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Moderate upswing in Euroland

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KIELER DISKUSSIONSBEITRÄGE

410 KIEL DISCUSSION PAPERS

Moderate Upswing in Euroland

by Klaus-Jürgen Gern, Christophe Kamps, Carsten-Patrick Meier, and Joachim Scheide

CONTENTS

- Economic activity in the euro area is recovering. In the second half of 2003, real GDP grew at an annualized rate of roughly 1½ percent. In contrast with other large industrialized countries, economy-wide capacity utilization has not yet increased. Private consumption has remained the major weak point. However, private investment has increased for the first time since 2½ years and exports have risen rapidly, stimulated by the strong upswing in the rest of the world. A number of leading indicators suggest that the recovery in Euroland has gained some momentum since the turn of the year.
- Despite an expansionary monetary policy and the dynamic world economy, real GDP in the euro area will rise only moderately in comparison with earlier upswings. This is due to two factors. First, potential output growth in the euro area has apparently decelerated. Second, fiscal policy especially in the large euro-area economies is not sustainable. As governments do not have a credible consolidation strategy, the tax burden is likely to increase in the coming years. Against this background private households' income prospects are subdued and, as a consequence, private consumption will remain comparatively weak.
- The appreciation of the euro has had a considerable effect on economic activity, but it will not stop recovery. The results of our macroeconometric model imply also that the effects will be small in 2005 if, as we assume, the euro/dollar exchange rate remains unchanged.
- Some observers urge the ECB to react to the strength of the euro by cutting interest rates. Whether the ECB should do so depends solely on the way in which the appreciation of the euro impacts the targets embedded in its monetary policy strategy. The main issue is whether the appreciation of the euro will push the inflation rate considerably below the target value. Past experience suggests that it would be unwise to assume it will have a strong dampening effect on consumer prices. Since the beginning of monetary union inflation forecasts have usually been too optimistic. All in all, the ECB is well advised not to cut interest rates in response to recent exchange rate developments. Interest rates in the euro area are already unusually low and stimulate economic activity.
- The Stability and Growth Pact requires the governments in euro-area countries to achieve a balanced budget or a budget surplus in the medium run. The main problem at present is not that budget deficit to GDP ratios are higher than 3 percent in some countries, but that structural deficits are also very high. Seven years after the adoption of the Pact the large countries still have made no progress on the way to a balanced budget. In Germany and France the structural deficits are even higher than before the monetary union. The recent Stability Programs of these countries suggest that the balanced-budget target has been given up altogether. This is eroding the credibility of fiscal policy and constitutes a heavy blow to economic stability in the euro area. Unsound fiscal policy negatively affects expectations in the private sector and is likely to result in a further deceleration of potential output growth.

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This report was completed on March 8, 2004, and prepared for the 69th Kieler Konjunkturgespräch (March 22/23, 2004).

Moderate Upswing in Euroland

In the spring of 2004, the euro-area economy is on the road of recovery. While the previous stagnation has been overcome, one cannot speak of a true upswing. In fact, real GDP rose by a little less than 1½ percent in the second half of last year. Capacity utilization has not yet increased which is in contrast to the recent development of other major industrial countries. The weak spot has been private consumption which has only stagnated so far. However, fixed investment went up for the first time in 2½ years. A strong support for the upturn came from abroad. Since production in the rest of the world has risen sharply, exports have shown a strong performance although the euro appreciation has had a negative impact.

There are several reasons why we forecast an acceleration of economic activity this year. Low interest rates are stimulating domestic demand; we expect that the European Central Bank (ECB) will not change its key rates soon. In addition, the impulses from abroad will remain strong. Several leading indicators are favorable. The business climate has continued to improve, and new orders as well as production plans have moved upwards. While the conditions for investment brighten up, consumer confidence remains subdued.

In spite of the expansionary course of monetary policy and the strong expansion of world demand, the increase of Euroland's real GDP will remain moderate in 2004 and 2005 when compared to previous recovery periods. First, potential output growth has apparently slowed down in recent years. One indication is the fact that real GDP increased only very little in the past few years. Second, fiscal policy especially in major economies is not sustainable. As there is no credible strategy for budget consolidation in the coming years, budget deficits will remain high and problems of social security will aggravate further. This implies the risk of higher taxes and social contributions as well as considerable cuts in social transfers. Income expectations of consumers are therefore depressed so that spending of private households will rise only modestly in the coming years.

Apart from these factors, which will have a negative impact on growth in the medium term, the short-run outlook is dampened by the appreciation of the euro. According to our estimates there is a significant effect on real GDP but it will not be so large as to jeopardize the recovery per se. In addition, the effects will fade substantially so that GDP growth next year is hardly affected at all given our assumption that the euro exchange rate will roughly remain unchanged against the U.S. dollar.

1 Hesitant Economic Recovery

Economic activity in the euro area picked up somewhat in the second half of 2003. Real GDP increased at an annualized rate of 1.4 percent, after having decreased slightly in the first half of last year (Figure 1). Notwithstanding, the increase in economy-wide production continued to be lower than trend growth.[1] The current weakness has prevailed for three years now which is long also in historical comparison. Only in the recession years 1980–1982 the euro area experienced a cyclical downturn of similar length. However, measured against the change in economy-wide capacity utilization, the downturn at that time had been much stronger than the current one.[2] This may be an explanation for the observation that the labor market has only slightly

[1] The OECD (2003) estimates potential output growth in the euro area at 2 percent. In our view, however, there are signs that it is perceptibly lower.

[2] The change in the output gap between cyclical peak and trough is a common measure for the strength of a downturn. As concerns the recession at the beginning of the 1980s, the business cycle reached its peak in 1979 and its trough in 1982. During this period the output gap fell by 5 percentage points according to OECD (2003) estimates. The recession at the beginning of the 1990s reached a comparable order of magnitude. In contrast, the output gap fell only by around 3 percentage points between 2000, the year in which the current cycle reached its peak, and 2003. The statement on the relative mildness of the current downturn remains valid if other methods than that of the OECD are used in the calculation of the output gap (Gern et al. 2003: 12–13; Carstensen et al. 2003: 5).

Figure 1:
Business Cycle Indicators[a] for Euroland, 2001–2004

[a]Seasonally adjusted. — [b]At constant prices. — [c]Percentage change over previous quarter (annual rate). — [d]Industry excluding construction. — [e]Percentage change over previous year.

Source: EUROFRAME (2004); Eurostat (2004); ECB (2004).

deteriorated over the past years. In the fourth quarter of 2003, the unemployment rate stood at 8.8 percent and was only 0.8 percentage points higher than at its cyclical low in the first half of 2001. In the course of last year, the unemployment rate remained roughly constant despite the continued economic weakness. In the meantime, the number of employees in the total economy stagnated; while employment in the industrial sector sharply contracted, employment in the service sector expanded.

The recovery of economic activity in the second half of 2003 was mainly due to the turnaround of exports. While exports had fallen sharply in the first half of the year, they increased at an annualized rate of around 5 percent in the second half. It has to be kept in mind, though, that the trade data published by Eurostat in the national accounts include trade flows among the member countries of the euro area. Yet, calculations of the ECB (2004: 42–43) on the basis of trade data that are only partly comparable to those in the national accounts suggest that the deliveries to countries outside the euro area also strongly increased. According to these estimates, extra-euro-area exports rose at an annualized rate of 8 percent in the third quarter of last year. Apparently, the dampening effects of the euro appreciation on external demand were overcompensated by the strong economic dynamics in the rest of the world. While exports to the United States stagnated, the deliveries to Asia went up particularly strongly. Exports to the United Kingdom and to Eastern European countries were also markedly oriented upwards.

In the meantime, domestic demand remained weak; the strong rise in the fourth quarter of last year was mainly attributable to an unusually large increase in stocks. Private households hardly expanded their consumption expenditures in the second half of 2003. The index of consumer confidence compiled by the European Commission indicates that private households are pessimistic about their current and expected financial situation. Apparently, they have increased savings against this background. In contrast, the investment climate has brightened up perceptibly; in the second half of last year the decrease in corporate investment has come to a standstill. This was mainly due to markedly improved sales and profits expectations in the wake of strong external demand and to the stabilization of capacity utilization in manufacturing.

The increase in consumer prices has accelerated somewhat in the second half of last year. Since mid-2003, the Harmonized Index of Consumer Prices (HICP) has risen at an annualized rate of slightly more than 2 percent in seasonally adjusted terms. With that inflation has proved to be quite persistent despite the continued economic weakness. Lately, the increase in food prices was particularly strong whereas energy prices, that had marked the increase in consumer prices in the past years in the wake of the strong rise in oil prices, tended to be downwards oriented due to the euro appreciation. Last year on average, the HICP increased by 2.1 percent. In the meantime, the core inflation rate (HICP excluding energy, food, alcohol and tobacco) fell below the 2 percent threshold last year and most recently amounted to 1.6 percent. The decrease in core inflation is probably mainly due to firms' diminished scope for raising prices against the background of continued economic weakness.

2 Monetary Conditions Remain Favorable

Key interest rates in the euro area have been unchanged since June last year. The minimum bid rate on the main refinancing operations of the Eurosystem is still at 2.0 percent. The 3-month EURIBOR was also roughly at that level at the beginning of March 2004 (Figure 2). In the months before, it had been somewhat higher reflecting the markets' expectations of a rate hike by the ECB in the near future. However, this has changed in the wake of the renewed appreciation of the euro so that money market rates declined once again. The stance of monetary policy continues to be expansionary. If nominal short-term rates are corrected with the core rate of inflation, the calculated real rate amounts to some 0.5 percent and is well below the long-term average which has been estimated at 2.5 percent (Gern et

Figure 2:
Indicators of Monetary Policy in Euroland, 1980–2004

aPercentage change over previous year. — bLong-term interest rate minus short-term interest rate. — cBefore 1999: exchange rate U.S. dollar/ecu.

Source: ECB (2004).

Figure 3:
Short-Term Interest Rate and Taylor Rate in Euroland, 1999–2003

[a]The Taylor rate is calculated for the HICP excluding energy, food, alcohol and tobacco. The calculations are based on the assumption of an inflation target of 1.75 percent and on the assumption of an equilibrium real interest rate of 2.5 percent. Potential output is estimated with a Hodrick–Prescott filter.

Source: Eurostat (2004); ECB (2004); own calculations and estimates.

al. 2003: 14). Also, the short-term rate is lower than the Taylor rate according to the commonly used formula (Figure 3). Even if the real equilibrium rate was 1 percentage point lower than the long-term average, monetary policy would still have to be considered expansionary. In this sense, the central bank is accommodative allowing the output gap to close.

Long-term interest rates have been more or less unchanged since fall 2003. Recently, the 10-year bond rate stood at 4.3 percent which is about 50 basis points higher than in the spring of last year when bond yields had reached the bottom. Also in real terms, long-term rates have hardly changed in the past six months and have remained well below their long-run average. While interest rates have been relatively constant since fall 2003, monetary conditions have deteriorated because of the strength of the euro exchange rate. In real effective terms, the European currency appreciated by an estimated 6 percent between September 2003 and February 2004, and the euro increased by a little more than 10 percent against the U.S. dollar. Monetary expansion has continued to slow down in recent months; the annual growth rate of M3 fell below 7 percent for the first time since 2½ years.

3 Appreciation of the Euro: Should the ECB React?

The ECB is urged to respond to the strength of the euro. One reasoning calls for interventions on exchange markets and the purchase of U.S. dollars in order to stop the appreciation or even turn the exchange rate around. In addition, the ECB should, as many observers argue, lower interest rates in order to reduce the negative effects of the appreciation on economic activity and to prevent inflation from falling below the target of the ECB.

It has to be remembered, however, that the current level of the exchange rate is approximately equal to the average rate during most of the 1990s. Therefore, the euro is not particularly strong. In addition, many observers assume that a

strong depreciation of the U.S. dollar is necessary in order to reduce the current account deficit of the United States to a more sustainable level. This is one of the possibilities to achieve this target (Benner et al. 2004).[3]

For good reasons, the ECB has made clear that it does not intend to respond to or even control the exchange rate. Experience shows that interventions are not successful in the attempt to stop a trend or to turn the trend around. As the level of an exchange rate cannot be affected by sterilized interventions anyway, the ECB would have to buy foreign exchange, i.e., U.S. dollars. But even if interventions are not sterilized, the effects on the exchange rate are highly uncertain. In particular, it is impossible to estimate the exact amount which would be necessary in order to achieve the desired effect on the rate. Sooner or later, the stance of monetary policy would have to be changed, i.e., interest rates in the euro area would have to decline and liquidity would increase. Through this mechanism, the expansionary course of monetary policy in the United States, which may be one of the reasons for the weakness of the U.S. dollar, would be transmitted to the euro are. This would have adverse effects on Euroland's economy because it would be more difficult for the ECB to achieve price level stability. Another reason why such interventions should not be tried is that the fall of the U.S. dollar may be due to the fact that the markets want a weaker U.S. dollar as a means to bring down the U.S. current account deficit to a more sustainable level. It is not known where markets see this level and therefore also to what level the exchange rate has to fall. As it may well be that the desired exchange rate is much lower, it would be impossible for the ECB to be successful since it cannot stop the trend. All calls for interventions imply that the "true" or "correct" level of the U.S. dollar is known; however, nobody can claim to have such superior knowledge.

A different question is whether the ECB should use the instrument of sterilized interventions in order to reduce large or abrupt changes of the exchange rate. Such a policy would not affect the target of internal price stability as the amount of liquidity does not change. However, it is doubtful whether such a strategy would be successful in reality. For example, the interventions of the ECB in fall 2000 had only a short-lived effect; in several cases, the effect disappeared within a few hours, i.e., volatility could not be reduced at all.[4] The strategy would be made even more difficult because at present the ECB would have to act alone because the other side, the United States, is not interested in affecting the exchange rate or in an appreciation of the U.S. dollar. For example, contrary to the situation in earlier years, the U.S. administration does not talk about the desirability of a "strong dollar" anymore. Against this background it is unlikely that there could be coordinated exchange market interventions by both the ECB and the Fed.

Whether the ECB should lower interest rates as a response to the strength of the euro depends crucially on the effect that it will have on the targets mentioned in the ECB's monetary policy strategy. In this regard, it is not sufficient to only look at the expected effect on economic activity alone because the ECB does not intend to control the business cycle. The crucial question rather is whether the euro appreciation will drive the inflation rate in the euro area well below the target mentioned by the ECB. Here, the cycle may play an indirect role, of course, because if the appreciation lowers the increase of real GDP, the possibility of firms to raise prices may be reduced. However, our analysis of the recent euro appreciation shows that the effect is not very strong (see Chapter 8).

It appears also quite risky to assume that the strength of the euro has a strong dampening effect on the price level. Experience shows that inflation forecasts for Euroland have usually been overly optimistic. This is also true for the projections which the ECB publishes twice a year (Table 1).[5] For example, the fact that inflation

[3]One alternative way to substantially bring down the deficit would be a sharp recession in the United States. However, this would also have adverse effects on the economy in the euro area.

[4]This negative judgment is based, for example, on an empirical analysis of ECB interventions by Pierdzioch (2002). However, other studies show that sterilized interventions may be successful anyway (e.g., Fatum 2002).

[5]Note that the ECB should not be criticized here for its "forecast errors", also because the projections have been very much in line with the respective consensus forecasts.

Table 1:
Projections of the European Central Bank for Inflation in Euroland[a]

Date	2001	2002	2003	2004
December 2000	2.3	1.9		
June 2001	2.5	1.8		
December 2001	2.7	1.6	1.5	
June 2002		2.3	1.9	
December 2002		2.2	1.8	1.6
June 2003			2.0	1.3
December 2003			2.1	1.8
Actual rate	2.5	2.3	2.1	

[a]Year-over-year increase of the HICP; center of the range given by the ECB.

Source: ECB (various issues).

was underestimated in 2002 and also in 2003 was surprising for mainly two reasons: First, economic activity was much weaker than anticipated. The stronger than expected decline of the output gap should have dampened inflation. Second, the euro appreciated strongly in 2002 and 2003. This was not considered in the projections which were based—as it is common in most model simulations—on unchanged exchange rates. The strength of the euro should have led to an overestimation, and not an underestimation of inflation in those two years.[6]

There may be two conclusions one can draw from this observation. Either the effects of the weak economic activity and the appreciation were indeed as large as they had been estimated. In this case, the underlying rate of inflation in the euro area would have been considerably higher than 2 percent. This would actually call for a tightening of monetary policy because the reduction of key interest rates in the past two years would have gone too far. Or the effects are not as large as estimated in some models. In that case, the recent appreciation of the euro does not necessarily imply that rates should be cut as a consequence.

All in all, we think that it is appropriate that the ECB should wait and watch the development in the near future. It is true that the central bank is in a difficult situation because it would not like to be made "responsible" for a possible slowdown of the economy. But it has to be remembered first that interest rates in the euro area have been unusually low for some time and that they imply a positive impulse for economic activity, and second that a premature cut of interest rates may be interpreted by markets that the ECB takes the target of price level stability less seriously.

For the future course of monetary policy it is important how the ECB will assess the outlook for inflation in the euro area. In the economic analysis it will play a role that the recovery has started as it was anticipated by the ECB. This implies that there is no need to support economic activity further by loosening monetary policy. In addition, in the projection published in last December, the ECB expected inflation to fall slightly below 2 percent in the course of this year; this outlook will probably not change in the near future. In assessing the possibility of interest rate changes, one has to keep in mind that it is not sufficient to look at changes in the economic environment alone and then decide whether rates should be altered. It is also important to relate the existing level of interest rates to some norm. At present, interest rates are very low by several standards. In the medium term, they will have to be considerably higher if price level stability is to be achieved. Assuming a real equilibrium rate of 2.5 percent, one would conclude that the neutral interest rate would be slightly above 4 percent. According to the Taylor rule this level would be appropriate if inflation is at its target (below and near 2 percent) and if the output gap is closed.[7] However, it will take some time until the ECB starts to tighten its policy. This will probably be the case only when the upswing has strengthened and when capacity utilization will have increased considerably. We expect that key interest rates will remain unchanged in both 2004 and 2005.

The main reason for using them here is that the ECB probably bases its monetary policy decisions on its own forecasts.

[6]The euro appreciated by more than 20 percent in real effective terms. In those years, many model simulations were run for the possible case of a decline of the U.S. dollar. For example, the OECD (2001: 41) estimated that a real effective depreciation of the U.S. dollar by 10 percent would reduce Euroland's inflation rate by about half a percentage point in the first year.

[7]Should the real equilibrium rate have declined, for example, because potential output growth has slowed, the neutral rate would accordingly be lower.

4 Situation of Public Finances Improves Only Slightly

The situation of public finances in the euro area further deteriorated last year. As in the preceding years, budget deficits in the member countries of the euro area exceeded the targets laid down in the Stability Programs. In 2003, the aggregated budget in the euro area exhibited a deficit of 2.7 percent in relation to GDP (Table 2), following 2.2 percent in the previous year. The renewed increase in the budget deficit was due to the ongoing weakness of economic activity. According to OECD (2003) estimates, economy-wide capacity utilization decreased by 1.4 percentage points last year. Assuming an elasticity of the budget balance with respect to the output gap of 0.5 (OECD 1999: 147), the cyclical component of the change in the deficit amounted to 0.7 percent in relation to GDP. The increase in the actual deficit was somewhat smaller last year because fiscal policy in the euro area as a whole was on a slightly restrictive course. According to OECD (2003) estimates, the structural budget deficit shrank in all member countries of the euro area except for France, Greece, and Austria. In Germany and in France, the budget deficit in relation to GDP once more exceeded the 3 percent threshold laid down in the Stability and Growth Pact (SGP). The same is likely to occur in the forecast horizon. The aggregated budget deficit in the euro area will amount to 2.7 percent in relation to GDP this year. Against the background of a favorable cyclical situation and of consolidation efforts in some countries it is expected to fall to 2.4 percent next year.

5 Stability and Growth Pact: Balancing the Budget Is the Key

The actual performance of fiscal policy during the first five years of the European Monetary Union has shown that not all governments feel obliged to meet the targets of the Stability and Growth Pact (SGP). In France and in Germany, the budget deficit exceeded the 3 percent margin in the years 2002 and 2003, and the forecast is that this will also be the case this year and next. Following the decision of the ECOFIN Council to suspend the excessive deficit procedure against France and Germany,[8] the debate about the Stability and Growth Pact has surged once again. Reforms of the SGP are being discussed, and there are already a few proposals. In general, they suggest some more "flexibility" in the interpretation of the 3 percent threshold for budget deficits. However, this discussion is beside the point as far as the SGP is concerned. The core of the Pact as well as of the relevant documents for fiscal policy in the European Union is that governments should achieve a balanced budget or a surplus.[9] Meeting this target would imply that the deficit-to-GDP ratio does not reach the 3 percent limit in a normal cyclical downturn.

The main problem of fiscal policy in Europe is not that the ratios for the government budgets exceed 3 percent in some cases, but rather that the structural deficits have remained high. Even six years after the SGP had been ratified, the large economies have not come closer to balance their budgets; in France and in Germany the structural deficits are even higher than before the monetary union started (Table 3). This is a clear contradiction to the targets laid down in the annual Stability Programs in recent years. In these Programs, the governments describe their plans for the budgets in the coming 3 or 4 years. For example, the French government announced in 2001 to continuously bring the budget deficit down to zero in 2005; the German government had the same target for 2004.

One can question the governments' commitment to a balanced budget when looking at the most recent projections. At the end of last year, the Stability Programs were updated for the fifth time (Table 4). The new targets show that the target of a balanced budget has obviously been given up completely in a few large countries. Budget deficits in France and in Germany will amount to 1.5 percent in 2007, i.e., ten years

[8] For a discussion of the consequences of that decision see also Benner et al. (2003).

[9] The common interpretation of this rule is that the member states should reach a balance or a surplus in the structural budget.

Table 2:
Indicators of Fiscal Positions in Euroland, 2002–2005 (in percent of nominal GDP)

	Gross public sector debt				General government budget balance			
	2002	2003[a]	2004[b]	2005[b]	2002	2003[a]	2004[b]	2005[b]
Germany	60.8	64.2	65.6	67.3	–3.5	–3.9	–3.8	–3.6
France	59.0	61.5	62.0	62.5	–3.2	–4.1	–3.8	–3.3
Italy	106.7	105.5	104.0	102.5	–2.3	–2.3	–2.8	–2.5
Spain	53.8	52.0	50.5	49.0	0.1	0.3	0.5	0.5
Netherlands	52.4	53.5	54.5	54.5	–1.6	–2.3	–2.5	–2.0
Belgium	105.8	102.5	100.0	97.0	0.1	0.3	–0.7	–0.5
Austria	67.3	68.5	68.5	68.0	–0.2	–1.2	–1.0	–0.8
Finland	42.7	41.5	40.0	38.5	4.2	2.1	2.0	2.5
Greece	104.7	103.0	101.0	99.0	–1.2	–1.7	–2.0	–2.0
Portugal	58.1	60.0	60.5	60.5	–2.7	–2.8	–2.9	–2.5
Ireland	32.4	31.0	30.5	30.0	–0.2	–1.5	–1.8	–1.5
Luxembourg	5.7	5.7	5.7	5.5	2.5	0.5	0.0	0.0
Euroland	69.0	70.1	70.1	70.1	–2.2	–2.7	–2.7	–2.4

[a]Partly estimated. — [b]Forecast.

Source: Eurostat (2003); own calculations and forecasts.

Table 3:
Structural Budget Balances in Euroland, 1997–2003[a]

Country	1997	1998	1999	2000	2001	2002	2003
Germany	–1.7	–1.4	–0.9	–1.4	–2.6	–2.6	–2.3
France	–1.4	–1.6	–1.2	–1.6	–1.7	–3.0	–2.9
Italy	–2.2	–2.7	–1.3	–2.1	–2.9	–2.1	–1.8
Euroland	–1.6	–1.7	–1.0	–1.4	–1.9	–1.9	–1.7

[a]In percent of potential GDP.

Source: OECD (2003).

Table 4:
Key Figures of the Updated Stability Programs[a]

	GDP growth[b]		General government budget balance[c]		Gross public debt[c]		Expenditures[c]		Receipts[c]	
	2000–2003	2004–2007	2003[d]	2007	2003[d]	2007	2003[d]	2007	2003[d]	2007
Germany	1.0	2.1	–4.0	–1.5	64.0	64.5	49.0	44.5	45.0	43.0
France	1.9	2.5	–4.0	–1.5	61.4	61.8	54.3	51.8	50.3	50.3
Italy	1.4	2.3	–2.5	0.0	106.0	98.6	48.4	46.2	45.8	44.0
Spain	2.9	3.0	0.5	0.3	51.8	43.8	39.6	39.7	40.0	40.0
Netherlands	1.0	2.1	–2.3	–0.6	54.0	52.2	47.6	45.2	45.5	44.6
Belgium	1.5	2.3	0.0	0.3	102.3	87.0	49.6	47.9	49.7	48.2
Austria	1.6	2.3	–1.3	–0.4	66.4	59.9	51.9	48.4	50.6	48.0
Finland	2.5	2.5	2.3	2.2	45.1	44.6	48.7	48.8	51.0	51.0
Greece[e]	4.2	4.0	–1.4	0.0	101.7	90.5	45.2	43.5	43.7	43.5
Portugal	1.1	2.3	–2.9	–1.1	59.5	57.0	47.0	43.5	44.1	42.5
Ireland[e]	6.1	3.8	–0.4	–1.1	33.1	33.3	34.6	33.6	34.1	32.5
Luxembourg[e]	3.2	2.9	–0.6	–1.5	4.9	4.4	47.7	46.4	47.1	44.9
Euroland[f]	1.7	2.4	–2.7	–0.8	70.1	67.1	48.8	46.0	46.1	44.9

[a]Some Stability Programs include alternative scenarios concerning GDP growth. This table reflects the basic scenario. — [b]Average annual growth rate. Partly estimated. — [c]In percent of GDP. — [d]Figures for 2003 are taken from the Stability Programs. — [e]Projection until 2006 only. — [f]Average for the countries above. Country weights based on GDP in current prices of 2002.

Source: Stability Programs; own calculations and estimates.

after the Stability and Growth Pact has taken effect. Furthermore, the Pact actually says that budget should at least be balanced over the cycle. The large economies of the euro area are far away from budget surpluses, which have been common in many other countries. In addition, just those countries which have missed the deficit targets several time, have "succeeded" in abolishing the sanction mechanism of the Pact in the ECOFIN Council in November 2003.

In the discussion on the Stability and Growth Pact, the focus should not so much be on more "flexibility" in the interpretation of the ceilings for budget deficits, but rather that budgets should be balanced in the medium term. A reform of the SGP which would abandon this principle of fiscal policy would undermine one of the fundamental conditions for economic stability in Europe. All governments have stressed over and over again the necessity of such a sound fiscal policy, for example, in the "Broad Economic Policy Guidelines". This was also based on the notion that the ECB should be supported when securing the target of price level stability for the euro area. The more the process of budget consolidation is postponed, the higher may be the pressure on the central bank to lower interest rates or to allow a higher rate of inflation in order to reduce the real value of government debt. In addition, the probability increases that drastic measures must be taken by fiscal policy in order to finance the rising payments of social security. If government debt increases as it does currently, drastic increases of taxes and social contributions or massive cuts in the payments would be unavoidable. In order to prevent exactly such a situation, the governments had decided before the beginning of the monetary union to balance the budgets as soon as possible. Therefore, the countries are in the end wasting precious time and putting themselves in a bad situation if deficits remain high. Since the citizens are well aware of all these problems, they expect a higher burden and a lower disposable income in the future. So their decisions to consume and to invest are negatively affected by the fact that governments fail to bring down expenditures to a more sustainable level. One consequence of the unsound fiscal policy is that the growth rate of potential output will decline. Therefore, the policy of the governments is in sharp contrast to the target of the European Union to become the most dynamic economic region in the world by the end of this decade.

6 Little Change in Wage Growth

The slight deceleration of wage growth that can be observed since early 2002 has continued in the course of last year. Wage developments were characterized by a significant negative wage drift: Growth of negotiated wages moderated only very slightly, while increases in gross monthly earnings decelerated stronger, by 0.5 percentage points, to 2.6 percent in the third quarter 2003. Meanwhile, growth in compensation per employee remained largely unchanged, at 2.5 percent, as social contributions were raised in a number of countries.

In the current year, wage costs are set to rise at a slightly reduced pace (Table 5). Wage contracts already finalized and the prospective development of social security contributions suggest that compensation per employee will slow down somewhat, particularly in the large countries. Deceleration of wage growth will even be very pronounced in the Netherlands as a result of the especially significant deterioration in the Dutch labor market (Table 6). For next year, we expect wages in Euroland to pick up gradually given the improved economic outlook. Already pointing into that direction is the result of the wage bargaining in the German metal industries, which traditionally has a large impact on negotiations in other sectors and, as a result of this and due to the size of the German economy, is also of significance for wage developments in the euro area as a whole.

The projected wage development can be expected to have some positive effect on employment, as the result is a significant wage restraint. In the current year, this is true for a yardstick of wage moderation that relates the sum of the growth rates of output and the GDP deflator and the growth rate of compensation per employee[10]

[10] For an exposition of this concept of wage moderation and an application to wage developments in Germany see Lehment and Oskamp (2004).

Table 5:
Compensation of Employees, Productivity and Unit Labor Costs in Euroland, 2001–2005 (change over previous year in percent)

	2001	2002	2003[a]	2004[a]	2005[a]
Compensation of employees per worker	2.8	2.6	2.6	2.4	2.6
Productivity[b]	0.2	0.4	0.3	1.2	1.3
Unit labor costs	2.5	2.1	2.4	1.2	1.3

[a]Forecast. — [b]Real GDP per worker.

Source: ECB (2004); own calculations and forecasts.

Table 6:
Wage Increases[a] in Euroland, 2001–2005 (change over previous year in percent)

	2001	2002	2003[b]	2004[c]	2005[c]
Germany	1.8	1.6	1.6	0.8	1.5
France	2.6	2.8	2.6	2.5	2.7
Italy	3.0	2.4	3.0	2.8	2.8
Spain	3.8	3.9	4.1	4.0	4.0
Netherlands	5.5	4.9	3.8	1.5	1.2
Portugal	5.5	5.3	2.5	2.5	2.7
Austria	1.4	2.2	2.4	2.5	2.5
Belgium	3.6	4.3	2.2	2.8	3.0
Greece	5.3	8.4	6.5	7.5	5.5
Finland	4.7	2.3	3.0	3.0	3.2
Ireland	9.0	5.2	5.0	4.5	5.0
Luxembourg	3.7	3.1	2.5	2.5	3.0

[a]Compensation of employees per worker. — [b]Estimates. — [c]Forecast.

Source: European Commission (2003a); own forecasts.

as well as in a cyclically adjusted perspective, which compares the wage growth with the sum of the trend rate of productivity growth and the rate of increase in the GDP deflator (Carstensen et al. 2003: 21). In 2005, wage increases will remain modest against both of these measures.

The wage contracts can also be described as being consistent with price level stability. The increase in unit labor cost is expected to amount to 1–1.5 percent. Thus, the development of labor costs supports achieving the inflation target of the ECB. This was not always the case in recent years. During the cyclical downturn, the rise in unit labor cost remained stubbornly above 2 percent as wages were slow to react to the recession and the better part of the cyclically induced reduction of productivity growth was reflected in rising unit labor costs.[11] As a result, during the recent period of cyclical weakness the contribution of wages to reduce production costs in Euroland was relatively small. This might be one explanation for the observed disappointingly slow trajectory of Euroland inflation into the territory which is consistent with price level stability in the definition of the ECB.

When evaluating wage developments, it has to be considered that the increase of labor productivity in Euroland has been on a declining trend during the 1990s (Gern et al. 2000). In the past three years labor productivity even nearly stagnated. While this absence of productivity growth can to a large extent be explained by cyclical factors, it suggests that the negative long-term trend

[11]Note that the development in the United States was different. In the United States, wage growth decelerated rapidly during the economic downturn. The rate of increase in compensation per employee slowed down to around 2 percent in 2002 and 2003 from a 5.4 percent rate of growth in 2000 at the height of the boom. This contributed to a benign development of nominal unit labor costs, which temporarily declined significantly.

is still intact. Consequently, for the forecast horizon we also project only moderate rises in output per employee. The slow productivity growth in our view indicates that potential output growth in Euroland has declined. It is, however, argued that reforms on the labor market have raised the labor intensity of growth. With measures such as easing of the rules for temporary work contracts (particularly significant in Spain), promotion of part-time jobs (Netherlands) or reduction of labor costs in low wage jobs (France, Germany), incentives for job creation have been improved and increasingly workers with low productivity have been integrated in the labor market.[12] Weak productivity growth, according to this argument, therefore should be regarded as a (positive) sign of increased flexibility of the European economies rather than as a (negative) indicator of rigidities that call for further economic reforms (Bartsch 2004). While labor market reforms are found to have had a negative impact on labor productivity in the euro area (European Commission 2003b),[13] only 25 percent of the deceleration in labor productivity can be explained by this factor. The reduced contribution of investment (capital deepening) and a slowdown in the growth rate of total labor productivity have been more important.

7 Outlook: Increase in Production Remains Moderate

The leading indicators suggest that economic activity in the euro area will accelerate in the first half of 2004. The sentiment indicators compiled by the European Commission have been perceptibly oriented upwards for the past months. Confidence in the industrial sector and in the service sector has markedly increased. In particular, export expectations in the manufacturing sector have strongly improved despite the sharp appreciation of the euro over the past twelve months. Against the U.S. dollar the euro has appreciated by around 19 percent over this period, in real effective terms it has appreciated by roughly 9 percent. The improvement in export expectations indicates that the corporate sector expects a very dynamic world economy. Consumer confidence has also brightened up somewhat over the past months. Finally, the purchasing managers' index and the growth indicator also point to a continuation of the recovery, even though both indicators have fallen somewhat lately.

Real GDP is expected to increase by 1.7 percent this year on average; in the course of the year it will probably expand slightly faster than potential output. Exports will continue to rise, even though the high speed of economic activity in the rest of the world will not fully manifest itself in external demand because of the dampening effects of the euro appreciation. Domestic demand is expected to pick up in the course of this year (Table 7). Stimulated by low interest rates, corporate investment will gain momentum. Private households will expand their consumption expenditures at a slightly faster pace in view of brightened employment prospects. The situation on the labor market will gradually improve from spring on. The unemployment rate will amount to 8.7 percent this year on average, following 8.8 percent last year (Table 8).

In the course of next year the economic expansion will slow down slightly (Figure 4). Economy-wide production is expected to increase roughly in line with potential output. The somewhat slower pace of economic activity is due to the world economy, which will lose momentum next year (Benner et al. 2004). Against this background corporate investment is likely to decelerate. The situation on the labor market will further improve, supporting private consumption. All in all, real GDP is expected to increase by 2.0 percent next year on average (Figure 5).

[12] Measures that resulted in shifting jobs from the informal to the formal sector seem to have been a further significant factor, particularly in Italy.

[13] This result points at the conflict inherent in the two goals in the Lisbon agenda, which calls to raise the employment share in the EU from 62 percent in 2002 to 70 percent in 2010 while, at the same time, bringing labor productivity to U.S. levels, from currently 92 percent (Gros 2004).

Table 7:
Quarterly Data on the Economic Development in Euroland, 2003–2005

	2003				2004				2005			
	I	II	III	IV	I[a]	II[a]	III[a]	IV[a]	I[a]	II[a]	III[a]	IV[a]
Gross domestic product[b]	–0.1	–0.4	1.6	1.2	2.2	1.9	2.1	2.3	2.0	2.0	1.9	1.9
Domestic demand[b]	1.5	0.5	–0.9	4.1	1.6	2.6	2.3	2.6	2.1	2.2	2.0	1.9
Private consumption[b]	1.7	0.0	0.8	0.3	2.4	2.3	2.2	2.3	1.8	1.8	1.8	1.7
Public consumption[b]	2.0	2.2	2.5	2.4	0.0	1.4	1.4	1.3	0.7	1.5	1.3	1.6
Fixed investment[b]	–3.6	–1.5	–0.7	2.6	3.3	3.6	3.8	4.0	3.2	3.2	2.8	2.7
Change in stocks[c]	0.9	0.3	–1.7	2.7	–0.4	0.2	–0.1	0.2	0.3	0.2	0.1	0.1
Net exports[c]	–1.5	–0.8	2.5	–2.6	0.6	–0.6	–0.2	–0.2	–0.1	–0.1	0.0	0.0
Exports[b,d]	–6.0	–3.6	9.7	0.9	4.8	2.7	3.0	4.4	4.5	4.0	4.6	4.3
Imports[b,d]	–2.4	–1.5	3.1	8.7	3.4	4.6	3.6	5.4	5.0	4.6	4.9	4.4
Unemployment rate[e]	8.7	8.8	8.8	8.8	8.7	8.7	8.6	8.6	8.5	8.4	8.3	8.2
Consumer prices (HICP)[f]	2.3	1.9	2.0	2.0	1.7	1.9	1.8	1.7	1.8	1.8	1.9	2.0
Money stock M3[b]	8.1	9.2	6.5	6.1	4.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0
3-month money market rate	2.9	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3
Long term interest rate	4.2	4.0	4.2	4.4	4.5	4.6	4.7	4.7	4.8	4.9	4.9	4.9
U.S. dollar/euro exchange rate[g]	1.07	1.14	1.12	1.19	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Real effective exchange rate[h]	99.1	102.9	101.9	104.2	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0

[a]Forecast. — [b]Annualized quarterly rate of change in percent. — [c]Contribution to change in GDP, in percentage points. — [d]Including intra-Euroland trade. — [e]In percent of the labor force, according to the ILO concept. — [f]Change over previous year in percent. — [g]U.S.-dollar/euro. — [h]Broad group. Based on the consumer price index. Index 1999 I = 100.

Source: Eurostat (2004); ECB (2004); OECD (2003); own calculations and forecasts.

Table 8:
Real GDP, Consumer Prices and Unemployment Rate in Euroland, 2002–2005

	Weights in percent[a]	GDP[b]				Consumer prices[b,c]				Unemployment rate[d]			
		2002	2003[e]	2004[f]	2005[f]	2002	2003	2004[f]	2005[f]	2002	2003[e]	2004[f]	2005[f]
Germany	29.8	0.2	–0.1	1.6	1.2	1.3	1.1	1.3	1.2	8.6	9.3	9.1	9.0
France	21.5	1.2	0.2	1.5	2.0	1.9	2.2	1.6	1.7	8.8	9.4	9.4	9.1
Italy	17.8	0.4	0.4	1.0	1.6	2.6	2.8	1.9	2.2	9.0	8.7	8.4	8.1
Spain	9.8	2.0	2.4	2.8	3.3	3.5	3.2	2.5	3.0	11.3	11.3	11.0	10.2
Netherlands	6.3	0.2	–0.8	0.8	1.7	3.9	2.2	1.2	1.3	2.7	3.8	4.4	4.4
Belgium	3.7	0.7	1.1	2.2	2.8	1.5	1.5	1.4	1.8	7.3	8.1	8.3	8.0
Austria	3.1	1.3	0.8	2.0	2.7	1.7	1.4	1.5	1.8	4.3	4.4	4.5	4.4
Finland	2.0	2.3	1.9	2.5	3.5	2.0	1.3	1.5	2.0	9.1	9.0	8.9	8.5
Greece	2.0	3.8	4.7	5.2	4.0	3.9	3.4	3.7	4.0	9.9	9.2	8.5	8.1
Portugal	1.8	0.4	–1.1	0.7	1.7	3.7	3.3	2.0	2.4	5.1	6.4	7.0	6.9
Ireland	1.8	6.9	1.0	3.0	4.0	4.7	4.0	2.1	2.8	4.4	4.6	4.6	4.4
Luxembourg	0.3	1.3	1.2	2.0	3.0	2.0	2.6	2.3	2.3	2.8	3.7	3.8	3.5
Euroland	100.0	0.9	0.4	1.7	2.0	2.2	2.1	1.8	1.9	8.4[g]	8.8[g]	8.7[g]	8.4[g]

[a]Based on GDP in current prices of 2002. — [b]Percentage change over previous year. — [c]Harmonized Index of Consumer Prices (HICP). — [d]Standardized unemployment rates according to the ILO concept. — [e]Partly estimated. — [f]Forecast. — [g]Based on the number of employees in 2002.

Source: ECB (2004); OECD (2003); own calculations and forecasts.

Figure 4:
Real GDP[a] in Euroland, 2001–2005

[a]Seasonally adjusted. — [b]Annualized quarterly rate of change in percent. — [c]Percentage change over previous year. — [d]Forecast starting in 2004 I.

Source: Eurostat (2004); own forecast.

Figure 5:
GDP, Domestic Demand and Net Exports in Euroland,[a] 1992–2005

[a]At constant prices. — [b]Percentage change over previous year. — [c]Change of net exports over previous year in percent of GDP in the same quarter of previous year. — [d]Forecast starting in 2004 I.

Source: Eurostat (2004); own forecast.

The increase in consumer prices is likely to remain moderate over the forecast horizon. While economy-wide capacity utilization will rise somewhat in the course of the recovery, it will still not have reached its normal level at the end of the forecast horizon. Against this background firms' scope for raising prices will remain small. Dampening effects on consumer prices also stem from the decelerated increase in unit labor costs and from the appreciation of the euro. If, moreover, there are no strong fluctuations in the particularly volatile prices for energy and food, the inflation rate will be roughly equal to the target rate of the European Central Bank. We expect the Harmonized Index of Consumer Prices to increase by 1.8 percent this year on average and by 1.9 percent in 2005.

8 Real Effects of the Euro's Appreciation

Since early 2002, the euro has appreciated in real effective terms by some 20 percent. Vis-à-vis the U.S. dollar, the appreciation has been even sharper. Against this background, concern has been raised that the developments on the foreign exchange markets may considerably dampen the upswing in the euro area. Therefore, we analyzed how strong the retarding effects of an appreciation of the euro on economic activity in the euro area can be expected.

Recent studies by international organizations with large macroeconometric models are of limited usefulness with regard to this question since they focus on the effects of a depreciation of the U.S. dollar. Typically, an effective devaluation of the dollar is assumed. The OECD (2003) found in an analysis based on its econometric world model that a 10 percent real effective depreciation of the U.S. dollar would slow down economic growth in the euro area by 0.2 percentage points in the first year.[14] Simulations of the six German research institutes (Arbeitsgemeinschaft 2002) with the macroeconometric multi-country model of Oxford Economic Forecasting found that a 10 percent real appreciation of the euro against the dollar would dampen GDP growth in the euro area by 0.1 percentage points, both in the first and in the second year. However, the simulations implied strong endogenous reactions from monetary policy. Euro-area interest rates would decline by 0.9 percentage points in the first year and by 0.3 percentage points in the second. Without these reactions, the output effect would have been stronger.

8.1 The Model

In the present paper, the appreciation of the euro will be analyzed using a small macroeconometric model of aggregate demand in the euro area.[15] The model can be interpreted as the "IS equation" of a larger macroeconomic model for the euro area. It is specified with the demand side of the national accounts statistics in mind, with individual behavioral equations for domestic demand, exports and imports, which are analyzed as a system of simultaneous dynamic equations.[16] A special feature of the model is that the euro area is divided into Germany and the rest of the euro area. In this way, it is possible to generate consistent results for Germany and the euro area. Each region is modeled separately by four stochastic equations (exports, imports, domestic demand and industrial production). The regional results are aggregated via identities to give the results for the euro area as a whole. Indicators for the rest of the euro area with respect to price competitiveness and industrial production of their trading partners were constructed on the basis of foreign trade weights for the countries of the rest of the euro area (Buldorini et al. 2002).

The model accounts not only for the primary effects of an appreciation of the euro, but also for a number of important side- and feedback ef-

[14] The results in OECD (2003) refer to the change in the output gap against the baseline solution. With potential output growth unaffected by exchange rate changes, the documented change in the output gap by 0.2 percentage points implies a change in real GDP of the same magnitude.

[15] See Meier (2004) for a detailed exposition of the model.

[16] Rae and Turner (2001) present a similar specification.

fects. In particular, the model considers that export and import data from the national accounts for the euro area comprise the trade among its member states. Exports of the rest of the euro area will thus be influenced by GDP in the euro area. A dampening effect on exports by an appreciation of the euro will, therefore, be followed by another dampening effect because of lower GDP growth. The model also accounts for the fact that imports are influenced by exports. That is, that the effect on GDP of a decline in exports due to appreciation will be lowered by the fall in imports that it causes. In addition, imports are affected by domestic demand.

The model, finally, accounts for terms of trade effects on domestic demand. A real appreciation of the euro can be interpreted as a positive supply shock for the euro area, comparable to an increase in productivity growth or to a fall in oil prices: either less must be exported to finance a given amount of imports or more can be imported for a given amount of exports (Kohli 2004).[17] To account for this terms of trade effect, the indicator of price competitiveness is introduced as a second argument in the stochastic equation for domestic demand.[18]

The model does not account for endogenous reactions of monetary policy. All simulated effects of an appreciation apply for given interest rates. Moreover, the model does not allow for feedback effects from inflation and wages. Since the main channel via which these entities could affect aggregate demand would be monetary policy, which we assumed to remain exogenous, we did not care to model the wage-price process.[19]

8.2 Results of the Simulations

The impact of a real effective revaluation of the euro by 10 percent is summarized in Figure 6. It is assumed that the exchange rate reaches its new level immediately and remains there over the period analyzed. In the quarter of the appreciation, exports fall against the baseline solution, both in Germany and in the rest of the euro area. This fall continues over the next quarters, albeit with declining speed. In the first year, annual average export growth in Germany falls by 3.5 percentage points behind the baseline solution (Table 9), for the rest of the euro-area, the respective figure is 2.3 percentage points and exports of the euro area as a whole will be dampened by 2.6 percentage points. In the second year, the effect is smaller, amounting to –0.8 percentage points for the euro area as a whole. Even for the third year, a significant negative effect on euro-area exports is documented (–0.5 percentage points). In the long run, German exports fall by 5 percent against the baseline solution. This result conforms with our previous studies (e.g., Benner et al. 2002) if one takes into account that changes in the real effective exchange rate of the euro translate into the German indicator of price competitiveness that enters our export equation with a factor of 0.5.[20]

Imports react in a similar way, albeit somewhat less pronounced than exports. The estimated multiplier is, however, subject to considerably higher estimation uncertainty. The annual average of import growth falls behind the baseline solution by 2.8 percentage points in the first year in Germany and by 1.2 percentage points in

[17] In contrast to a productivity shock, however, the positive real income effect of an appreciation or of an oil price fall is not accounted for by real GDP. In fact, real GDP falls as a result of a fall in import prices since the latter enters the GDP deflator with a negative sign. Kohli (2004) shows that changes in the terms of trade account for a large share of the changes in real income of a number of industrialized countries. Fox et al. (2002) analyze the terms of trade effect for a single country in a time series study.

[18] The coefficient of the indicator of price competitiveness was highly significantly positive, both in the equation for Germany and in the equation for the rest of the euro area. Accounting for this variable also increased the stability of the estimation results and the fit of the equation. The long run elasticity of domestic demand with respect to the indicator of price competitiveness was estimated to be 0.2 for Germany and 0.13 for the rest of the euro area (Meier 2004).

[19] This implies that there is no feedback effect on price competitiveness. Given the stickiness of prices, the impact of this omission should be small in the adjustment period of 3 years that we analyze.

[20] In the present model, exports are additionally dampened by lower economic activity in the rest of the euro area. However, this effect is counteracted by the fact that the long run elasticity of German exports with respect to the indicator of price competitiveness is estimated somewhat lower here (0.9) than in Benner et al. (2002) (1.1).

Figure 6:
Effects of a 10 Percent Real Effective Appreciation of the Euro on Main Aggregates in Germany and in the Rest of the Euro Area[a]

[a]Deviation from the baseline solution in percent. The change in the exchange rate occurs in period 1. Broken lines indicate the 95 percent confidence interval of the respective multiplies. Confidence intervals are estimated via stochastic simulation (non-parametric bootstrapping with 1,000 replications).

Table 9:
Effects of a 10 Percent Real Effective Appreciation of the Euro on Main Aggregates in Germany and in the Euro Area[a]

	Exports	Imports	Domestic demand	GDP
		Germany		
1st year	–3.5 (–4.2; –2.8)	–2.8 (–3.6; –2.0)	–0.3 (–0.6; –0.1)	–0.8 (–1.0; –0.5)
2nd year	–1.5 (–1.7; –1.3)	–0.3 (0.7; 0.1)	0.4 (0.3; 0.6)	–0.0 (–0.1; 0.0)
3rd year	–0.7 (–0.9; –0.5)	0.2 (–0.1; 0.5)	0.4 (0.3; 0.5)	0.1 (0.0; 0.0)
		Euro area excluding Germany		
1st year	–2.3 (–3.3; –1.3)	–1.2 (–2.6; 0.2)	0.1 (–0.5; 0.8)	–0.4 (–0.8; 0.1)
2nd year	–0.6 (–1.0; –0.2)	0.0 (–0.7; 0.7)	0.1 (–0.2; 0.6)	–0.1 (–0.3; 0.2)
3rd year	–0.3 (–0.7; 0.0)	0.2 (–0.5; 0.7)	0.1 (–0.2; 0.5)	–0.0 (–0.2; 0.2)
		Euro area		
1st year	–2.6 (–3.5; –1.8)	–1.6 (–2.8; –0.5)	0.0 (–0.5; 0.5)	–0.5 (–0.8; –0.1)
2nd year	–0.8 (–1.2; –0.5)	–0.1 (–0.7; 0.5)	0.2 (0.0; 0.5)	–0.1 (–0.3; 0.2)
3rd year	–0.5 (–0.8; –0.2)	0.1 (–0.4; 0.6)	–0.2 (0.0; 0.5)	0.0 (–0.2; 0.2)

[a]Effect on the rates of change against the average of the previous year. Figures in parentheses give upper and lower bounds of the 95 percent confidence intervals. The latter are estimated via stochastic simulation (non-parametric bootstrapping with 1,000 replications).

Table 10:
Effects of a 10 Percent Real Appreciation of the Euro Against the U.S. Dollar on Main Aggregates in the Euro Area[a]

	Exports	Imports	Domestic demand	GDP
1st year	–0.9 (–1.3; –0.5)	–0.6 (–1.0; 0.0)	0.0 (–0.2; 0.2)	–0.2 (–0.3; –0.0)
2nd year	–0.3 (–0.4; –0.2)	–0.0 (–0.3; 0.1)	0.1 (0.0; 0.2)	0.0 (–0.1; 0.0)

[a]Effect on the rates of change against the average of the previous year. Figures in parentheses give upper and lower bounds of the 95 percent confidence intervals. The latter are estimated via stochastic simulation (non-parametric bootstrapping with 1,000 replications).

the rest of the euro area. The fall in imports, thus, compensates much of the fall in exports, although not all of it.

As regards domestic demand, it is interesting to note that in Germany the stimulating effect of improved terms of trade is at first overcompensated by lower GDP growth. Still, after some six quarters, the terms of trade effect starts to dominate, but the estimate is too imprecise to reject the hypothesis that domestic demand remains unaffected by exchange rate changes in the long run. For the rest of the euro area, there is an immediate positive impact, but this is not significantly different from zero. Real GDP is affected by the appreciation mainly in the first year. In Germany, it falls behind the baseline solution by 0.8 percentage points. In the rest of the euro area the dampening effects are smaller due to the small impact effect on exports; real GDP grows 0.4 percentage points less than in the baseline solution. The euro area as a whole loses 0.5 percentage points. In the following years, the effects are not significantly different from zero.

Note that the dynamic multipliers estimated here are similar to those of the OECD (2003). To make the present study approximately comparable to that of the OECD which focuses on a 10 percent real effective U.S. dollar depreciation, Table 10 shows the effects of a real appreciation of the euro only against the U.S. dollar in our model. Accordingly, real GDP in the euro area falls behind the baseline solution by 0.2 percentage points in the first year, with no further significant effects in the following years. The OECD study finds that the output gap in the euro area is by 0.2 percentage points smaller than in the baseline solution in both the first and the second year and by 0.3 percentage points in the

third year. The small further opening of the output gap in the third year apart, these results are in line with those of the present study. Moreover, they are close to what we assumed in our previous forecasts for Germany and the euro area.

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