# The euro ten years on – the German economy in monetary union

The history-making introduction of the euro on 1 January 1999 engendered hope in many and scepticism in some. Ten years on, it is now time to take stock. The economic advantages expected of the single currency have been largely achieved. The euro area has experienced a period of remarkable monetary stability. Events have confirmed the need to back up the single monetary policy with a set of fiscal policy rules. Although the binding effect of the Stability and Growth Pact (SGP) has been weakened over the past few years, its existence still facilitates the implementation of necessary consolidation measures in the euro area, including Germany. In the early years of monetary union, the German economy underwent a difficult adjustment process. The only way to address the massive structural problems besetting the labour market was through a lengthy phase of moderate wage growth and radical reforms. In the past few years, however, the structural resilience of the German economy has been renewed. In the current recessionary global economic environment, the challenges facing the single currency are no less significant than those at the beginning of monetary union. Strengthening the pillars of European unification and developing a European culture of stability remain the main goals.

## The euro ten years on: expectations and preliminary report

*Hopes invested in the euro …*

The introduction of the euro on 1 January 1999 was greeted with the hope that it would give a new boost to competition, make prices more transparent and thereby promote the convergence of prices within the euro area. It was also hoped that the elimination of exchange rate risks and the reduction of transaction costs would be a catalyst for economic integration in the goods and financial markets alike and that the importance of monetary policy disruptions – which had been a recurring feature of earlier decades – would sharply diminish. Of particular significance, however, was the hope that the single monetary policy of the Eurosystem – backed by fiscal policy through the SGP – would ensure price stability for the over 290 million residents of the original 11-member currency zone. Ten years on, this area has grown into a 15-member region with a population of 320 million.

*… have been largely fulfilled*

Now that monetary union is ten years old, preliminary conclusions may be drawn even if the period is too short for a comprehensive assessment. During this period, however, the euro-area economy, like the German economy, has virtually completed a business cycle, which minimises the risk that a macroeconomic assessment of the entire period will amalgamate cyclical developments with structural developments.

On the whole, the realistic expectations regarding the advantages of monetary union have been largely fulfilled. The forecasts of gloom and doom proved to be unfounded, while excessive optimism was dashed. The sceptics who predicted a short life for the euro were proved wrong; however, those who thought the single currency would be a catalyst for structural reforms were disappointed, too.

*Eurosystem ensures price stability under less-than-ideal circumstances*

The promise of stability that came with monetary union was of key importance not least to the general public here in Germany, where the advantages of a stability-oriented monetary policy had already been achieved well before monetary union. Against that backdrop, it is positive to note that the past ten years have represented a period of considerable monetary stability, by international and historical standards alike, for both the euro area and Germany. While Germany saw continuity in its stability policy, some of the other euro-area countries got the chance to participate in the advantages of a climate of price stability. With an average annual (HICP) inflation rate of just over 2%, the euro area largely achieved its avowed medium-term objective of below but close to 2%. However, numerous external price drivers, such as the dramatic increase in energy and commodity prices up until mid-2008, which cannot be influenced by domestic policymakers, were the main reasons why the target was slightly missed. All in all, in its first ten years, monetary union has succeeded in solidifying a Europe-wide culture of stability on a new foundation, with the single currency making a decisive contribution.

The past ten years have confirmed the need to back up the single monetary policy in the

*Binding effect of European budgetary framework weakened ...*

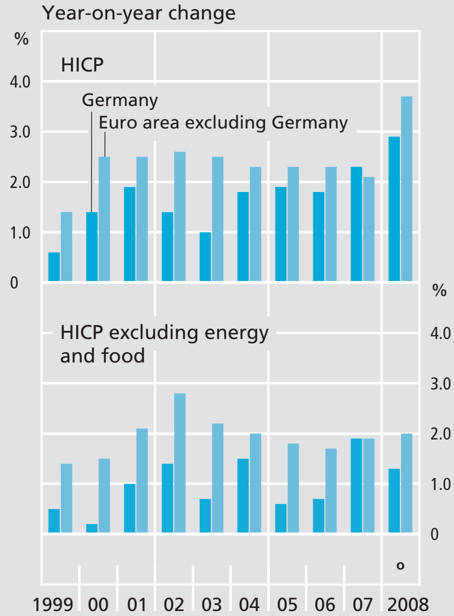
euro area with a framework of fiscal policy rules. In the first half of this period, it was particularly fiscal problems in Germany and France that subjected the SGP to a severe stress test. This led to amendments to the SGP in 2005. Although the basis of the rules remained the same, their specific shape was made more flexible, more complicated and less transparent. This, along with the introduction of numerous exemptions, weakened the binding nature of the SGP. However, even after the amendments had been adopted, some member states either hardly complied with the "preventive sections" of the rules or did so only very grudgingly.

*... yet framework has helped avoid conflict between fiscal policy and stability-oriented monetary policy*

On the whole, however, developments in public sector budgets did not stand in the way of a stability-oriented monetary policy. The especially highly indebted nations reduced their deficit ratios – albeit, in some cases, very slowly. The agreed upper deficit limit of 3% of gross domestic product (GDP) was exceeded on several occasions; however, owing to the correction mechanisms built into the deficit procedures, most of these misalignments were successfully remedied within a reasonable timeframe. Over the past year, the deficit ratio was below the 3% mark in almost all euro-area countries – although it must be said that this took place in a macroeconomic environment that was still favourable. However, the strong economic headwind which the euro area has been facing since the third quarter and the high risks associated with the financial crisis will pose new short and medium-term challenges to the fiscal framework.

Consumer prices in Germany and its euro-area partners

Year-on-year change




o Figures for 2008 based on the first 11 and 10 months of the year respectively.

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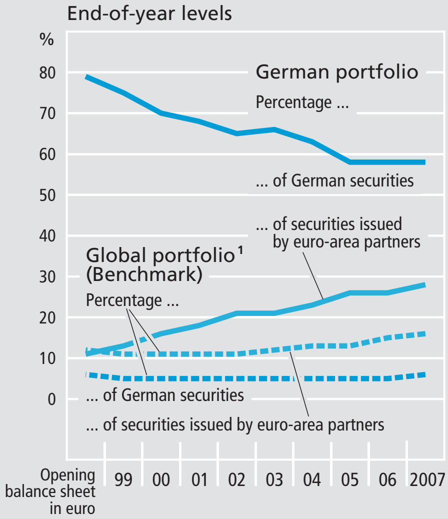
*Single currency strengthens financial market integration*

The main achievement of the single currency has been to promote the convergence of the money and capital markets. Growing competition, increasingly liquid and transparent markets, and economies of scale and scope have all demonstrably improved risk diversification and enhanced the efficiency of capital allocation.[1] The degree of integration of financial markets increases in line with the proximity to the key market of the single European monetary policy, the money market.[2] Whereas money market rates are virtu-

1 Along with these market economy factors, the shared legal framework of the EU Treaty has also promoted financial sector integration. Growing liberalisation in the EU and innovation in information and communication technology, however, are very difficult to disentangle from influencing factors which are related to the introduction of the euro.
2 See European Central Bank, Indicators of Financial Integration in the Euro Area, September 2005, and European Central Bank, Financial Integration in Europe, April 2008.

Preferences of investors in German securities*

End-of-year levels




* Stocks, mutual fund shares and debt securities with a maturity of more than one year. — 1 Approximated by the securities portfolios of the euro-area countries, the United Kingdom, Japan and the United States. Sources: ECB, Eurostat and Bundesbank calculations.

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ally identical[3] throughout the euro area, yield spreads between different nations' government bonds still exist; over the past ten years, these spreads have been caused largely by liquidity differentials and also by "home bias", ie investors' preference to invest in domestic instruments. This bias, however, seems to have diminished perceptibly in monetary union, for bonds and stocks alike.[4] The sharp growth in yield spreads between member states' government bonds owing to the financial crisis, however, has made it clear that the risks engendered by the public finance situation in individual countries have not completely disappeared from investors' calculations.

*Euro's contribution to price convergence unclear...*

In line with preliminary expectations, the introduction of the euro gave a boost to price transparency, with nearly nine out of ten euro-area citizens confirming, just a few years after the establishment of the euro area, that the single currency had made it easier to compare prices between member states.[5] By contrast, slightly less than one-third of those surveyed believed that the euro had reduced price differences between member states.[6] This sceptical view is also reflected by the relatively divergent results of empirical studies, which show that, even as early as the beginning of the 1990s, there had been significant price convergence in Europe.[7] However, what they also illustrate is the absence to date of a clear-cut answer to the question of

3 Some differences in national legislation governing the repo market for collateralised transactions still exist. However, growing transparency and harmonisation are improving the banks' financing conditions in this market as well.
4 There are signs that the percentage of domestic stocks in overall stock portfolios has fallen more sharply in the euro-area member states than in the USA or Japan since the mid-1990s. See Deutsche Bundesbank, Recent developments in the international financial system, Monthly Report, July 2008, pp 15-30; M Fidora, M Fratzscher and C Thimann (2007), Home Bias in Global Bond and Equity Markets: The Role of Real Exchange Rate Volatility, Journal of International Money and Finance, 26 (4), pp 631-655; R A De Santis and B Gérard (2006), Financial Integration, International Portfolio Choice and the European Monetary Union, ECB Working Paper Series, No 626.
5 This percentage has risen distinctly relative to the period prior to the introduction of the euro. See Flash EFS 121 "Euro Attitudes – Euro Zone", study organised by the European Commission, January 2002. I Méjean and C Schwellnus (2007), Does European Integration have an Effect on the Pricing Behaviour of French Exporters?, CEPII, assume that the introduction of the euro has led to a reduction in market segmentation.
6 See Flash EFS 175 "The Euro, 4 years after the introduction of the banknotes and coins", study organised by the European Commission, November 2005.
7 See, for instance, C Fischer (2007), An Assessment of the Trends in International Price Competitiveness among EMU Countries, Research Centre, Deutsche Bundesbank, Discussion Paper, Series I, Economic Studies, No 08/2007, and P Goldberg and F Verboven (2005), Market Integration and Convergence to the Law of One Price: Evidence from the European Car Market, Journal of International Economics, 65, pp 49-73.

whether the introduction of the euro has led to price convergence.[8]

*... but trade effects positive*

By contrast, ten years of monetary union have shown that falling transaction costs and the elimination of exchange rate risks have *per se* had a positive impact on euro-area foreign trade. Intra-euro-area exports and imports rose from 28% of euro-area GDP in 1999 to 33% in 2007. Growth in intra-euro-area trade, however, did not detrimentally affect the growth in trade with the rest of the world. This is suggested by the fact that euro-area countries' trade with the rest of the world grew even more strongly than intra-euro-area trade. To that extent, the "trade diversion"[9] effect feared by some did not materialise; instead, the increased competitive pressure caused by the intensification of intra-euro-area trade is likely, in a highly dynamic global economic environment, to have had more of a positive impact on the euro area's competitiveness in world markets. Empirical studies indicate that the euro could have made a contribution to the growth of trading volume in the euro area amounting to around 3% to 5% and that these positive trade effects have been concentrated particularly on sectors with highly differentiated products.[10]

*Euro promotes equal burden sharing in euro area*

Prior to the launch of monetary union, weak-dollar periods, such as the time of the US dollar's plunge in the second half of the 1980s or the Mexican crisis in the mid-1990s, frequently coincided with unilateral portfolio shifts in favour of the Deutsche Mark. The appreciation of the Deutsche Mark that this caused led to tensions within the European Monetary System (EMS) and to a – sometimes substantial – decline in the price competitiveness of the German economy, including Germany's bilateral trade with its European partners. European monetary union eliminated such intra-European exchange rate shifts, with the result that the attendant real adjustment strains of the past are now no longer an issue. This protective umbrella has benefited, in particular, the heavily export-reliant German economy. In the past few months, too, this umbrella is likely to have had a stabilising impact given the sharp rise in volatility in the international forex markets and the sharp in-

8 Whereas J C Cuaresma et al (2007), Price Level Convergence in Europe: Did the Introduction of the Euro Matter?, in Oesterreichische Nationalbank, Monetary Policy & the Economy, Q1/07, pp 100-113, and J H Rogers (2007), Monetary Union, Price Level Convergence, and Inflation: How Close is Europe to the USA?, Journal of Monetary Economics, 54, pp 785-796, find no evidence that the euro has made a significant contribution to price convergence, N F B Allington et al (2005), One Market, One Money, One Price?, International Journal of Central Banking, 1(3), pp 73-115, assume that the single monetary area has made a significant contribution to the reduction of price differentials.

9 The existence of trade diversion is not supported empirically. See, for example, H Faruqee (2004), Measuring the Trade Effects of EMU, Working Paper No 04/154, IMF, Washington DC; A Micco et al (2003), The Currency Union Effect on Trade: Early Evidence from EMU, Economic Policy, Vol 18, Issue 37, pp 315-356.

10 Some empirical studies, such as A Micco et al (2003) and K Aristotelous (2006), Are there Differences across Countries Regarding the Effect of Currency Unions on Trade? Evidence from EMU, Journal of Common Market Studies, 44, pp 17-27, find an increase of up to 30% in intra-euro-area trade. However, if additional control variables are factored into the approach, the estimated trading profit is reduced significantly, such as in M J G Bun and F J G M Klaassen (2007), The Euro Effect on Trade is not as Large as Commonly Thought, Oxford Bulletin of Economics and Statistics, 69, 4, pp 473-496, and H Berger and V Nitsch (2005), Zooming Out: The Trade Effect of the Euro in Historical Perspective, Free University of Berlin, Diskussionsbeiträge des Fachbereichs Wirtschaftswissenschaft, No 2005/5, Berlin. For more on the meaning of differentiated goods see, for example, H Flam and H Nordstrom (2003), Trade Volume Effects of the Euro: Aggregate and Sector Estimates, Institute for International Economic Studies; R Baldwin et al (2005), Trade Effects of the Euro – Evidence from Sectoral Data, ECB Working Paper Series, No 446.

crease in yield spreads between different countries' government bonds, both of which were associated with the financial market crisis.

*Euro not a catalyst for structural reforms and growth*

By contrast, the hopes held at the inception of monetary union that the euro could serve as a sort of catalyst in triggering structural reforms in the real sector of euro-area countries have been fulfilled only marginally or not at all. There are certainly no signs that the euro area has made any more progress in this respect over the past few years than, for instance, the non-euro-area EU countries (excluding the accession countries). Although employment in the euro area has developed favourably, rising in the past decade by around 18 million persons and accompanied by a visible decline in unemployment, the per capita income gap relative to the USA since the start of monetary union has not narrowed perceptibly; indeed, labour productivity growth over the past decade is actually much lower than in the preceding ten-year period. Average overall economic growth in the euro area over the past ten years, at somewhat more than 2% per year, has likewise stagnated.

This clearly shows that it remains incumbent upon the euro-area national governments and the European Commission to press ahead with the process of reform in the European Union along the standards set in Lisbon in 2000 and reaffirmed in 2005. It has become clear in the ten years of monetary union that the elimination of competition among currencies in Europe and of the associated risk premium "penalty" has not lessened the need for reform. On the contrary – and this is particularly relevant with respect to the German economy – the single currency will not simply resolve persistent domestic structural problems automatically. National targeted reform measures are still necessary to remedy these problems.

## German economy in its first decade of monetary union

*Pronounced weakness in growth following reunification*

The beginning of Stage Three of monetary union on 1 January 1999 saw the German economy in a difficult situation. This was caused mainly by domestic misalignments and structural weaknesses which, to a considerable extent, were associated with the economic distortions triggered by reunification and which caused a prolonged weakness in economic growth. Also, the situation was visibly exacerbated in the first half of the 1990s by a perceptible appreciation of the Deutsche Mark in the EMS as well as the depreciation of currencies that had exited the exchange rate mechanism (ERM) in the EMS.

*German economy underwent sharp adjustment process particularly in first few years of monetary union*

Enterprises in Germany had already begun to increase their efforts to improve their price competitiveness by the mid-1990s. As a result, Germany's economic problems were less pronounced at the time of the introduction of the euro than in the preceding period.[11] At the same time, the existing need for reform was concealed at the end of the 1990s by the

11 This is reflected, among other things, by the fact that, by end-1998, the indicator of price competitiveness against the rest of the euro area had returned more or less to its long-term average.

cyclical peak following the boom of the "New Economy". When the global economy started to slide following the end of the boom, however, the negative cyclical environment and the unresolved structural problems cumulated, forcing the German economy into a protracted adjustment process. The resultant stubborn phase of stunted growth did not end until the middle of the current decade. In a dynamic global economic environment, the German economy subsequently reaped some of the dividends – especially strong employment growth – of its earlier structural reform measures.

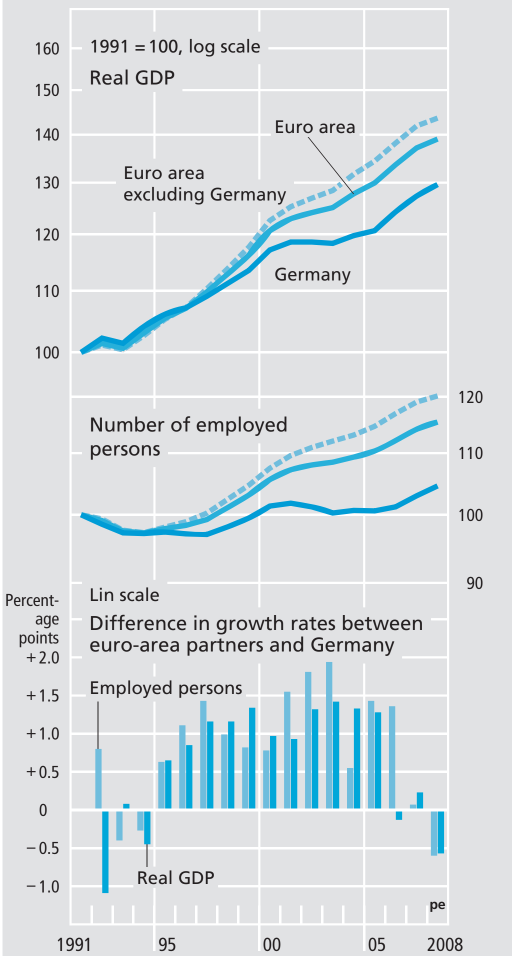
*Germany's wealth position in euro area slightly worse*

From the inception of monetary union until 2008, German economic growth, at an annual average of around 1½%, was considerably slower than that of the rest of the euro area (+2¼%). Consequently, the ratio of German GDP to overall economic output in the 15-member euro area fell from 31¼% in 1999 to an estimated 27% in 2008. However, the relative wealth – expressed as per capita GDP in purchasing power standards within the euro area – did not decline to the same extent, as population growth in Germany virtually stood still while it amounted to ¾% per year in the rest of the euro area. In 2007, Germany was seventh in terms of per capita income; in 1999, it had been fifth. At last report, however, it still slightly exceeded the euro-area average.

*Real interest channel and competition channel have opposite effects in monetary union*

Monetary union has changed the framework within which economic adjustment processes can take place, with short-term nominal interest rates now nearly identical in all euro-area member states. Although differences in

Economic growth and employment in Germany and its euro-area partners




Sources: Eurostat and Bundesbank calculations.

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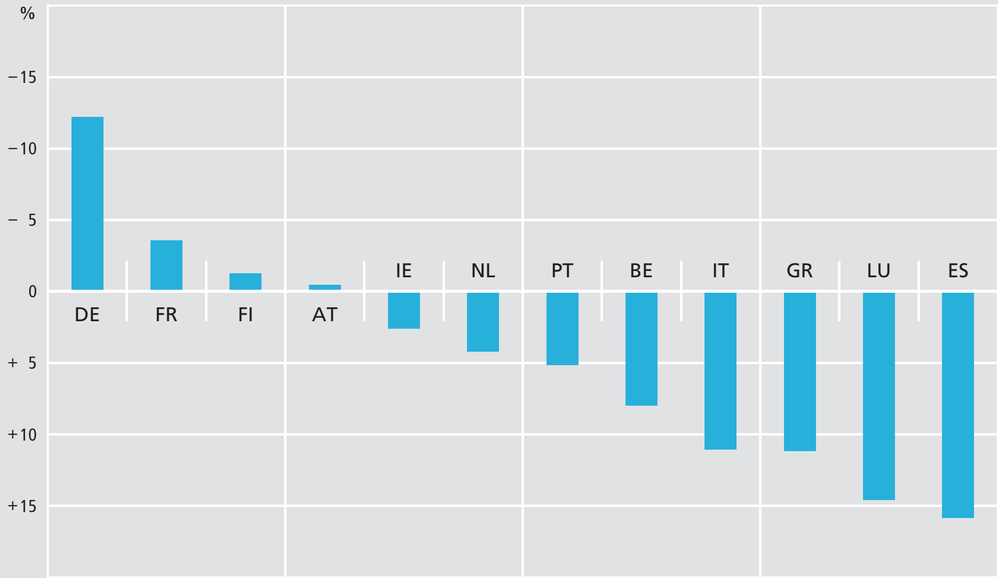
long-term nominal interest rates may continue to exist on account of risk premiums and other factors, it is in this area, too, that the single currency has visibly levelled previously existing yield spreads following the elimination of the premium for exchange rate risk.[12] Differences between national rates of

12 During the financial market crisis, however, yield spreads within the euro area – for instance, for government bonds – went back up sharply.

Change in price competitiveness relative to the euro-area partners since the beginning of European monetary union *

2008 Q3 compared with 1998 Q4




* Indicator based on deflators of total sales. Inverted scale: a negative value denotes an increase in price competitiveness.

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price change then cause real interest rates to diverge. Owing to the relatively moderate inflation in Germany, the *ex post* real interest rate (calculated on the basis of domestic consumer prices) stood, at times, visibly higher than in the rest of the euro area following the start of Stage Three of monetary union at the beginning of 1999. Real interest rate differentials – especially concerning the longer-term maturity spectrum – can *per se* have a dampening impact on the economic activity of those countries which, owing to below-average inflation, have relatively high real interest rates, as was the case in Germany. However, these dampening effects are offset by improvements in the competitive position within the euro area owing to the rather low rate of price increase in Germany relative to that of most of its euro-area partners.

Over time, a given inflation differential, if nominal interest rates remain identical, will imply merely a constant real interest rate differential, whereas price competitiveness – which is determined by differences in the price levels of the affected countries – will continuously rise in the country with the lowest rate of inflation. Under those circumstances, the effects of improved competitiveness will gain in force over time if inflation differentials persist.

In this context, however, there are a few significant caveats to be observed. Longer-term inflation expectations, which are less divergent within the euro area than actual inflation rates, are primarily the decisive factor for market players' plans. In addition, for internationally active firms, it is procurement costs and sales prices in their relevant markets that are the decisive factor, not national price developments. Lastly, differences in real interest rates and diverging price competitiveness trigger adjustment processes in the affected economies, causing the original inflation differentials to diminish in significance over time. Therefore, the net impact on overall economic growth caused by the countervailing movements in the real interest channel and competition channel hinges decisively on the strength of the opening impulse, the economic structures and the underlying time horizon. Econometric estimates for Germany support the thesis that, in the medium term, the competitiveness effect dominates.

*Price competitiveness against other euro-area partners up sharply*

This is borne out by the actual pattern of the German economy in the past decade. Lower inflation rates boosted German exports to its euro-area neighbours via the competition channel, consolidating the domestic sellers' position in the German market. The indicator of price competitiveness against euro-area partners improved by 12¼% from the beginning of 1999 to the third quarter of 2008; since bottoming out in the second quarter of 1995, the indicator has actually gone up by 20¼%.[13]

*Development of external trade flows and cumulative growth contributions*

Against this background, real exports of goods and services to the euro area went up by 56¾% from the beginning of Stage Three of monetary union until 2005 and made a considerable contribution – 6½ percentage points – to German GDP growth.[14] This contrasted with a 27¾% increase in imports from the euro area, which results in a contribution by net exports of 3½ percentage points in all. This corresponds to two-fifths of overall German GDP growth in the seven-year period ending in 2005. During the 2006-

Germany's weight in euro-area foreign trade* and in the world market


Sources: ECB, IMF and Bundesbank calculations. — * Goods. Until 1999, the 12-member euro area; from 2000, the 15-member euro area. — **1** German exports to the euro area as a percentage of euro-area partners' total import volume. — **2** German imports from the euro area as a percentage of euro-area partners' intra-euro-area export volume. — **3** Goods and services.

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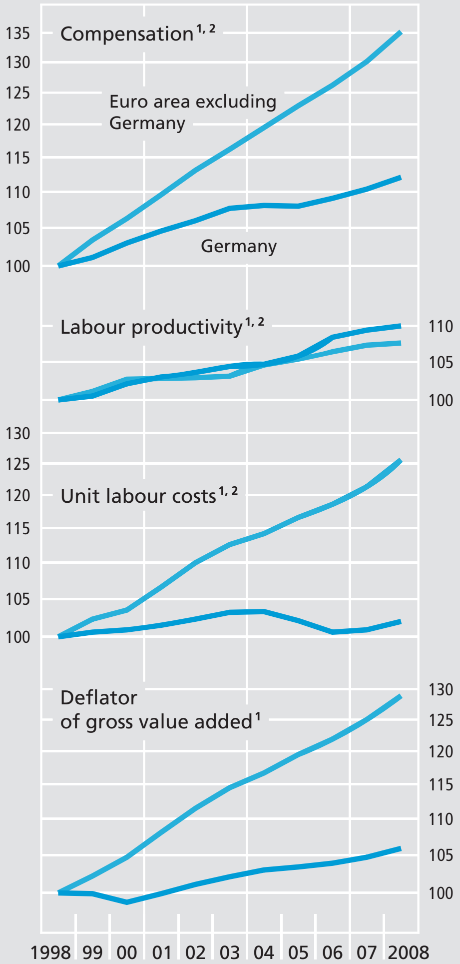
**13** For more on measuring price competitiveness see Deutsche Bundesbank, New and recalculated indicators of the German economy's price competitiveness, Monthly Report, May 2007, pp 31-35.
**14** Figures based on Bundesbank calculations of German intra-euro-area and extra-euro-area trade as defined in the national accounts.

Unit labour costs and their components

1998 = 100, annual averages, log scale




Source: Eurostat. — 1 In the overall economy; figures for 2008 based on the first two quarters. — 2 Per employee.

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2008 period,[15] however, German imports of goods and services from the rest of the euro area accelerated even further and, at 22¼%, slightly outpaced exports. This was mainly because Germany, after adjusting successfully, has increasingly also had a stimulating effect on the rest of the euro area in the past few years. Another important factor in this context is that the production of export goods, which has grown particularly dynamically, consumes a relatively large share of imported goods, and this share was rising up until the end of the reporting period.[16]

*Stabilising competition channel in environment of moderate wage policy*

The improved competitive position has primarily been a result of wage moderation. On average over the first ten years of the euro, negotiated pay rose at a much slower pace, at just under 2%, than in the 1991-1998 period.[17] Wage settlements were also much higher in the 1981-1991 period. In addition, in recent years the wage bargainers have been increasingly agreeing opening clauses and making working hours more flexible.[18] Wage moderation was indispensable in order to counteract misaligned labour costs in Germany and thereby improve the conditions for sustained growth and higher employment. However, it has *per se* reduced domestic demand. The improved competitiveness turned out to be a macroeconomic stabiliser in this context.

The reduction in cost pressures resulting from wage restraint also caused productivity growth to slow down; however, this slowdown was not as pronounced as that of wage growth. As a result, unit labour costs have risen at a considerably slower rate over the past ten years than in the 1991-1998

15 Annual results calculated on the basis of estimates for the fourth quarter of 2008.
16 For more on the growth effects of export-induced German imports in euro-area partners see Deutsche Bundesbank, German intra-euro-area trade: cyclical effects and structural determinants, Monthly Report, March 2007, pp 42-43.
17 The statistical figures in this section refer to annual averages. Figures for 2008 were estimated on the basis of the available data.
18 See Deutsche Bundesbank, Greater flexibility on the German labour market, Monthly Report, September 2004, pp 43-57.

period. Their rise, at an annual average of 0.3%, was also relatively slower than in the other euro-area countries. However, the deflator of value added, at just under 0.6% per year, rose faster than unit labour costs.[19] Accordingly, in the first ten years of monetary union, prices in Germany have risen more sharply than would have been consistent with domestic costs. A sustained improvement in firms' profitability was the result; as late as the first half of the 1990s, these enterprises had still been labouring under the burden of high wage increases and the appreciation of the Deutsche Mark. Together with the labour market reforms in the past few years, this has led to a respectable decline in unemployment.

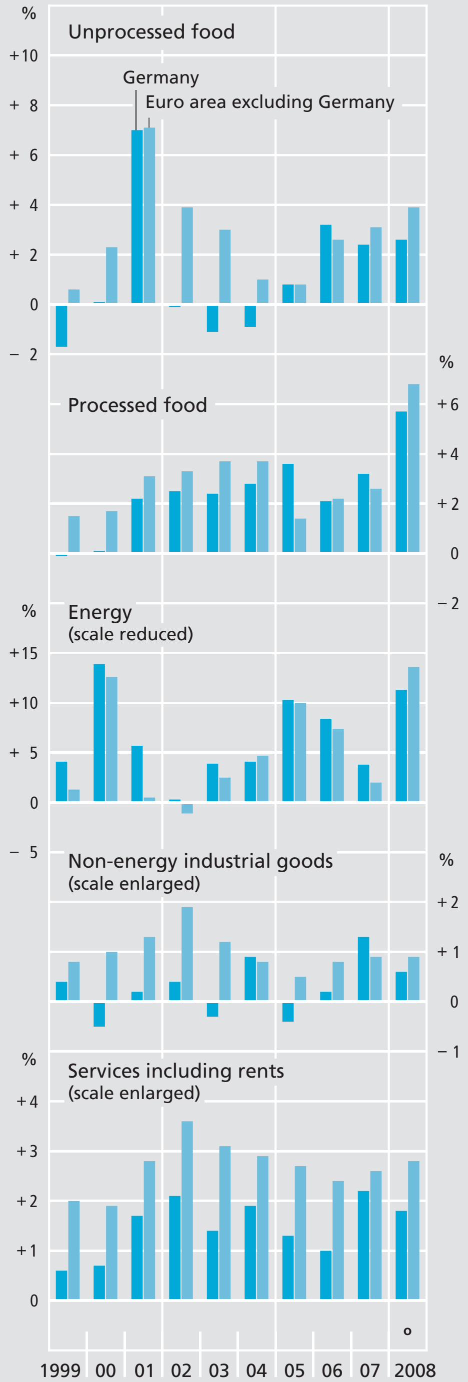
*Lower-than-average inflation in Germany depresses euro-area inflation*

At the same time, wage moderation has also perceptibly tempered consumer price inflation and has contributed to a decade of virtual price stability in Germany. On the whole, consumer price inflation as measured by the Harmonised Index of Consumer Prices (HICP) has averaged 1.7% per year over the past ten years, well below that of the other euro-area countries (+2.4%). The differences in the first half of the reporting period cited here were particularly pronounced. Wage moderation in Germany was therefore largely the reason why euro-area inflation, at an average of 2.2%, was not far above the Eurosystem's definition of price stability. It was only in 2007 that consumer prices in Germany rose faster than in its euro-area partner countries,

19 In terms of the GDP deflator, at 0.9% the rise was stronger, because of the increase in various indirect taxes.

Main components of HICP in Germany and its euro-area partners

Year-on-year change




o Figures for 2008 based on the first ten months.

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and this was the result of the increase in the standard rate of VAT from 16% to 19%.[20]

Of the main HICP components, only energy has seen a higher-than-average rate of price increase for Germany compared with the euro area over the past ten years. This is probably connected in large part to increases in taxes in this area. On the other hand, German price trends for food were more muted than in other euro-area countries. The price shocks resulting from the shorter supplies of and demand shifts for meat and dairy products caused by animal epidemics in 2001 and from the increase in the prices of a broad basket of food products emanating from the world markets from mid-2006 onwards had a similarly strong impact in Germany, if not even stronger, than in its partner countries. For services, Germany's stability advantage was greater than for industrial goods, since the higher labour cost share caused the weaker domestic wage growth to have a much more pronounced effect.

*Deflation fears in Germany unfounded*

The at times particularly low inflation rates in the first half of the past decade led to fears that Germany was on its way to a period of deflation.[21] In actual fact, price inflation in the case of industrial goods and services, components which are determined to a major degree by domestic cost factors, grew quite moderately at an average of 0.7%, with only the less favourable price trends for food and energy lifting the overall rate to an annual average of 1.0%. However, Germany was still far removed from a decline in the general price level. In addition, in the same year, prices in Germany's euro-area partners rose by an average of 2.5% (2.2% excluding energy and food). This shows that the low inflation rate in Germany was less a response to deflationary tendencies in the currency area as a whole and more a reaction by prices to the adjustments needed to resolve the domestic structural problems – especially in the labour market.

*Effects of introduction of cash*

The introduction of euro banknotes and coins in January 2002 did not leave a deep mark in the official inflation rate but certainly did so in many consumers' perception of prices. Germany was no different in this respect than most of its partners.[22] Consumers' perception, which was detrimentally affected for a time in early 2002, is likely to have deteriorated further owing to a series of sharp price increases, which received unduly significant media attention. By contrast, the many small price cuts went virtually unnoticed. Lastly, the exceptionally numerous price changes[23] and the associated loss of the former pricing pat-

20 See Deutsche Bundesbank, Price and volume effects of VAT increase on 1 January 2007, Monthly Report, April 2008, pp 29-46.
21 See Deutsche Bundesbank, The debate on deflationary risks in Germany, Monthly Report, June 2003, pp 15-28.
22 See Deutsche Bundesbank, The euro and prices two years on, Monthly Report, January 2004, pp 15-28; L Aucremanne, M Collin and T Stragier (2008), Assessing the Gap between Observed and Perceived Inflation in the Euro Area: Is the Credibility of the HICP at Stake?, NBB Working Paper No 112; E Traut-Mattausch, S Schulz-Hardt, T Greitemeyer and D Frey (2004), Expectancy confirmation in spite of disconfirming evidence: The case of price increases due to the introduction of the Euro, European Journal of Social Psychology, 34, pp 739-760, and the contributions in P Del Giovane and R Sabbatini (Eds) (2008), The Euro, Inflation and Consumers' Perceptions, Lessons from Italy, Springer-Verlag, Berlin and Heidelberg.
23 See J Hoffmann and J-R Kurz-Kim, Consumer price adjustment under the microscope: Germany in a period of low inflation, Research Centre, Deutsche Bundesbank, Discussion Paper, Series 1, Economic Studies, No 16/2006.

terns are likely to have confused many consumers. Whatever the case, it took until 2004 for consumers' price perceptions to return to normal.

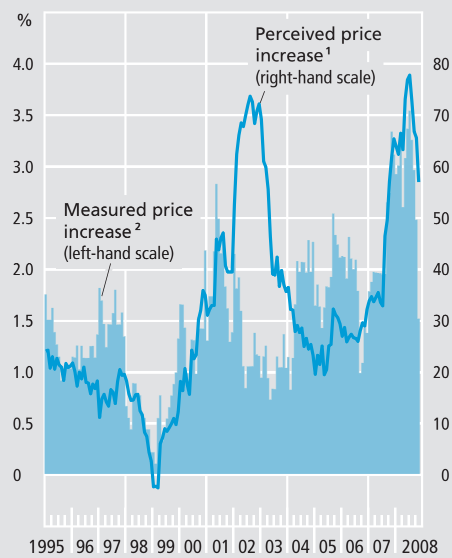
*Germany's adjustment process useful as a model*

One conclusion that can be drawn from the lengthy and arduous adjustment process in Germany since the mid-1990s is that, in a monetary union, national misalignments in labour costs are difficult to correct *ex post* without sufficient downward wage flexibility and can only be remedied gradually, if at all. The other is that, under the rules of the game in monetary union, there are no effective, sustainable and at the same time market-based economic policy alternatives to the path embarked upon here in Germany. To that extent, Germany's experience is suited to serve as a model for other euro-area countries confronted by the problem of diminishing price competitiveness. This confirms one of the central findings already articulated in the run-up to monetary union: that, under the rules of the game of a common monetary policy, labour market flexibility is a key factor not only for strengthening domestic growth stimuli but also in adjusting smoothly to economic shocks in a single monetary area.

*German economy faces new economic challenges at end of first decade of monetary union*

Now, at the end of the first decade of monetary union, the Germany economy – like the single currency area as a whole – once again faces serious economic burdens, the extent of which, owing to the global nature of the downturn and the additional strains caused by the financial market crisis, should be assessed as being more serious than the slowdown at the beginning of the decade. The current recessionary tendencies in the global economy are having a disproportionately severe impact on the German economy owing to the sharp increase in its openness and its specialisation patterns in the international division of labour, patterns which are particularly well reflected in the high importance given to its exports of capital goods. Its starting position, however, is better than at the beginning of the decade since, at present, cyclical strains and uncompleted structural homework are not overlapping and mutually reinforcing one another to the same degree.

Perceived and measured price increases




**1** Price movements in the past 12 months according to European Commission consumer surveys; seasonally adjusted balances of responses. — **2** Year-on-year change in HICP.

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## German fiscal policy in monetary union

*Budgetary developments initially favourable*

Prior to monetary union, it was particularly in Germany that a premium was placed on having effective fiscal rules in place to prevent

## The importance of labour market flexibility in the event of asymmetric shocks in a currency union – DSGE simulations for Germany

Flexible labour markets are beneficial for a variety of economic reasons. They make efficient labour input possible, which is a key precondition for making use of the advantages of technological change and thus strengthening the long-term forces of growth. Furthermore, they are also a key factor in an economy's short to medium-term adjustment to economic shocks . This is all the more the case in a monetary union where the uniform monetary policy means that it is the labour market which bears the onus of adjustment in the event of disruptions that affect the countries in different ways. The wage-setting process is very important in this context.

These interrelated factors are illustrated below using a model simulation, which is based on the Bundesbank's DSGE model.[1] This is a dynamic stochastic general equilibrium model for the German economy, which is based on an intertemporal optimisation assumption for all the analysed sectors (micro foundations) and which models the interdependencies between these sectors in their entirety (general equilibrium). The simulations are based on a specification in the form of a three-region model consisting of Germany, the euro area excluding Germany, and the "rest of the world". This means that the reactions of the relevant macroeconomic variables to shocks can be modelled separately for Germany and for the rest of the euro area.

The chart on the facing page illustrates, for differing degrees of wage flexibility, the reaction of output, consumption, inflation and the real exchange rate following an (unexpected) increase in productivity in the euro area (excluding Germany). This is shown in the form of impulse responses, each of which shows how the observed variable, in reaction to this shock, departs from its long-term equilibrium (zero) and then returns to it. The solid lines describe the effects in Germany and in the rest of the euro area if wages in Germany are comparatively inflexible. The dashed lines show the corresponding adjustments if wages in Germany are flexible (and wage flexibility remains unchanged in the rest of the euro area).

The increase in productivity in the rest of the euro area initially lowers unit labour costs there. This leads to lower consumer price inflation in the currency area as a whole. As a result of this, the central bank in the model stimulates demand by cutting interest rates. As inflation rates – driven by productivity – decline more sharply in the rest of the euro area than they do in Germany, Germany experiences a real appreciation within the monetary union. Taken in isolation, this dampens output in Germany. Over time, however, the inflation differential within the monetary union becomes smaller and, with it, the appreciation effect. Consequently, the associated dampening effects on macroeconomic activity peter out. Owing to the more favourable price outlook, both regions experience a direct increase in consumption, with an accompanying deterioration in the net external asset position for Germany. This means that the higher level of consumption in Germany is made possible by the increase in output in the rest of the euro area.

It may be seen from the impulse responses that the effects are heavily dependent on wage flexibility in the German labour market. A more rapid adjustment of wages in Germany brings about an accelerated wage adjustment in the euro area as a whole. This is reflected in the sharp initial reaction of inflation rates in both regions. The inflation-dampening effect is stronger in the rest of the euro area than it is in Germany, however. The inflation differential after a shock is therefore all the greater, the more flexible wages and prices are. This means that Germany's immediate real appreciation is sharper than

**1** See Deutsche Bundesbank, Development and application of DSGE models for the Germany economy, Monthly Report, July 2008, pp 31-46.

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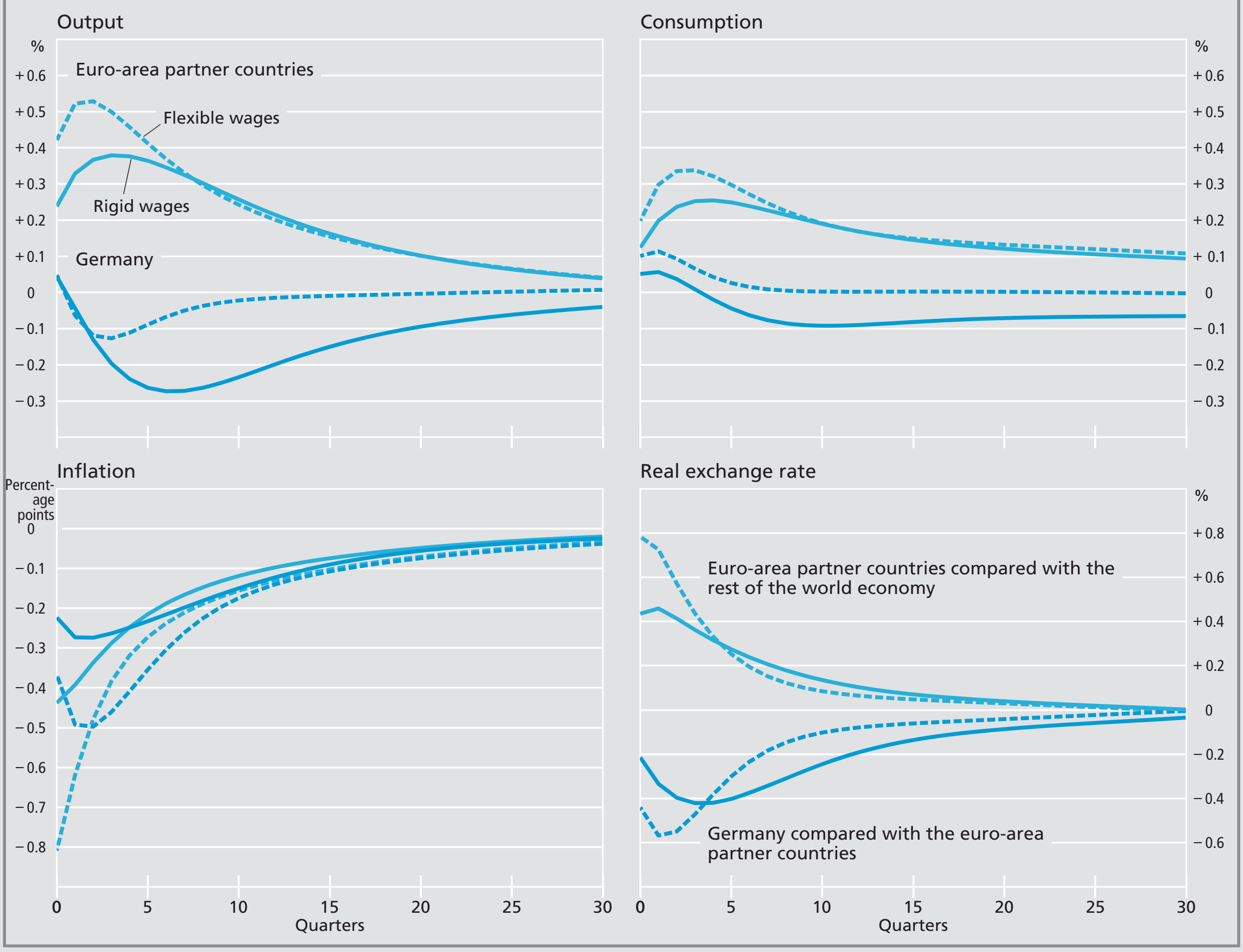
would be the case if wages were not so flexible. At the same time, however, greater wage flexibility in Germany allows a sharper fall in real wages. This dampens the decline in employment and output. Overall, greater wage flexibility allows more rapid price adjustments, which means that the levels of output and consumption in the German economy adjust more quickly to the new economic conditions. This is beneficial because it weakens the dampening effects on output in Germany and shortens their duration and makes a higher level of consumption possible. Flexible labour markets therefore make it easier to cope with shocks.

Impulse responses of selected variables to a productivity shock in the rest of the euro area



unsound public finances which, over the long term, could jeopardise price stability in the euro area. Rules to this effect were incorporated into the Maastricht Treaty, and the SGP was adopted. In Germany itself, the budget situation initially developed favourably following 1997, the decisive year for admission to monetary union, in which Germany had fallen just below the upper total government deficit limit of 3% of GDP. The lowest deficit ratio[24] to date since reunification, 1.2%, was achieved in 2000 against the background of favourable cyclical developments and a boom in profit-dependent taxes.

*Persistently large deficits from 2002 led to conflicts…*

The economic slowdown at the beginning of the decade following the end of the New Economy boom, tax reductions and, above all, the dramatic reversal of the trends in profit-dependent taxes caused the deficit ratio to rise sharply in subsequent years. Since, in the years of favourable economic activity, the country had failed to establish a sufficiently sound structural foundation, the 3% reference value was actually exceeded in 2002. This meant that in 2003 Germany was the second country (after Portugal) to see the opening of an excessive deficit procedure.

*… resulting in watering-down of European budgetary rules*

When, at the end of 2003, it looked more and more likely that Germany and France were not going to be able to correct their excessive deficits by the set deadline, the European Commission proposed a tightening of the procedure. The majority of the Council of Economic and Finance Ministers (Ecofin), however, did not follow this recommendation. The controversy, which sprang largely from Germany's fiscal policy, culminated at the European level in 2005 in adjustments to the SGP. It was particularly the large euro-area countries, including Germany, which helped to water down the original framework of budgetary rules.

*Adjustment of national budgetary rules…*

The violation of the European budgetary rules, moreover, also influenced the debate on national budgetary rules. In that regard, fundamental deficiencies had already been seen before monetary union. The discrepancy between the European rules and commitments and the constitutional upper deficit limits valid in Germany, however, have now become obvious: although the former virtually mandated at least a nearly balanced structural overall budget, Germany's national rules leave a much larger discretionary scope by limiting borrowing only to the amount of gross investment – and also by leaving numerous loopholes.

*… not yet effective*

In the light of this apparent contradiction, in 2002 the objective of reducing new borrowing by the central and state governments until the achievement of a balanced budget and the requirement that the various levels of government comply with European agreements was enshrined in the Budget Principles Act (*Haushaltsgrundsätzegesetz*). The Financial Planning Council was given a stronger role in coordinating the central and state budget policies.[25] Moreover, in 2006 the intra-governmental division of the penalties imposed at European level was enshrined in the German constitution. However, it must

24 Excluding the one-off proceeds from the sales of UMTS mobile telephone licences.
25 See Deutsche Bundesbank, Deficit-limiting budgetary rules and a national stability pact in Germany, Monthly Report, April 2005, pp 23-37.

be noted that all of these new rules have ultimately remained largely ineffective. One way to achieve a sustainable solution would be to enshrine a structurally (nearly) balanced budget for the Federal Government and the individual states in the constitution. This is provided for in a proposal by the Federal Ministry of Finance, which is currently being discussed in the Federalism Commission II.

Irrespective of the problems posed by the reformed Pact, it must still be remembered that the European rules have, in fact, helped make it easier to politically implement reforms and consolidation measures through external pressure. The structural deficit declined quickly after 2004, and in 2006 the excessive deficit procedure against Germany was abandoned. With the support of a dramatic rise in profit-related taxes, the goal of a structurally balanced overall budget was almost achieved in 2007. However, there are considerable risks for the future, especially in the current environment in which the economic downturn and the comprehensive financial system stabilisation measures will subject the fiscal framework to a renewed stress test. Against this background, Germany will play a decisive role in future in ensuring sound fiscal policy in monetary union.

*Rapid post-2004 structural deficit reduction potentially accelerated by European rules*