Germany has increased education spending in recent years and federal and *Länder* governments have agreed to increase public and private spending on education and research to 10% of GDP by 2015. Achieving this target should be a priority. Besides the investment in educational infrastructure, the federal government also strengthened its education and research expenditure between 2010 and 2013 and plans a further increase over the next four years. With a view to catching up with the most innovative economies, even more ambitious follow-up targets could be considered, for example building on the proposals of the expert commission on research and innovation appointed by the federal government.

**Challenges to potential growth arise from demographic developments and shortages of skilled workers.** Higher contributions from both capital accumulation and productivity growth would help to cushion the effect of ageing on potential growth. Since capital and labour are mutually dependent in the production process, policy steps to prevent a lack of skilled workers in the future appear important to uphold investment and reduce the risk of slow technological progress. In line with the country-specific recommendations under the 2013 European Semester, targeted measures could contribute to enhancing human capital and facilitate the work of women through better early childhood education and all-day schools as well as continued efforts to provide sufficient childcare facilities. Continuing to attract foreign skilled workers would be conducive to higher investment and potential growth in the medium term and facilitating the access of educationally disadvantaged groups to higher education could also be given further priority.

**In parallel, efforts appear needed to further reduce disincentives to work, with a view to supporting labour supply and raising the income of workers, notably those at the bottom of the income distribution.** Looking ahead, good conditions on the German labour market and the risk of increasing tightness would make a further reduction of the comparatively high tax burden on labour a timely policy choice, e.g. by a regular adjustment of the personal income tax brackets to inflation. The favourable fiscal conditions of mini-jobs could also be reviewed, with a view to removing possible distortions that may discourage people from increasing the number of hours they work, or companies from choosing other types of contract. As recommended to Germany under the European Semester, the reduction of disincentives for second earners and low-skilled workers to increase their working time remains a priority, which would also contribute to raising domestic demand on a sustainable basis.

**Raising social insurance contribution rates in the future would again widen the tax wedge and reduce net disposable incomes.** Additional benefits and early retirement options for certain groups of pensioners financed through the statutory pension insurance, as proposed by the new federal government, imply that the contribution rate cannot be further reduced as foreseen and will need to be increased in the medium term. This raises the challenge of dispelling doubts about the long-term sustainability of the pension insurance, which in the past affected saving and consumption decisions. By the same token, additional efforts to improve the efficiency of healthcare remain important to curb cost increases. To tackle these challenges, the potential to shift the tax burden away from labour to more growth-friendly sources should be fully exploited, as recommended to Germany.

**Appropriate conditions should be secured in order to enable wage growth to further contribute to domestic demand, following an increase in real wages in recent years.** The favourable economic and labour market conditions can be expected to be reflected in social partners' wage agreements. Together with better incentives

to work for low-skilled workers or second earners, this would contribute to a balanced development in the income distribution in the future. In the coalition agreement, the new government has announced plans for 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. Further efforts to develop the services sector may enhance domestic demand in Germany. Improvements in services productivity could have a positive effect on wage dynamics in the services sector.

**Generally, mapping out initiatives that can ensure investment and productivity growth in Germany's services sector is a challenge with large potential gains**. Steps to strengthen business dynamics would help the sector to fully contribute to Germany's long-term growth, including by the elimination of unjustified protections for sheltered services. Increasing efficiency in the services sectors would support investment and would over time, via the gradual reallocation of resources towards higher-value added services, support the emergence of a higher proportion of better-paid services jobs.

**In the German banking sector, sufficient loss absorption capacity and addressing impediments that may hamper further consolidation remain key challenges.** Swift implementation of the new capital requirements and follow up to the results for the German banks of the forthcoming comprehensive capital needs assessment are essential. Going forward, the prospects of low interest rates, competition on domestic markets and the ability of German firms to tap capital markets directly will continue to challenge the sector's profitability. This could weigh on German banks ability to increase capital buffers. Against this background, the bigger German banks have a strong incentive to remain active on international markets and reduce home bias, which would contribute to reversing the fragmentation of the EU banking market and have favourable effects on the intermediation of savings into investment in the EU. For smaller banks, consolidation through mergers may be an option to realise scale economies, in particular in case the sourcing of profitability from domestic business does not continue. German banks have been more exposed in the last years to financial turmoil than to economic activity, and they may therefore find it appropriate to put relatively more emphasis on their role in intermediating domestic savings to the real economy and relatively less on the acquisition of claims against other financial intermediaries. A more diversified income generation in retail oriented banks would help to reduce the strong profit dependency on interest margins.

**An increase in aggregate demand in Germany would first and foremost contribute to raising medium term growth domestically, but it would entail the additional benefit of helping the incipient 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. Increased domestic demand in Germany does, however, not automatically imply increased imports from vulnerable countries. Improved competitiveness should help companies in vulnerable countries to take advantage of an impetus to aggregate demand in the euro area from the side of Germany. An increase in German public and private investment would also have a lasting effect on actual and potential growth domestically, while at the same time providing a positive spill-over to growth in Europe.

# ANNEX

### *Box A.1:* **A model-based analysis of trade balance drivers: a detailed interpretation of the shock decomposition**

The model includes Germany, the rest of the euro area and the rest of the world and has been estimated on quarterly data for the period 1995q1-2013q2. The model's dynamic general-equilibrium structure provides a framework to jointly assess the relative importance of alternative hypotheses about the causes of Germany's external surplus over the estimation horizon. The potential drivers include factors such as interest rate convergence in EMU, export market growth, labour market reform, changes in private saving behaviour, and fiscal policy. ([1])

Standard macroeconomic models interpret fluctuations of economic time series such as the trade balance as generated by macroeconomic shocks to demand and supply equations. The term 'shock' to a certain variable (e. g. TFP (technology), savings, investment, wages etc.) indicates a deviation of that variable from the average response to its direct determinants. In this section we explain for each component how the selected shock should be interpreted in the context of the model. Without shocks to behavioural and technological relationships, the 'model economy' would settle down on a steady state growth path. Economic shocks can have a lasting impact on the economy because they are either themselves persistent (for example demographic or technology shocks) or because it takes time for the economy to adjust to shocks.

Shock decompositions therefore allow us to trace fluctuations of variables to specific sources. In the process of estimating the model the econometrician not only estimates structural parameters, but also uncovers shocks which affect individual structural equations. The historic evolution of individual economic time series can be fully decomposed into contributions of present and past shocks. This allows to quantify the relative importance of certain economic developments.

Not all shocks are equally important. In the case of Germany we can identify six types of shocks which allow us to nearly fully decompose the evolution in the trade balance. In the context of the QUEST model, these shocks should be interpreted in the following way:

*Productivity-enhancing technological progress:*

It is assumed that output is produced with a Cobb Douglas production function and technical progress is characterized by a random walk process, which means that the rate of technical progress fluctuates randomly around a trend. A positive technology shock increases the technological level permanently. A negative technology shock indicates a lower than average increase of TFP (in extreme cases the rate of innovation can become negative at the macro level, due to composition effects). The technology component in the shock decomposition in each period, show the combined effect of all current and past technological innovations. Positive bars show the effect of above average productivity growth on the trade balance. These effects are generated by the model through competiveness gains, accompanied by lagged adjustment of domestic demand (smaller initial import growth relative to export expansion).

*External demand and trade:*

Imports and exports are modelled as functions of the terms of trade as well as foreign and domestic demand. Shocks to trade either represent shifts of preferences of domestic households or firms for foreign goods and services (imports) or of foreign households for German goods and services (exports). Alternatively there can be shifts in exports due to deviations of foreign demand due to (temporary) demand shocks or permanent supply shocks. Shocks which either increase exports or reduce imports have a positive effect on the trade balance on impact. The size of the impact depends on second round effects on domestic demand and the terms of trade.

([1]) For details see Kollmann, R. Ratto, M., Roeger, W., in 't Veld, J., Vogel, L. (2014), What drives the German current account? And how does it affect other EU member states?, European Economy Economic Papers (forthcoming)

*(Continued on the next page)*

*Box (continued)*

*Labour market and social security:*

Wages are determined by employment and a reservation wage, which is itself a function of productivity and unemployment benefits. In addition there are counter cyclical dynamics of wages due to nominal and real frictions. Also an average wage mark-up is estimated. Fluctuations of wages which cannot be accounted for by these wage determinants are interpreted as wage mark-up shocks. In addition to this shock we also identify a Hartz reform impact on wages. The Hartz reform shock is directly observed since it is based on an unemployment benefit replacement indicator, which takes into account level and duration of benefit entitlements. Both the Hartz reform and a reduction in the wage mark-up have a direct negative effect on wages and have therefore similar macroeconomic effects and in particular increase the trade balance mainly via their effect on cost competitiveness.

*Private savings and consumption:*

In the model, consumption is determined by the permanent income model. Crucial here are fluctuations in the estimated parameter for the rate of time preference, which determines the ratio of consumption to financial wealth plus the present discounted value of current and future (net wage and transfer) income. The question arises whether a plausible interpretation can be given to episodes of "excess savings" based on factors which are not captured in the model. Two possible candidates could play a role, namely first precautionary savings in periods characterized by high levels of uncertainty or demographic factors which affect the savings behaviour of households. For example, an expected future increase in the dependency ratio will generally lead to an increase in the savings rate as households try to smooth consumption over time. The gradual increase of the savings rate starting in early 2000 suggests that rising awareness of adverse demographic trends leading to the Riester pension reform (2002) could be an important reason. Second, to the extent that a reduction in real wages is perceived as permanent, the savings rate of households would increase as households adjust their consumption to match the reduced level of income. In any case, an increase in the savings rate (reduction in the rate of time preference) leads to an improvement in the trade balance because of a reduction in domestic demand.

*Corporate Investment:*

Corporate investment is determined by the profitability of investment (in the model this is the PDV of profits generated by the investment over its lifetime) relative to the cost of raising funds, which is expressed by the real interest rate (defined as the policy rate and a constant equity premium). What the standard macro model does not capture are fluctuations in risk premia. Since risk premia tend to be counter cyclical, the standard investment model underpredicts the cyclical variation of employment. There could also be other shocks to investment such as fluctuations (either cyclical or persistent) in credit constraints to firms or tax reforms. All these factors affect the cost of capital. An increase in capital cost (deteriorating financing conditions) reduces investment and therefore increases the trade balance.

*Fiscal policy:*

Government revenues and expenditure are endogenously determined in the QUEST model. Revenues are generated by multiplying average tax rates with their respective tax bases and concerning expenditure it is assumed that government consumption, investment and transfers respond systematically to cyclical and budgetary conditions but are also subject to discretionary measures. These we denote as fiscal shocks. A discretionary tightening (or a negative fiscal shock) is thus a situation where spending is low given cyclical conditions and the fiscal space.

### *Box A.2:* A Current account norm for Germany

**Identifying current account determinants through panel regressions across many countries are a widely used tool for assessing external balances. ([1])** The literature assesses which part of a country's current account balance can be explained by 'fundamental' determinants (such as resources or demographic factors) and temporary/policy factors (such as the fiscal balance). The common feature of such regressions is that they primarily consider the savings-investment perspective of the current account (through determinants such as ageing), complemented by the trade perspective (through factors such as terms of trade).

**The general feature of such panel regressions is that they are in 'reduced form' and thus data-driven, which leaves a substantial part of current account balances unexplained. ([2]) This is particularly relevant for Germany: all recent estimations of this kind have identified a particularly large residual for the German case.** Interpretations of such residuals differ: a 'normative' strand of the literature interprets the unexplained part of the current account as the deviation of the actual current account from what is justified by fundamentals. In contrast, the 'positive' viewpoint attributes these residuals to factors that have not yet been accounted for (which may be 'soft' factors, such as culture or peculiar policy settings). ([3]) Despite such semantic differences however, the main objective of the literature is to estimate the current account that is explained by 'hard' fundamentals. Table 3.2 shows that for the German case, the literature finds that such fundamentals explain or justify a German current account of between 1 and 2.5% of GDP. ([4]) None of these panel attempts have been able to explain much of the more recent German surplus by fundamental characteristics.

**The estimation here provides an illustration of the panel regression approach.** It follows the latest strand of such attempts (spearheaded by IMF, 2012), which aim to provide multilateral consistent estimates of current account balances. The methodology accounts for the fact that since world current account balances net out to zero, they are influenced by cross-country *differences* in temporary and fundamental factors. For instance, the variable ageing is frequently cited as a motive for high savings and low investment in Germany. However, what matters for the current account balance is not whether Germany is ageing, but how much faster it is ageing compared to its trade and financial partners. In the same vein, fiscal tightening in Germany may contribute to its current account surplus only as far as it goes faster than in the rest of the world. In principle, such an impact may derive from a prudent German fiscal stance contrasted with imprudent fiscal policy elsewhere.

**Technically, the estimation here is a panel regression for 63 countries that models current account balances as a function of a wide array of determinants**, closely following IMF (2013). The set of countries covers more than 90% of the world and it is estimated for a period between 1986 and 2012 (total number of observations 1263). The variables used here encompass those of IMF (2013), except for commodity terms of trade and institutional set-up (which are marginally significant). In addition, this estimation includes construction investment as % of GDP, credit growth, and REER change (all lagged, and with respect to the rest of the world). ([5]) Each of these determinants compares the country factor in % of GDP to the GDP-weighted world average (e.g. the German structural fiscal balance minus the world structural fiscal balance).The estimation provides an elasticity for each factor that allows to compute its contribution in explaining the current account balance for each country in the sample. These elasticity estimates display a non-negligible degree of statistical uncertainty that is similar to other studies in the field. ([6]) This partly stems

([1]) See Salto and Turrini (2010) for a literature overview.
([2]) This contrasts with more theory-driven 'structural' approaches, which explain all of current account balances from a theoretical viewpoint.
([3]) Under the positive view, the explained part of current account balance for a country can be understood as the 'typical' balance given the country's characteristics.
([4]) Note that research on the fundamental drivers of the current account has a relatively long tradition. In contrast, research on policy and cyclical drivers of current account balances is less established.
([5]) Data sources are AMECO, OECD, IMF, Worldbank, Eurostat, UN, Penn World Tables, EIU, Bruegel, International Comparison Programme, CBOE, Lane and Milesi-Ferrretti (2007), and Chinn and Ito (2007).
([6]) The standard error of the estimation is 3.6 (% of GDP), which is very close to most broad panels over the sample period used.

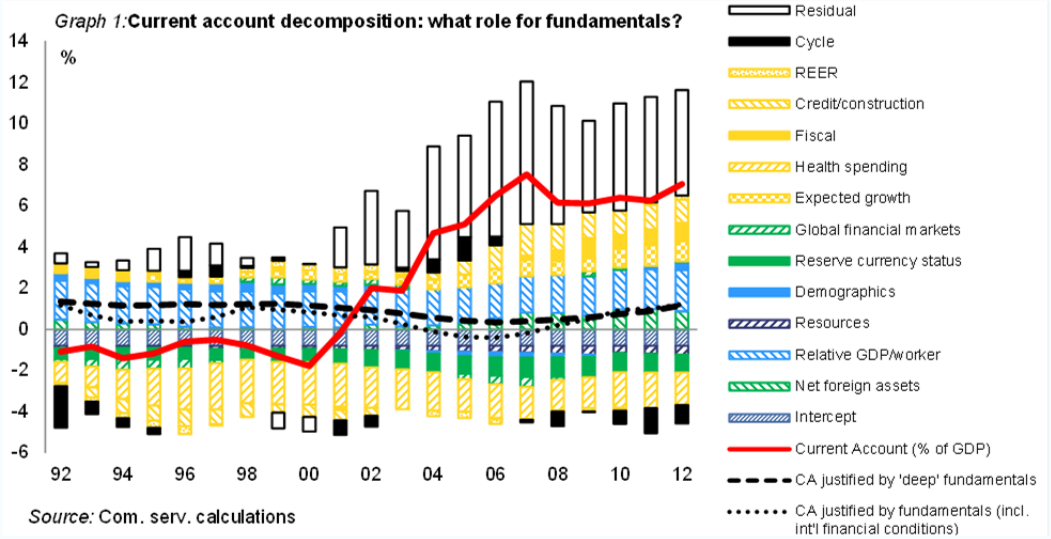
*(Continued on the next page)*

*Box (continued)*

from the fact that estimation residuals are particularly large for the current account imbalances between 2003 and 2008, while they are narrower for recent years.

**The estimation shows that the underlying economic reasons for the persistently very high surplus in recent years remain unclear.** The German current account surplus appears in recent years to be far higher than what is implied by structural characteristics of the German economy. As shown in Table 3.2, most attempts to explain Germany's current account surplus agree that the part that cannot be explained by policy or structural factors has grown to an unprecedented level in recent years. Graph 1 below presents the decomposition of the German current account into its different components, that includes amongst others how much of the current account can be explained by fundamentals. The contributions of the relevant components can be summarized as follows:

*Graph 1:* **Current account decomposition: what role for fundamentals?**




*Source:* Com. serv. calculations

1. At 7%, the German surplus is actually lower than its **cyclically adjusted** level, which according to the estimates was close to 8% in 2012. ([7]) This is due to the fact that although Germany has effectively closed its output gap, its partners remain below their respective potential output. There is therefore room for an increase in the German surplus as demand recovers in its partner countries (component shown in black in Graph 1).

2 Estimates of contributions macro variables that are either **policy-related** or are the result of **economic behaviour** are shown in yellow. The analysis shown here considers the following policy variables: the REER, public health expenditure (a proxy for social infrastructure), construction investment, domestic credit, as well as fiscal policy and last the level of expected GDP growth (a proxy for underlying potential growth). These are considerably diverse in nature, and only some of them are directly controlled by public policies. All, however, are effectively controlled by the economic agents of each country. The analysis shows that their contributions to the surplus tend to cancel each other out. As in most European countries, health spending has a negative contribution. Unlike most European countries, the other policy variables have an equally large positive contribution to the German surplus. Importantly, for the period after 2007, for which the surplus persists at the high level, the contributions of credit (private sector indebtedness, and investment in construction) as well as expected growth increase in relevance. Germany being different to other countries in these respects, goes some way towards explaining the high levels of the surplus. In total, the policy factors explain more than 1 pp. of the German surplus, with credit/construction as the major component that differentiates it from other euro area Member States. Note also that the estimates for the cyclically adjusted

([7]) Even when other methodologies and output gap data are considered, the cyclical effect on Germany always adds to the current account level but never more than 1% of GDP.

*(Continued on the next page)*

*Box (continued)*

and policy gaps components offset each other almost entirely. The whole 7% remains therefore still to be explained.

3. The **fundamental** current account surplus, i.e. the level that is justified by the underlying economic conditions is universally estimated to be positive (Table 3.2). Here there are differences in the way that different methods define "fundamentals" in this context. The analysis undertaken here differentiates between the 'deep' factors (demographics, resources, relative GDP/worker, and the constant ([8]) - shown in blue in Graph 1) and international financial factors (an index of financial volatility, reserve currency status and net foreign assets, shown in green in Graph 1). International financial factors are determinants that the country either cannot influence or can only influence partially. Given the country's inability to affect them some studies consider them part of the fundamentals. ([9]) The analysis here takes a stricter view in the definition and shows that the 'deep' or equilibrium factors can explain at most 3 pps. ([10]) **Demography** warrants particular attention, as it is often quoted as the main justification for higher than normal savings in Germany. Results shown imply that ageing, does not contribute more than half a percentage point to the total surplus. This result is in line with most cross-country empirical studies which have identified demographic factors as a driver of current account balances. Importantly however, none of these studies can attribute more than 2 pp. of the German surplus to demographic factors.

4. Last, by far the largest component, almost 4 pps, is the one that remains **unexplained**. In other words, neither the position on the business cycle (Germany's or its partners), nor policy choices or underlying economic needs, explain the level of the surplus.

The results presented in Graph 1 are qualitatively in line with other attempts to examine the German surplus. Table 3.2 in the main text summarises the results of what others have shown. The important agreement in these results is that the surplus justified by fundamentals is never shown to be above 2.5%.

---

([8]) The constant arises technically from the estimation set-up and reflects its sample composition. In most studies cited here, the constant has a similar magnitude.

([9]) Note that the fundamental determinants of current account balances applied here encompass the 'fundamental' factors employed by the established academic literature on the topic (see Table 3.2 for references). In contrast, there is less consensus in the literature on the appropriate set of policy (or non-fundamental) current account determinants.

([10]) Note that adding the international financial factors to the deep parameters would bring the value of the fundamental CA for 2012 a little closer to 3%.

# REFERENCES


Acharya, V., H. Almeida, and M. Campello (2005), 'Is cash negative debt? A hedging perspective on corporate financial policies', NBER Working Papers, No 11391.

Aiginger, K. (2008), 'Wettbewerbsfähigkeit von Firmen, Regionen und Ländern', Die Volkswirtschaft, No 3/2008.

André, C., S. Guichard, M. Kennedy and D. Turner (2007), 'Corporate net lending: A review of recent trends', OECD Economics Department Working Papers, No 583, OECD Publishing.

Aron, J. and J. Muellbauer (2000), 'Personal and Corporate Saving in South Africa', World Bank Economic Review, Vol. 14, No 3, pp. 509–44.

Arto, I and A.F. Amores (2013), 'Inter-Member States employment spillovers from EU external trade', 24th meeting of the European Trade Economists Network, Brussels, June 23rd.

Bach, S., G. Baldi, K. Bernoth, B. Bremer, B. Farkas, F. Fichtner, M. Fratzscher and M. Gornig (2013), 'More Growth through higher investment', DIW Economic Bulletin, No 8/2013.

Bach, S. (2013), 'Has German business income taxation raised too little revenue over the last decades?', DIW Discussion Papers, No 1303, pp. 11-12.

Bach, S., G. Baldi, K. Bernoth, J. Blazejczak, B. Bremer, J. Diekmann, D. Edler, B. Farkas, F. Fichtner, M. Fratzscher, M. Gornig, C. Kemfert, U. Kunert, H. Link, K. Neuhoff, W.-P. Schill and C. K. Spieß (2013), 'Germany must invest more in its future', DIW Economic Bulletin, No 8/2013.

Bannier, C. and M. Grote (2008), 'Equity gap? Which equity gap? On the financing structure of Germany's Mittelstand', Frankfurt School of Finance & Management, Working Paper, No 106.

Baretti, C., D. M. Raduescu and M. Stimmelmayr (2008), 'The corporate tax reform of 2008: Germany's answer to globalisation – or just patchwork?', CESifo DICE Report 3/2008.

Bartzsch, N. (2008), 'Precautionary saving and income uncertainty in Germany – New evidence from microdata', Journal of Economics and Statistics (Jahrbücher für Nationaloekonomie und Statistik), Justus-Liebig University Giessen, Department of Statistics and Economics, Vol. 228, No 1, pp. 5-24.

Becker, J., C. Fuest and T. Hemmelgarn (2006), 'Corporate tax reform and foreign direct investment in Germany – Evidence from firm-level data', CESifo Working Paper, No 1722.

Benkovskis, K. and J. Wörz (2014), 'What drives the market share changes? Price versus non-price factors', ECB Working Paper Series, No 1640.

Bernanke, B. (2007), 'Global imbalances: Recent developments and prospects', Bundesbank Lecture. Berlin, Germany.

Bernanke, B., C. Bertaut, L. DeMarco, and S. Kamin (2011), 'International capital flows and the returns to safe assets in the United States, 2003-2007', Board of Governors of the Federal Reserve System, International Finance Discussion Papers, No 1014.

Beusch, E., B. Döbeli, A. Fischer, and P. Yeşin (2013), 'Merchanting and current account balances', Swiss National Bank Working Papers, No 06/2013.

Bibow, J. (2013), 'Germany and the euroland crisis: The making of a vulnerable haven', Levy Economics Institute Working Paper, No 767.

Blazejczak, J., J. Diekmann, D. Edler, C. Kemfert, K. Neuhoff and W.-P. Schill (2013), 'Energy transition calls for high investment', DIW Economic Bulletin, No 9/2013.

Bornhorst, F. and A. Mody (2012), 'Tests of German Resilience', IMF Working Paper, No 12239.

Börsch-Supan, A., A. Reil-Helda, R. Rodepeter, R. Schnabel, and J. Winter (2001), 'The German savings puzzle', Research in Economics, Vol. 55, No 1, pp. 15–38.

Börsch-Supan, A., M. Coppola and A. Reil-Held (2013), 'Riester pensions in Germany: Design, dynamics, targeting success, and crowding-in', in R. Hinz, R. Holzmann, D. Tuesta, and N. Takayama (eds), *Matching contributions for*

*pensions: A review of international experience*, World Bank, Washington, DC, 2013..

Bos, W., H. Wendt, O. Köller and C. Selter (2012), 'TIMSS 2011 — Mathematische und naturwissenschaftliche Kompetenzen von Grundschulkindern in Deutschland im internationalen Vergleich', Waxmann, Münster.

Brehmer, W. and H. Seifert (2008), 'Sind atypische Beschäftigungsverhältnisse prekär? Eine empirische Analyse sozialer Risiken', Zeitschrift für Arbeitsmarkt Forschung, Vol. 41, No 4, pp. 501-531.

Brenke, K. (2011), 'Einkommensumverteilung schwächt privaten Verbrauch', DIW Wochenbericht, No 8/2011.

Brenke, K. and W. Eichhorst (2010), 'Arbeitsmarktpolitik: Falsche Anreize vermeiden, Fehlentwicklungen korrigieren', Vierteljahrshefte zur Wirtschaftsforschung, Vol. 79, No 1, pp. 56-84.

Brenke, K. and G. G. Wagner (2013), 'Ungleiche Verteilung der Einkommen bremst das Wirtschaftswachstum', Wirtschaftsdienst, Vol. 93, No 2, pp. 110-116.

Broadbent, B., D. Schumacher and S. Schels (2004), 'No gain without pain — Germany's adjustment to a higher cost of capital', Goldman Sachs Global Economics Paper, No 103.

Brufman, L., L. Martinez and R. Artica (2013), 'What are the causes of the growing trend of excess savings of the corporate sector in developed countries? An empirical analysis of three hypotheses', World Bank Policy Research Working Paper Series, No 6571.

Bruno, V. and H. Song Shin (2012), 'Capital flows, cross-border banking and global liquidity', Princeton University Working Paper.

Buetzer, S, C. Jordan and L. Stracca (2013), 'Macroeconomic imbalances in the euro area: a matter of trust?', ECB Working Paper Series, No 1584.

Bundesagentur für Arbeit (2011), 'Sockel- und Langzeitarbeitslosigkeit', Der Arbeitsmarkt in Deutschland, Arbeitsmarktberichterstattung.

Bundesagentur für Arbeit (2013), 'Sozialversicherungspflichtige Bruttoarbeitsentgelte — Entgeltstatistik — Stichtag 31. Dezember 2012', Arbeitsmarkt in Zahlen, Beschäftigungsstatistik.

Bundesministerium der Finanzen (2013a), 'Erfolgreiche Konsolidierung der öffentlichen Haushalte', Monatsbericht August 2013.

Bundesministerium der Finanzen (2013b), 'Wettbewerbsfähigkeit im Euroraum – Fortschritte und Herausforderungen', Monatsbericht Dezember 2013.

Bundesministerium für Familie, Senioren, Frauen und Jugend (2012), 'Frauen im Minijob'.

Bundesministerium für Verkehr, Bau und Stadtentwicklung (2012), 'Verkehr in Zahlen 2012/2013'.

Bundesministerium für Wirtschaft und Technologie (2013a), 'Die Wirkung wirtschaftspolitischer Unsicherheit auf das Investitionsverhalten in Deutschland', Monatsbericht August 2013.

Bundesministerium für Wirtschaft und Technologie (2013b), 'Investitionsschwäche in Deutschland?', Monatsbericht Dezember 2013.

Bundesnetzagentur (2012), 'Monitoringbericht 2012'.

Bundesrat (2012), 'Zukunft der Verkehrsinfrastrukturfinanzierung. Abschlussbericht der Kommission "Zukunft der Verkehrsinfrastrukturfinanzierung".

Burda, M.C. and J. Hunt (2011), 'What explains the German labour market miracle in the great recession?', IZA Discussion Paper, No 5800.

Buslei, H. and M. Simmler (2012), 'The impact of introducing an interest barrier: evidence from the German corporate tax reform 2008', DIW Discussion Papers, No 1215.

Büttner, T., M. Overesch, U. Schreiber and G. Wamser (2008), 'The impact of thin-capitalization rules on multinationals' financing and investment decisions', Deutsche Bundesbank Discussion Paper Series 1: Economic Studies, No 03/2008.

CDU, CSU und SPD (2013), 'Deutschlands Zukunft gestalten. Koalitionsvertrag zwischen CDU, CSU und SPD. 18. Legislaturperiode'.

Cecchetti, S., R. McCauley and P. McGuire (2012), 'Interpreting target balances', BIS Working Papers, No 393.

CEPS (2010), 'Bank state aid in the financial crisis — fragmentation or level playing field', CEPS task force report.

Chen, R., G. M. Milesi-Ferretti and T. Tressel (2013), 'External imbalances in the eurozone', Economic Policy, Vol. 28, No 73, pp. 101–142.

Ciriaci, D., S. Montresor and D. Palma (2013), 'Do KIBS make manufacturing more innovative? An empirical investigation for four European countries', EC JRC-IPTS Working Papers on Corporate R&D and Innovation, No 4/2013.

Ciriaci, D. and D. Palma (2012), 'To what extent are knowledge-intensive business services contributing to manufacturing? A subsystem approach', EC JRC-IPTS Working Papers on Corporate R&D and Innovation, No 2/2012.

De Castro Campos, M., C. Kool and J. Muysken (2013), 'Cross-country private saving heterogeneity and culture', De Economist, Vol. 161, No 2, pp. 101–120.

Deutsche Bank Research (2011), 'German households: Strong savers but weak investors', Current Issues, June 2011.

Deutsche Bundesbank (2000), 'The economic scene in Germany in summer 2000', Monthly Report 08/2000.

Deutsche Bundesbank (2004), 'Demographic burdens on growth and wealth in Germany', Monthly Report 12/2004.

Deutsche Bundesbank (2006), 'German foreign direct investment (FDI) relationships: recent trends and macroeconomic effects', Monthly Report 09/2006.

Deutsche Bundesbank (2007a), 'Private consumption in Germany since reunification', Monthly Report 9/2007.

Deutsche Bundesbank (2007b), 'Investment activity in Germany under the influence of technological change and competition among production locations', Monthly Report 01/2007.

Deutsche Bundesbank (2007c), 'The economic scene in Germany around the turn of 2006-07', Monthly Report 02/2007.

Deutsche Bundesbank (2009), 'Developments in lending to the German private sector during the global financial crisis', Monthly Report 09/2009.

Deutsche Bundesbank (2011a), 'Hochgerechnete Angaben aus Jahresabschlüssen deutscher Unternehmen von 1997 bis 2009', Statistische Sonderveröffentlichung 5.

Deutsche Bundesbank (2011b), 'Leasing financing in Germany', Monthly Report 07/2011.

Deutsche Bundesbank (2012a), 'Die langfristige Unternehmensfinanzierung in Deutschland — Ergebnisse der gesamtwirtschaftlichen Finanzierungsrechnung', Monatsbericht 01/2012.

Deutsche Bundesbank (2012b), 'The financial crisis and balance of payments developments within the euro area', Monthly Report 10/2012.

Deutsche Bundesbank (2013a), 'Household wealth and finances in Germany: results of the Bundesbank survey', Monthly Report 06/2013.

Deutsche Bundesbank (2013b), 'The determinants and regional dependencies of house price increases since 2010', Monthly Report 10/2013.

Deutsche Bundesbank (2013c), 'German enterprises' profitability and financing in 2012', Monthly Report 12/2013.

Deutsche Bundesbank (2013d), 'Ergebnisse der gesamtwirtschaftlichen Finanzierungsrechnung für Deutschland — 2007 bis 2012', Statistische Sonderveröffentlichung 4.

Deutsche Bundesbank (2013e), 'Bestimmungsfaktoren für die mengenmäßige Entwicklung der Wohnungsbaukredite an private Haushalte in Deutschland', Monthly Report 07/2013.

Deutsche Bundesbank (2013f), 'The performance of German credit institutions in 2012', Monthly Report 09/2013.

Deutsche Bundesbank (2013g), 'Zu den Ursachen für die jüngste Schwäche der deutschen Warenexporte nach China', Monatsbericht 11/2013.

Deutsche Bundesbank (2013h), 'Macroeconomic approaches to assessing price competitiveness', Monthly Report 10/2013.

Deutscher Industrie- und Handelskammertag (2014), 'Konjunktur auf Kurs, Politik erhöht Risiken'.

Devries, P., J. Guajardo, D. Leigh, and A. Pescatori (2011), 'A new action-based dataset of fiscal consolidation', IMF Working Paper, No WP/11/128.

Dewaitripoint, M., G. Nguyen, P. Praet and A. Sapir (2010), 'The role of state aid control in improving bank resolution in Europe', Bruegel Policy Contribution, No 2010/04.

DIW (2006), 'Die Lage der Weltwirtschaft und der deutschen Wirtschaft im Frühjahr 2006', DIW Wochenbericht, No 18/2006.

Dreger, C. and K. A. Kholodin (2013), 'Immobilienmärkte im internationalen Vergleich', DIW Wochenbericht, No 17/2013.

Dreßler, D. and U. Scheuering (2012), 'Empirical evaluation of interest barrier effects', ZEW Discussion Papers, No 12-046.

Dustmann, C., B. Fitzenberger, U. Schönberg and A. Spitz-Oener (2014), 'From sick man of Europe to economic superstar: Germany's resurgent economy', Journal of Economic Perspectives, Vol. 28, No 1, pp. 167-188.

Düwel, C., R. Frey and A. Lipponer (2011), 'Cross-border bank lending, risk aversion and the financial crisis', Deutsche Bundesbank Discussion Paper Series 1: Economic Studies, No 29/2011.

Eichhorst, W. and P. Marx (2009), 'Reforming German labour market institutions: a dual path to flexibility', IZA Discussion Papers, No 4100.

ENTSO-E (2012), 'Ten-year network development plan 2012'.

Eppendorfer, C. and M. Stierle (2008), 'German consumption: is there hope for a revival?', ECFIN Country Focus, Vol. 5, No 6.

Estrada A., J. Gali and D. Lopez-Salido (2013), 'Patterns of convergence and divergence in the euro area', NBER Working Papers, No 19561.

European Central Bank (2003), 'Structural factors in the EU housing markets', ECB Report 03/2003.

European Central Bank (2012), 'Competitiveness and external imbalances within the euro area', Occasional Paper Series, No 139.

European Commission (2007), 'Country study: Raising Germany`s growth potential', European Economy, Occasional Papers, No 28.

European Commission (2009a), 'Economic crisis in Europe: Causes, consequences and responses', European Economy, No 7/2009.

European Commission (2009b), 'Focus: Trends in European banking', Quarterly Report on the Euro Area, Vol. 8, No 4.

European Commission (2012a), 'Current account surpluses in the EU', European Economy, No 9/2012.

European Commission (2012b), 'A closer look at some drivers of the trade performance at Member State level', Quarterly Report on the Euro Area, Vol. 11, No 2.

European Commission (2013a), 'Report on public finances in EMU 2013', European Economy, No 4/2013.

European Commission (2013b), 'Assessment of the 2013 national reform programme and stability

programme for Germany', Commission Staff Working Document, No (2013)355.

European Commission (2013c), 'Taxation trends in the European Union — Data for the EU Member States, Iceland and Norway'.

European Commission (2013d), 'The growth impact of structural reforms', Quarterly Report on the Euro Area, Vol. 12, No 4.

European Commission (2013e), 'European financial stability and integration report 2012'.

European Commission (2013f), 'Product market Review 2013 — Financing the real economy', European Economy, No 8/2013.

European Commission (2013g), 'Assessing the impact of uncertainty on consumption and investment', Quarterly Report on the Euro Area, Vol. 12, No 2.

European Commission (2013h), 'Benchmarks for the assessment of wage developments', European Economy, Occasional Papers, No 146.

European Commission (2013i), 'European Economic Forecast — Autumn 2013', European Economy, No 7/2013.

European Commission (2014a), 'Energy economic developments in Europe', European Economy, No 1/2014.

European Commission (2014b), 'European Economic Forecast — Winter 2014', European Economy, No 2/2014.

Expertenkommission Forschung und Innovation (2013), 'Gutachten zu Forschung, Innovation und Technologischer Leistungsfähigkeit Deutschlands'.

Federal Ministry of Finance (2013), 'Draft budgetary plan according to Regulation (EU) No 473/2013'.

Federal Ministry of Finance (2013), 'German stability programme 2013'.

Fichtner, F., S. Junker and C. Schwäbe (2012), 'Die Einkommensverteilung: eine wichtige Größe für die Konjunkturprognose', DIW Wochenbericht No 22/2012.

Gern, H.-J. and N. Jannsen (2009), 'Do we face a credit crunch?', in H. Klodt and H. Lemment (eds), *The crisis and beyond*, Kiel Institute for the World Economy.

Gilquin, G. (2013), 'Le secteur bancaire en Allemagne', Revue d'Economie Financière, No 111.

Gluch, E. (2005), 'Langfristig keine ungünstigen Aussichten für den Wirtschaftsbau in Deutschland', ifo Schnelldienst, No 4/2005.

Grabka, M. M. and J. Goebel (2013), 'Rückgang der Einkommensungleichheit stockt', DIW Wochenbericht, No 46/2013.

Gräf, B. and S. Schneider (2011), 'German households: strong savers but weak investors', Deutsche Bank Research, Current issues.

Hartmann-Wendels, T., I. Stein and A. Stöter (2012), 'Tax incentives and capital structure choice: evidence from Germany', Deutsche Bundesbank Discussion Paper, No 18/2012.

Hartwig, K.-H., H. Armbrecht, M. Rückert, H. Tegner, H. Ehrmann, T. Franke and K. Wanner (2007), 'Verkehrsinfrastruktur-Benchmarking Europa — Verkehrsinfrastrukturausstattung und verkehrspolitische Rahmenbedingungen in ausgewählten europäischen Staaten', ifmo-studien.

Hohendanner, C. and J. Stegmaier (2012), 'Umstrittene Minijobs', IAB-Kurzbericht, No 24/2012.

Hüfner, F. (2010), 'The German banking system: Lessons from the financial crisis', OECD Economics Department Working Papers, No 788.

IFO Institut (2013), 'Öffentliche Infrastruktur-investitionen: Entwicklung, Bestimmungsfaktoren und Wachstumsauswirkungen'.

IMD (2013), 'World Competitiveness Yearbook 2013'.

Institut für Angewandte Wirtschaftsforschung und Universität Tübingen (2011), 'Aktualisierung der

Berichterstattung über die Verteilung von Einkommen und Vermögen in Deutschland — Endbericht an das Bundesministerium für Arbeit und Soziales'.

International Monetary Fund (2003), 'Germany: Selected Issues', IMF Country Report, No 03/342.

International Monetary Fund (2006a), 'Germany: Selected Issues', IMF Country Report, No 06/436.

International Monetary Fund (2006b), 'World economic outlook April 2006 — Globalization and inflation'.

International Monetary Fund (2012), 'Germany 2012 Article IV Consultation', IMF Country Report, No 12/161.

International Monetary Fund (2013), 'German-Central European supply chain — Cluster report', IMF Country Report, No 13/263.

In 't Veld, J. (2013), 'Fiscal consolidations and spillovers in the Euro area periphery and core', European Economy, Economic Papers, No 506.

Jensen, M. (1986), 'Agency costs of free cash-flow, corporate finance, and takeovers', American Economic Review, Vol. 76, No 2, pp. 323-329.

Kajuth, F., T. A. Knetsch and N. Pinkwart (2013), 'Assessing house prices in Germany: Evidence from an estimated stock-flow model using regional data', Deutsche Bundesbank Discussion Paper, No 46/2013.

Kaserer, C., M. S. Rapp and O. Trinchera (2012), 'Payout policy and corporate insiders: Evidence from the German Tax Reduction Act 2001', Zeitschrift für Betriebswirtschaft Vol. 82, Special Issue 5/2012, pp. 85-114.

KfW (2013a), 'Verkehrsinfrastruktur – Der Bedarf ist in den Kommunen!', KfW Economic Research, Volkswirtschaft Kompakt.

KfW (2013b), 'KfW-Kommunalpanel 2012'.

Klar, E. and J. Slacalek (2006), 'Entwicklung der Sparquote in Deutschland – Hindernis für die Erholung der Konsumnachfrage', DIW Wochenbericht, No 40/2006.

Knetsch, T. A. (2011), 'Trend and cycle features in German residential investment before and after reunification', in O. de Bandt, T. Knetsch, J. Peñalosa and F. Zollino (eds), *Housing Markets in Europe: A Macroeconomic Perspective*, Springer-Verlag, Berlin Heidelberg.

Kolerus, C., I. Koske and F. Hüfner (2012), 'Selected aspects of household savings in Germany — Evidence from micro-data', OECD Economics Department Working Papers, No 999.

Kollmann, R., M. Ratto, W. Roeger, J. in 't Veld and L. Vogel (2014), 'What drives the German current account? And how does it affect other EU member states?', European Economy, Economic Papers (forthcoming).

Körner, T., H. Meinken and K. Puch (2013), 'Wer sind die ausschließlich geringfügig Beschäftigten? Eine Analyse nach sozialer Lebenslage'. Statistisches Bundesamt, Wirtschaft und Statistik.

Kunert, U. and H. Link (2013), 'Transport infrastructure: Higher investments needed to preserve assets', DIW Economic Bulletin, No 10/2013.

Mannheim Research Institute for the Economics of Aging (2008), 'Das Sparverhalten der deutschen Haushalte — Wie viel, warum und wie spart man in Deutschland', MEA Policy Brief, No 5.

Mojon, B., F. Smets and P. Vermeulen (2001), 'Investment and monetary policy in the euro area', ECB Working Papers, No 078.

Nehls, H. and T. Schmidt (2003), 'Credit crunch in Germany?', RWI Discussion Papers, No 6.

Noeth, B. and R. Sengupta (2012), 'Global European banks and the financial crisis', Federal Reserve Bank of St. Louis Review, Vol. 94, No 6, pp. 457-79.

OECD (2011a), 'Divided we stand – Why inequality keeps rising', OECD Publishing.

OECD (2011b), 'Science, technology and industry scoreboard 2011 — Innovation and growth in knowledge economies'.

OECD (2012a), 'OECD employment outlook 2012', OECD Publishing.

OECD (2012b), 'Education at a glance 2012: OECD indicators', OECD Publishing.

OECD (2013a), 'Pensions at a glance 2013: OECD and G20 indicators', OECD Publishing.

OECD (2013b), 'Tax administration 2013: Comparative information on OECD and other advanced and emerging economies', OECD Publishing.

OECD (2013c), 'Main science and technology indicators: Vol. 2013/1', OECD Publishing.

OECD/WTO (2013), 'OECD/WTO Trade in Value Added (TiVA) indicators — Country note Germany', May 2013 release of the Trade in Value Added (TiVA) database.

Papadia, F. (2013), 'Should German workers be paid more? Or, Do we have an omitted variable basis?', Money Matters? Perspectives on Monetary Policy.

Puri, M., J. Rocholl and S. Steffen (2009), 'Global retail lending in the aftermath of the US financial crisis: Distinguishing between supply and demand effects', Journal of Financial Economics, Vol. 100, No 3, pp. 556-578.

PwC and World Bank/IFC (2013), 'Paying taxes 2014: The global picture — A comparison of tax systems in 189 economies worldwide'.

Reidenbach, M., T. Bracher, B. Grabow, S. Schneider and A. Seidel-Schulze (2008), 'Investitionsrückstand und Investitionsbedarf der Kommunen: Ausmaß, Ursachen, Folgen, Strategien', Edition Difu, Band 4.

Rhein, T. (2013), 'Deutsche Geringverdiener im europäischen Vergleich'. IAB-Kurzbericht, No 15/2013.

Ruf, M. and D. Schindler (2012), 'Debt shifting and thin capitalisation rules — German experience and alternative approaches', Working Paper.

Ruscher, E. and G. Wolff (2013), 'Corporate balance sheet adjustment: Stylized facts, causes and consequences', Review of Economics, Vol. 64, No 2, pp. 117-138.

Sachverständigenrat (2002), 'Zwanzig Punkte für Beschäftigung und Wachstum', Jahresgutachten 2002/03.

Sachverständigenrat (2008), 'Das deutsche Finanzsystem: Effizienz steigern – Stabilität erhöhen', Expertise im Auftrag der Bundesregierung.

Sachverständigenrat (2011), 'Verantwortung für Europa wahrnehmen', Jahresgutachten 2011/12.

Sachverständigenrat (2012), 'Stabile Architektur für Europa — Handlungsbedarf im Inland', Jahresgutachten 2012/13.

Sachverständigenrat (2013), 'Gegen eine rückwärtsgewandte Wirtschaftspolitik', Jahresgutachten 2013/14.

Schmid, K. D. and U. Stein (2013), 'Explaining rising income inequality in Germany, 1991-2010', SOEP Papers, No 592/2013.

Schoenmaker, D. (2013), 'Post-crisis reversal in banking and insurance integration: An empirical survey', European Economy, Economic Papers, No 496.

Shin, H. S. (2011), 'Global banking glut and loan risk premium', Mundell-Fleming Lecture, presented at the 2011 IMF Annual Research Conference.

Sinn, H. W. (2003), 'Bazaar economy', Ifo Viewpoint, No 50.

Spieß, C. K. (2013), 'Investments in education: The early years offer great potential', DIW Economic Bulletin, No 10/2013.

Statistisches Bundesamt (2012a), 'Niedriglohn und Beschäftigung 2010', Begleitmaterial zur Pressekonferenz am 10. September 2012 in Berlin.

Statistisches Bundesamt (2012b), 'Bildungsfinanz-bericht 2012'.

Stein, U. (2009), 'Zur Entwicklung der Sparquoten der privaten Haushalte — Eine Auswertung von

Haushaltsdaten des SOEP', SOEP Papers, No 249/2009.

Stirböck, C. (2006), 'How strong is the impact of exports and other demand components on German import demand? Evidence from euro-area and non-euro-area imports', Deutsche Bundesbank Discussion Paper Series 1: Economic Studies, No 39/2006.

Timmer, M., B. Los, R. Stehrer and G. de Vries (2013), 'Rethinking competitiveness: The global value chain revolution', VoxEU.org, 26 June.

Von Kalckreuth, U. (2003), 'Exploring the role of uncertainty for corporate investment decisions in Germany', Swiss Journal of Economics and Statistics, Vol. 139, No 2, pp. 173-206.

Von Kalckreuth, U. and L. Silbermann (2010), 'Bubbles and incentives: A post-mortem of the Neuer Markt in Germany', Deutsche Bundesbank Discussion Paper Series 1: Economic Studies, No 15/2010.

Wang, M., M. O. Rieger, and T. Hens (2010), 'How time preferences differ: Evidence from 45 countries', SFI Working Paper, No 09-47.

Waysand, C., K. Ross and J. de Guzman (2010), 'European financial linkages: A new look at imbalances', IMF Working Paper, No 10/295.

Weber, J. P. (2013), 'Bezieher niedriger Einkommen sparen zu wenig', BVR Volkswirtschafts special, No 4/2013.

World Bank (2013), 'Doing business 2014'.

World Economic Forum (2013), 'The global competitiveness report 2013–2014'.

Zapf, I. (2012), 'Flexibilität am Arbeitsmarkt durch Überstunden und Arbeitszeitkonten', IAB Forschungsbericht, No 3/2012.

ZEW (2013), 'Effective tax levels using the Devereux/Griffith methodology', Project for the European Commission, TAXUD/2008/CC/099.

# OCCASIONAL PAPERS

**Occasional Papers can be accessed and downloaded free of charge at the following address:** http://ec.europa.eu/economy_finance/publications/occasional_paper/index_en.htm.

**Alternatively, hard copies may be ordered via the "Print-on-demand" service offered by the EU Bookshop:** http://bookshop.europa.eu.

No. 1 The Western Balkans in transition (January 2003)

No. 2 Economic Review of EU Mediterranean Partners (January 2003)

No. 3 Annual Report on structural reforms 2003, by Economic Policy Committee (EPC) (April 2003)

No. 4 Key structural challenges in the acceding countries: the integration of the acceding countries into the Community's economic policy co-ordination processes; by EPC (July 2003)

No. 5 The Western Balkans in transition (January 2004)

No. 6 Economic Review of EU Mediterranean Partners (March 2004)

No. 7 Annual report on structural reforms 2004 "reinforcing implementation", by Economic Policy Committee (EPC) (March 2004)

No. 8 The Portuguese economy after the boom (April 2004)

No. 9 Country Study: Denmark – Making work pay, getting more people into work (October 2004)

No. 10 Rapid loan growth in Russia: A lending boom or a permanent financial deepening? (November 2004)

No. 11 The structural challenges facing the candidate countries (Bulgaria, Romania, Turkey) – A comparative perspective (EPC) (December 2004)

No. 12 Annual report on structural reforms 2005 "Increasing growth and employment" (EPC) (January 2005)

No. 13 Towards economic and monetary union (EMU) – A chronology of major decisions, recommendations or declarations in this field (February 2005)

No. 14 Country Study: Spain in EMU: a virtuous long-lasting cycle? (February 2005)

No. 15 Improving the Stability and Growth Pact: the Commission's three pillar approach (March 2005)

No. 16 The economic costs of non-Lisbon. A survey of the literature on the economic impact of Lisbon-type reforms (March 2005)

No. 17 Economic Review of EU Mediterranean Partners: 10 years of Barcelona Process: taking stock of economic progress (April 2005)

No. 18 European Neighbourhood Policy: Economic Review of ENP Countries (April 2005)

No. 19 The 2005 EPC projection of age-related expenditure: agreed underlying assumptions and projection methodologies (EPC) (November 2005)

No. 20 Consumption, investment and saving in the EU: an assessment (November 2005)

No. 21 Responding to the challenges of globalisation (EPC) (December 2005)

No. 22 Report on the Lisbon National Reform Programmes 2005 (EPC) (January 2006)

No. 23 The Legal Framework for the Enlargement of the Euro Area (April 2006)

No. 24 Enlargement, two years after: an economic evaluation (May 2006)

No. 25 European Neighbourhood Policy: Economic Review of ENP Countries (June 2006)

No. 26 What do the sources and uses of funds tell us about credit growth in Central and Eastern Europe? (October 2006)

No. 27 Growth and competitiveness in the Polish economy: the road to real convergence (November 2006)

No. 28 Country Study: Raising Germany's Growth Potential (January 2007)

No. 29 Growth, risks and governance: the role of the financial sector in south eastern Europe (April 2007)

No. 30 European Neighbourhood Policy: Economic Review of EU Neighbour Countries (June 2007)

No. 31 2006 Pre-accession Economic Programmes of candidate countries (June 2007)

No. 32 2006 Economic and Fiscal Programmes of potential candidate countries (June 2007)

No. 33 Main results of the 2007 fiscal notifications presented by the candidates countries (June 2007)

No. 34 Guiding Principles for Product Market and Sector Monitoring (June 2007)

No. 35 Pensions schemes and projection models in EU-25 Member States (EPC) (November 2007)

No. 36 Progress towards meeting the economic criteria for accession: the assessments of the 2007 Progress Reports (December 2007)

No. 37 The quality of public finances - Findings of the Economic Policy Committee-Working Group (2004-2007) edited by Servaas Deroose (Directorate-General Economic and Financial Affairs) and Dr. Christian Kastrop (President of the Economic Policy Committee of the EU. Chairman of the EPC-Working Group "Quality of Public Finances" (2004-2008). Deputy Director General "Public Finance and Economic Affairs", Federal Ministry of Finance, Germany) (March 2008)

No. 38 2007 Economic and Fiscal Programmes of potential candidate countries: EU Commission's assessments (July 2008)

No. 39 2007 Pre-accession Economic Programmes of candidate countries: EU Commission assessments (July 2008)

No. 40 European neighbourhood policy: Economic review of EU neighbour countries (August 2008)

No. 41 The LIME assessment framework (LAF): a methodological tool to compare, in the context of the Lisbon Strategy, the performance of EU Member States in terms of GDP and in terms of twenty policy areas affecting growth (October 2008)

No. 42 2008 Fiscal notifications of candidate countries: overview and assessment (November 2008)

No. 43 Recent reforms of the tax and benefit systems in the framework of flexicurity by Giuseppe Carone, Klara Stovicek, Fabiana Pierini and Etienne Sail (European Commission, Directorate-General for Economic and Financial Affairs) (Febrauary 2009)

No. 44 Progress towards meeting the economic criteria for accession: the assessments of the 2008 Progress Reports (European Commission, Directorate-General for Economic and Financial Affairs) (March 2009)

No. 45 The quality of public finances and economic growth: Proceedings to the annual Workshop on public finances (28 November 2008) edited by Salvador Barrios, Lucio Pench and Andrea Schaechter (European Commission, Directorate-General for Economic and Financial Affairs) (March 2009)

No. 46 The Western Balkans in transition (European Commission, Directorate-General for Economic and Financial Affairs) (May 2009)

No. 47 The functioning of the food supply chain and its effect on food prices in the European Union by Lina Bukeviciute, Adriaan Dierx and Fabienne Ilzkovitz (European Commission, Directorate-General for Economic and Financial Affairs) (May 2009)

No. 48 Impact of the global crisis on neighbouring countries of the EU by European Commission, Directorate-General for Economic and Financial Affairs (June 2009)

No. 49 Impact of the current economic and financial crisis on potential output (European Commission, Directorate-General for Economic and Financial Affairs) (June 2009)

No. 50 What drives inflation in the New EU Member States? : Proceedings to the workshop held on 22 October 2008 (European Commission, Directorate-General for Economic and Financial Affairs) (July 2009)

No. 51 The EU's response to support the real economy during the economic crisis: an overview of Member States' recovery measures by Giuseppe Carone, Nicola Curci, Fabiana Pierini, Luis García Lombardero, Anita Halasz, Ariane Labat, Mercedes de Miguel Cabeza, Dominique Simonis, Emmanuelle Maincent and Markus Schulte (European Commission, Directorate-General for Economic and Financial Affairs) (July 2009)

No. 52 2009 Economic and Fiscal Programmes of potential candidate countries: EU Commission's assessments (European Commission, Directorate-General for Economic and Financial Affairs) (July 2009)

No. 53 Economic performance and competition in services in the euro area: Policy lessons in times of crisis by Josefa Monteagudo and Adriaan Dierx (European Commission, Directorate-General for Economic and Financial Affairs) (September 2009)

No. 54 An analysis of the efficiency of public spending and national policies in the area of R&D by A. Conte, P. Schweizer, A. Dierx and F. Ilzkovitz (European Commission, Directorate-General for Economic and Financial Affairs) (September 2009)

No. 55 2009 Pre-Accession Economic Programmes of candidate countries: EU Commission's assessments (European Commission, Directorate-General for Economic and Financial Affairs) (October 2009)

No. 56 Pension schemes and pension projections in the EU-27 Member States - 2008-2060 by the Economic Policy Committee (AWG) and Directorate-General Economic and Financial Affairs (October 2009)

No. 57 Progress towards meeting the economic criteria for accession: the assessments of the 2009 Progress Reports (European Commission, Directorate-General for Economic and Financial Affairs) (November 2009)

No. 58 Cross-country study: Economic policy challenges in the Baltics (European Commission, Directorate-General for Economic and Financial Affairs) (February 2010)

No. 59 The EU's neighbouring economies: emerging from the global crisis (European Commission, Directorate-General for Economic and Financial Affairs) (April 2010)

No. 60 Labour Markets Performance and Migration Flows in Arab Mediterranean Countries: Determinants and Effects — Volume 1: Final Report & Thematic Background Papers; Volume 2: National Background Papers Maghreb (Morocco, Algeria, Tunisia); Volume 3: National Background Papers Mashreq (Egypt, Palestine, Jordan, Lebanon, Syria) by Philippe Fargues & Iván Martín (European Commission, Directorate-General for Economic and Financial Affairs) (April 2010)

No. 61 The Economic Adjustment Programme for Greece (European Commission, Directorate-General for Economic and Financial Affairs) (May 2010)

No. 62 The pre-accession economies in the global crisis: from exogenous to endogenous growth? (European Commission, Directorate-General for Economic and Financial Affairs) (June 2010)

No. 63 2010 Economic and Fiscal Programmes of potential candidate countries: EU Commission's assessments (European Commission, Directorate-General for Economic and Financial Affairs) (June 2010)

No. 64 Short time working arrangements as response to cyclical fluctuations, a joint paper prepared in collaboration by Directorate-General for Economic and Financial Affairs and Directorate General for Employment, Social Affairs and Equal Opportunities (June 2010)

No. 65 Macro structural bottlenecks to growth in EU Member States (European Commission, Directorate-General for Economic and Financial Affairs) (July 2010)

No. 66 External Imbalances and Public Finances in the EU edited by Salvador Barrios, Servaas Deroose, Sven Langedijk and Lucio Pench (European Commission, Directorate-General for Economic and Financial Affairs) (August 2010)

No. 67 National fiscal governance reforms across EU Member States. Analysis of the information contained in the 2009-2010 Stability and Convergence Programmes by Joaquim Ayuso-i-Casals (European Commission, Directorate-General for Economic and Financial Affairs) (August 2010)

No. 68 The Economic Adjustment Programme for Greece: First review – summer 2010 (European Commission, Directorate-General for Economic and Financial Affairs (August 2010)

No. 69 2010 Pre-accession Economic Programmes of candidate countries: EU Commission assessments (European Commission, Directorate-General for Economic and Financial Affairs (September 2010)

No. 70 Efficiency and effectiveness of public expenditure on tertiary education in the EU (European Commission, Directorate-General for Economic and Financial Affairs and Economic Policy Committee (Quality of Public Finances) (November 2010)

No. 71 Progress and key challenges in the delivery of adequate and sustainable pensions in Europe (Joint Report by the Economic Policy Committee (Ageing Working Group), the Social Protection Committee (Indicators Sub-Group) and the Commission services (DG for Economic and Financial Affairs and DG Employment, Social Affairs and Equal Opportunities), (November 2010)

No. 72 The Economic Adjustment Programme for Greece – Second review – autumn 2010 (European Commission, Directorate-General for Economic and Financial Affairs) (December 2010)

No. 73 Progress towards meeting the economic criteria for accession: the assessments of the 2010 Progress Reports and the Opinions (European Commission, Directorate-General for Economic and Financial Affairs) (December 2010)

No. 74 Joint Report on Health Systems prepared by the European Commission and the Economic Policy Committee (AWG) (December 2010)

No. 75 Capital flows to converging European economies – from boom to drought and beyond (European Commission, Directorate-General for Economic and Financial Affairs) (February 2011)

No. 76 The Economic Adjustment Programme for Ireland (European Commission, Directorate-General for Economic and Financial Affairs) (February 2011)

No. 77 The Economic Adjustment Programme for Greece Third review – winter 2011 (European Commission, Directorate-General for Economic and Financial Affairs) (February 2011)

No. 78 The Economic Adjustment Programme for Ireland—Spring 2011 Review (European Commission, Directorate-General for Economic and Financial Affairs) (May 2011)

No. 79 The Economic Adjustment Programme for Portugal (European Commission, Directorate-General for Economic and Financial Affairs) (June 2011)

No. 80 2011 Pre-accession Economic Programmes of candidate countries: EU Commission assessments (European Commission, Directorate-General for Economic and Financial Affairs) (June 2011)

No. 81 2011 Economic and Fiscal Programmes of potential candidate countries: EU Commission's assessments (European Commission, Directorate-General for Economic and Financial Affairs) (June 2011)

No. 82 The Economic Adjustment Programme for Greece – Fourth review – spring 2011 (European Commission, Directorate-General for Economic and Financial Affairs) (July 2011)

No. 83 The Economic Adjustment Programme for Portugal - First Review - Summer 2011
(European Commission, Directorate-General for Economic and Financial Affairs) (September 2011)

No. 84 Economic Adjustment Programme for Ireland—Summer 2011 Review (European Commission, Directorate-General for Economic and Financial Affairs) (September 2011)

No. 85 Progress towards meeting the economic criteria for accession: the assessments of the 2011 Progress Reports and the Opinion (Serbia) (European Commission, Directorate-General for Economic and Financial Affairs) (December 2011)

No. 86 The EU's neighbouring economies: coping with new challenges (European Commission, Directorate-General for Economic and Financial Affairs) (November 2011)

No. 87 The Economic Adjustment Programme for Greece: Fifth review – October 2011 (European Commission, Directorate-General for Economic and Financial Affairs) (November 2011)

No. 88 Economic Adjustment Programme for Ireland — autumn 2011 Review (European Commission, Directorate-General for Economic and Financial Affairs) (December 2011)

No. 89 The Economic Adjustment Programme for Portugal - Second review - autumn 2011 (European Commission, Directorate-General for Economic and Financial Affairs) (December 2011)

No. 90 The Balance of Payments Programme for Romania. First Review - autumn 2011 (European Commission, Directorate-General for Economic and Financial Affairs) (December 2011)

No. 91 Fiscal frameworks across Member States: Commission services' country fiches from the 2011 EPC peer review (European Commission, Directorate-General for Economic and Financial Affairs) (February 2012)

No. 92 Scoreboard for the Surveillance of Macroeconomic Imbalances (European Commission, Directorate-General for Economic and Financial Affairs) (February 2012)

No. 93 Economic Adjustment Programme for Ireland — Winter 2011 Review (European Commission, Directorate-General for Economic and Financial Affairs) (March 2012)

No.94 The Second Economic Adjustment Programme for Greece — March 2012 (European Commission, Directorate-General for Economic and Financial Affairs) (March 2012)

No. 95 The Economic Adjustment Programme for Portugal — Third review. Winter 2011/2012 (European Commission, Directorate-General for Economic and Financial Affairs) (April 2012)

No. 96 Economic Adjustment Programme for Ireland — Spring 2012 Review (European Commission, Directorate-General for Economic and Financial Affairs) (June 2012)

No. 97 2012 Economic and Fiscal Programmes of Albania, Bosnia and Herzegovina: EU Commission's overview and country assessments (European Commission, Directorate-General for Economic and Financial Affairs) (June 2012)

No. 98 2012 Pre-accession Economic Programmes of Croatia, Iceland, the Former Yugoslav Republic of Macedonia, Montenegro, Serbia and Turkey: EU Commission's overview and assessments (European Commission, Directorate-General for Economic and Financial Affairs) (June 2012)

No. 99 Macroeconomic imbalances – Belgium (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 100 Macroeconomic imbalances – Bulgaria (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 101 Macroeconomic imbalances – Cyprus (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 102 Macroeconomic imbalances – Denmark (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 103 Macroeconomic imbalances – Spain (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 104 Macroeconomic imbalances – Finland (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 105 Macroeconomic imbalances – France (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 106 Macroeconomic imbalances – Hungary (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 107 Macroeconomic imbalances – Italy (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 108 Macroeconomic imbalances – Sweden (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 109 Macroeconomic imbalances – Slovenia (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 110 Macroeconomic imbalances – United Kingdom (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 111 The Economic Adjustment Programme for Portugal. Fourth review – Spring 2012 (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 112 Measuring the macroeconomic resilience of industrial sectors in the EU and assessing the role of product market regulations (Fabio Canova, Leonor Coutinho, Zenon Kontolemis, Universitat Pompeu Fabra and Europrism Research (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 113 Fiscal Frameworks in the European Union: May 2012 update on priority countries (Addendum to Occasional Papers No.91) (European Commission, Directorate-General for Economic and Financial Affairs) (July 2012)

No. 114 Improving tax governance in EU Member States: Criteria for successful policies by Jonas Jensen and Florian Wöhlbier (European Commission, Directorate-General for Economic and Financial Affairs) (August 2012)

No. 115 Economic Adjustment Programme for Ireland — Summer 2012 Review (European Commission, Directorate-General for Economic and Financial Affairs) (September 2012)

No. 116 The Balance of Payments Programme for Romania. First Review - Spring 2012 (European Commission, Directorate-General for Economic and Financial Affairs) (October 2012)

No. 117 The Economic Adjustment Programme for Portugal. Fifth review – Summer 2012 (European Commission, Directorate-General for Economic and Financial Affairs) (October 2012)

No. 118 The Financial Sector Adjustment Programme for Spain (European Commission, Directorate-General for Economic and Financial Affairs) (October 2012)

No. 119 Possible reforms of real estate taxation: Criteria for successful policies (European Commission, Directorate-General for Economic and Financial Affairs) (October 2012)

No. 120 EU Balance-of-Payments assistance for Latvia: Foundations of success (European Commission, Directorate-General for Economic and Financial Affairs) (November 2012)

No. 121 Financial Assistance Programme for the Recapitalisation of Financial Institutions in Spain. First review - Autumn 2012 (European Commission, Directorate-General for Economic and Financial Affairs) (November 2012)

No. 122 Progress towards meeting the economic criteria for EU accession: the EU Commission's 2012 assessments (European Commission, Directorate-General for Economic and Financial Affairs) (December 2012)

No. 123 The Second Economic Adjustment Programme for Greece. First Review - December 2012 (European Commission, Directorate-General for Economic and Financial Affairs) (December 2012)

No. 124 The Economic Adjustment Programme for Portugal. Sixth Review – Autumn 2012 (European Commission, Directorate-General for Economic and Financial Affairs) (December 2012)

No. 125 The Quality of Public Expenditures in the EU (European Commission, Directorate-General for Economic and Financial Affairs) (December 2012)

No. 126 Financial Assistance Programme for the Recapitalisation of Financial Institutions in Spain. Update on Spain's compliance with the Programme - Winter 2013 (European Commission, Directorate-General for Economic and Financial Affairs) (January 2013)

No. 127 Economic Adjustment Programme for Ireland — Autumn 2012 Review (European Commission, Directorate-General for Economic and Financial Affairs) (January 2013)

No. 128 Interim Progress Report on the implementation of Council Directive 2011/85/EU on requirements for budgetary frameworks of the Member States. (European Commission, Directorate-General for Economic and Financial Affairs) (February 2013)

No. 129 Market Functioning in Network Industries - Electronic Communications, Energy and Transport. (European Commission, Directorate General for Economic and Financial Affairs) (February 2013)

No. 130 Financial Assistance Programme for the Recapitalisation of Financial Institutions in Spain. Second Review of the Programme - Spring 2013 (European Commission, Directorate General for Economic and Financial Affairs) (March 2013)

No. 131 Economic Adjustment Programme for Ireland – Winter 2012 Review (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 132 Macroeconomic Imbalances – Bulgaria 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 133 Macroeconomic Imbalances – Denmark 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 134 Macroeconomic Imbalances – Spain 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 135 Macroeconomic Imbalances – Finland 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 136 Macroeconomic Imbalances – France 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 137 Macroeconomic Imbalances – Hungary 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 138 Macroeconomic Imbalances – Italy 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 139 Macroeconomic Imbalances – Malta 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 140 Macroeconomic Imbalances – Netherlands 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 141 Macroeconomic Imbalances – Sweden 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 142 Macroeconomic Imbalances – Slovenia 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 143 Macroeconomic Imbalances – United Kingdom 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 144 Macroeconomic Imbalances – Belgium 2013 (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 145 Member States' Energy Dependence: An Indicator-Based Assessment (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 146 Benchmarks for the assessment of wage developments (European Commission, Directorate General for Economic and Financial Affairs) (May 2013)

No. 147 The Two-Pack on economic governance: Establishing an EU framework for dealing with threats to financial stability in euro area member states (European Commission, Directorate General for Economic and Financial Affairs) (May 2013)

No. 148 The Second Economic Adjustment Programme for Greece – Second Review – May 2013 (European Commission, Directorate General for Economic and Financial Affairs) (May 2013)

No. 149 The Economic Adjustment Programme for Cyprus (European Commission, Directorate General for Economic and Financial Affairs) (May 2013)

No. 150 Building a Strengthened Fiscal Framework in the European Union: A Guide to the Stability and Growth Pact (European Commission, Directorate General for Economic and Financial Affairs) (May 2013)

No. 151 Vade mecum on the Stability and Growth Pact (European Commission, Directorate General for Economic and Financial Affairs) (May 2013)

No. 152 The 2013 Stability and Convergence Programmes: An Overview (European Commission, Directorate General for Economic and Financial Affairs) (June 2013)

No. 153 The Economic Adjustment Programme for Portugal. Seventh Review – Winter 2012/2013 (European Commission, Directorate General for Economic and Financial Affairs) (June 2013)

No. 154 Economic Adjustment Programme for Ireland - Spring 2013 Review (European Commission, Directorate General for Economic and Financial Affairs) (July 2013)

No. 155 Financial Assistance Programme for the Recapitalisation of Financial Institutions in Spain. Third Review of the Programme – Summer 2013 (European Commission, Directorate General for Economic and Financial Affairs) (July 2013)

No. 156 Overall assessment of the two balance-of-payments assistance programmes for Romania, 2009-2013 (European Commission, Directorate General for Economic and Financial Affairs) (July 2013)

No. 157 2013 Pre-accession Economic Programmes of Iceland, the Former Yugoslav Republic of Macedonia, Montenegro, Serbia and Turkey: EU Commission's overview and assessments (European Commission, Directorate General for Economic and Financial Affairs) (July 2013)

No. 158 2013 Economic and Fiscal Programmes of Albania and Bosnia and Herzegovina: EU Commission's overview and country assessments (European Commission, Directorate General for Economic and Financial Affairs) (July 2013)

No. 159 The Second Economic Adjustment Programme for Greece - Third Review – July 2013 (European Commission, Directorate General for Economic and Financial Affairs) (July 2013)

No. 160 The EU's neighbouring economies: managing policies in a challenging global environment (European Commission, Directorate General for Economic and Financial Affairs) (August 2013)

No. 161 The Economic Adjustment Programme for Cyprus - First Review - Summer 2013 (European Commission, Directorate General for Economic and Financial Affairs) (September 2013)

No. 162 Economic Adjustment Programme for Ireland — Summer 2013 Review (European Commission, Directorate General for Economic and Financial Affairs) (October 2013)

No. 163 Financial Assistance Programme for the Recapitalisation of Financial Institutions in Spain. Fourth Review – Autumn 2013 (European Commission, Directorate General for Economic and Financial Affairs) (November 2013)

No. 164 The Economic Adjustment Programme for Portugal — Eighth and Ninth Review (European Commission, Directorate General for Economic and Financial Affairs) (November 2013)

No. 165 Romania: Balance-of-Payments Assistance Programme 2013-2015 (European Commission, Directorate General for Economic and Financial Affairs) (November 2013)

No. 166 Progress towards meeting the economic criteria for EU accession: the EU Commission's 2013 assessments (European Commission, Directorate General for Economic and Financial Affairs) (December 2013)

No. 167 Economic Adjustment Programme for Ireland — Autumn 2013 Review (European Commission, Directorate General for Economic and Financial Affairs) (December 2013)

No. 168 Fiscal frameworks in the European Union: Commission services country factsheets for the Autumn 2013 Peer Review (European Commission, Directorate General for Economic and Financial Affairs) (December 2013)

No. 169 The Economic Adjustment Programme for Cyprus – Second Review - Autumn 2013 (European Commission, Directorate General for Economic and Financial Affairs) (December 2013)

No. 170 Financial Assistance Programme for the Recapitalisation of Financial Institutions in Spain. Fifth Review – Winter 2014 (European Commission, Directorate General for Economic and Financial Affairs) (January 2014)

No. 171 The Economic Adjustment Programme for Portugal — Tenth Review (European Commission, Directorate General for Economic and Financial Affairs) (February 2014)

No. 172 Macroeconomic Imbalances – Belgium 2014 (European Commission, Directorate General for Economic and Financial Affairs) (March 2014)

No. 173 Macroeconomic Imbalances – Bulgaria 2014 (European Commission, Directorate General for Economic and Financial Affairs) (March 2014)

No. 174 Macroeconomic Imbalances – Germany 2014 (European Commission, Directorate General for Economic and Financial Affairs) (March 2014)

**HOW TO OBTAIN EU PUBLICATIONS**

**Free publications:**

- one copy:
  via EU Bookshop (http://bookshop.europa.eu);

- more than one copy or posters/maps:
  from the European Union's representations (http://ec.europa.eu/represent_en.htm);
  from the delegations in non-EU countries (http://eeas.europa.eu/delegations/index_en.htm);
  by contacting the Europe Direct service (http://europa.eu/europedirect/index_en.htm) or
  calling 00 800 6 7 8 9 10 11 (freephone number from anywhere in the EU) (*).

  (*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

**Priced publications:**

- via EU Bookshop (http://bookshop.europa.eu).

**Priced subscriptions:**

- via one of the sales agents of the Publications Office of the European Union
  (http://publications.europa.eu/others/agents/index_en.htm).

KC-AH-14-174-EN-N

Publications Office