

Borchert, Manfred; Kösters, Wim; Leschke, Martin; Polleit, Thorsten

Research Report

Can the ECB do more for growth?

ECB Observer, No. 2

Provided in Cooperation with:

ECB Observer

Suggested Citation: Borchert, Manfred; Kösters, Wim; Leschke, Martin; Polleit, Thorsten (2001) : Can the ECB do more for growth?, ECB Observer, No. 2, ECB Observer, s.l.

This Version is available at:

<http://hdl.handle.net/10419/48524>

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ECB OBSERVER

*Analyses of the monetary policy of the
European System of Central Banks*

**Can the ECB do
more for growth?**

No 2

14 November 2001

**Prof. Dr. Manfred Borchert
Westfälische Wilhelms-Universität Münster**

**Prof. Dr. Wim Kösters
Ruhr-Universität Bochum**

**Priv.-Doz. Dr. Martin Leschke
Westfälische Wilhelms-Universität Münster**

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Barclays Capital, Frankfurt**

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SUMMARY

Part 1: Shall the ECB assign a greater role to growth?

1. Forthcoming demographic problems coupled with high government debt levels in the euro area have made the objective of increasing the growth rate a “*conditio sine qua non*” for maintaining future macro-economic stability in the euro area.
2. There is strong theoretical and empirical evidence that the ECB’s primary objective, that is maintaining price stability, is actually conducive to growth. Moreover, we find that the ECB’s objective is not, contrary to a widely held view, a prioritisation of price stability over growth.
3. We do not find convincing evidence supporting demands that the ECB should gear its policy towards growth stimulation.
4. There may be some “confidence building” channels through which monetary policy could influence output. However, lacking sufficient knowledge of this transmission process, a growth-oriented policy for the ECB appears to be hazardous from the point of view of risks-rewards.

Part 2: Government finances and ECB policy – a discussion of the European Stability and Growth Pact

1. The Maastricht Treaty has forced national governments to embark on a policy of fiscal consolidation. The European Stability and Growth Pact (“Pact”) is the logical continuation of this badly needed policy course.
2. Euro area governments’ adhering to the obligations of the Pact is of the utmost importance in rendering the ECB’s price stability promise credible. Deviations from the consolidation course would ultimately translate into a serious risk to the ECB’s credibility.
3. To meet the challenges of forthcoming demographic problems and government debt levels, governments must reduce expenditures and start paying down government debt at a much quicker rate than is currently the case to prevent the tax burden from rising which, in turn, would certainly be detrimental to the euro area’s growth momentum.
4. ECB’s interest rate changes would tend to have an increasingly strong impact on governments’ funding costs. This would certainly increase the lingering conflict between fiscal and monetary policy if budgets remain strained. A lack of commitment to bring about sustainable government finances clearly threatens the credibility of the ECB’s price stability promise.

Part 3: “Price gap” versus reference value concept

1. We welcome the fact that the ECB has started officially analysing the information content of M3 for future euro area inflation on the basis of the so-called “price gap”.
2. The ECB’s reference value concept runs the risk of providing policymakers with misleading signals as it does not take into account monetary overhangs/shortfalls which have been built up in the past and affect future inflation.
3. That said, the ECB should base its policy decisions on the signals provided by the so-called “price gap” rather than on a comparison between the M3 growth and the reference value.
4. Even though there are risks to the stability of the demand for M3, we remain confident that M3 will retain its favourable indicator function for the foreseeable future.

Part 4: Assessment of current ECB policy and outlook

1. During the last six months, the ECB has been successful in stabilising inflation expectations, which is certainly an achievement given the fact that actual inflation deviated from the envisaged 2.0 % ceiling.
2. The interest rate measures taken were in line with securing price stability in the euro area.
3. Our “price gap”-based forecast model, which also contains the output gap, oil prices and the Euro-Dollar-exchange rate, implies a very benign inflation environment ahead, presumably not more than 1.7 % in 2002.
4. We expect the ECB to lower its refi rate to 3.0 % by the end of 2001. If signs of recovery fail to emerge, we expect the ECB to bring the refi rate to 2.5 % by the end of the first quarter 2002.

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Part 1: Shall the ECB assign a greater role to growth?

In view of forthcoming demographic trends and relatively high government debt levels in the euro area, strengthening the growth path has become a “conditio sine qua non” for maintaining future wealth and macro-economic stability. In line with numerous studies, the ECB’s objective of maintaining price stability is to be considered conducive to growth. We find neither sufficient theoretical nor empirical evidence which would support the notion that “growth” should be a direct objective of monetary policy. We argue that the driving forces of growth are beyond reach of monetary policy. The key for fostering growth in the euro area is a strengthening of market forces by way of structural reforms in the factor and product markets. Moreover, in view of uncertainties in the form of unknown “time-lags” and the stability of the money demand function in the euro area we do not recommend the ECB reacting towards business cycle fluctuations.

Content: 1. The need for higher productivity and growth in Europe – 2. What drives growth? – 3. Monetary policy and growth – 4. The ECB’s objectives – 5. Conclusion.

1. The need for higher productivity and growth in Europe

At the meeting of the European heads of state and governments in Lisbon in March 2000 the decision was taken to make the growth of gross domestic product (GDP) a macro-economic policy priority in Europe. In a sense, this should not come as a surprise: maintaining and even increasing economic growth (defined as an expansion of the real output over time) has always been a widely accepted macro-economic policy objective for at least two reasons. First, growth is traditionally considered as improving the standard of living of the populace. Second, growth is very helpful for smoothing social conflicts: a higher GDP allows an increase of the individual’s standard of living without reducing other peoples’ incomes. The latter applies if the population growth rate is below the output growth rate. In this case, per capita GDP growth is positive and will foster economic welfare.

In the 1960s and 1970s, governments no longer accepted economic growth as an endogenous outcome of a market-oriented economy but officially announced the inclusion of growth and smoothing the business cycle in the catalogue of macro-economic objectives.¹ Especially since the 1980’s growth-oriented policy measures have basically been driven by an attempt to increase the medium- to long-term growth rates of the economy, i.e. the so-called “potential growth rate”. This change in the European macro-economic policy focus can largely be explained by the insight that fiscal and monetary stop-and-go policy actions have frequently failed to deliver the desired outcomes. Therefore, policy tries to foster the long-term labour productivity (LP) and the total factor productivity (TFP). While LP can be influenced by giving incentives to

¹ Of course, most politicians were inspired by the work of John Maynard Keynes, who challenged the neoclassical paradigm, suggesting active government demand management to support growth and employment.

invest in, for instance, physical capital, the latter can be influenced by changing rules and institutions governing the economy and politics.

Average real GDP growth rates in many euro area countries has been rather lacklustre in the 1990s, accompanied by high unemployment ratios and high government debt levels which, in turn, have exerted unfavourable effects on growth. To make things worse, forthcoming unfavourable demographic trends and government debt levels in the euro area will require a systematically higher productivity and thus growth rate in order to shoulder the fiscal burden and thus secure fiscal stability of a number of euro area countries.

Forthcoming demographics – The ageing population is a phenomenon across the euro area. Declining birth rates and increasing life expectancy are the main forces contributing to this process. Table 1a shows that with the exception of Ireland, Luxembourg, Portugal, and Sweden, the EU countries’ population will decline in the period 2000 to 2050. However, it is not the population decline per se that will cause problems. What is even more important is the fact that the ratio of “younger (under 19) and elderly people (above 65) relative to those of working age (between 19 and 65)” is set to rise. This so-called “dependency ratio” is forecast to increase substantially in the long-term with a particular steep increase foreseen after 2020 – see table 1b.

Table 1a: Baseline projections of total population in EU Member States (beginning of the year, millions of persons)

| Country | 2000 | 2010 | 2020 | 2030 | 2040 | 2050 |
|----------------|-------|-------|-------|-------|-------|-------|
| Belgium | 10.2 | 10.4 | 10.5 | 10.5 | 10.4 | 10.1 |
| Denmark | 5.3 | 5.5 | 5.6 | 5.6 | 5.6 | 5.6 |
| Germany | 82.1 | 83.4 | 83.3 | 82.0 | 79.6 | 76.0 |
| Greece | 10.5 | 10.8 | 10.8 | 10.7 | 10.6 | 10.2 |
| Spain | 39.4 | 39.9 | 39.5 | 38.6 | 37.3 | 35.1 |
| France | 59.2 | 61.4 | 62.8 | 63.7 | 63.5 | 62.2 |
| Ireland | 3.8 | 4.1 | 4.4 | 4.6 | 4.7 | 4.8 |
| Italy | 57.6 | 57.3 | 56.0 | 54.0 | 51.5 | 48.1 |
| Luxembourg | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 |
| Netherlands | 15.9 | 16.7 | 17.3 | 17.7 | 17.9 | 17.7 |
| Austria | 8.1 | 8.1 | 8.2 | 8.1 | 7.9 | 7.6 |
| Portugal | 10.0 | 10.3 | 10.5 | 10.7 | 10.8 | 10.7 |
| Finland | 5.2 | 5.3 | 5.3 | 5.3 | 5.1 | 5.0 |
| Sweden | 8.9 | 9.0 | 9.1 | 9.3 | 9.2 | 9.2 |
| United Kingdom | 59.5 | 60.9 | 62.2 | 63.2 | 62.9 | 61.8 |
| EU-15 | 376.2 | 383.4 | 386.0 | 384.6 | 377.6 | 364.5 |

Source: Eurostat - <http://ue.eu.int/emu/OtherTopics/pensions.pdf>

Since 1990, the age group of 15-29, from which entrants into the labour market are drawn, has been decreasing rapidly. Furthermore, the average age of the labour force, which had remained quite stable at around 40 years over several decades, has started to increase since 1995: every 7 years it rises by 1 year. Finally, the “65 and older” population will start growing rapidly within the next five years. As a result, labour supply will be considerably reduced in the EU over the next decades, particularly after 2015.

According to Eurostat projections, EU15 dependency ratios will, on average, rise from 64.4 % to 89.5 % in the period 2000 to 2050 (see table 1b). It is worth noting that there is no member state with a decreasing dependency ratio. The forecast seems to be sufficiently robust to allow the conclusion that the demographic trend is set to pose a serious challenge not only to the sustainability of current social security systems but also for the overall fiscal positions in the decades to come.

Table 1b: Baseline projections of total age dependency ratios in EU Member States (ratio of people 1-19 and 65+ to working age population, in %)

| Country | 2000 | 2010 | 2020 | 2030 | 2040 | 2050 |
|----------------|------|------|------|------|------|------|
| Belgium | 67.5 | 65.6 | 70.8 | 83.8 | 89.9 | 88.3 |
| Denmark | 62.7 | 68.1 | 71.4 | 77.8 | 86.1 | 80.9 |
| Germany | 60.2 | 65.3 | 67.2 | 79.1 | 87.8 | 86.0 |
| Greece | 64.1 | 64.3 | 68.4 | 72.9 | 84.3 | 93.9 |
| Spain | 62.3 | 60.3 | 63.7 | 70.4 | 86.6 | 99.3 |
| France | 70.7 | 67.7 | 75.4 | 83.4 | 89.7 | 90.4 |
| Ireland | 72.5 | 63.7 | 68.5 | 70.9 | 74.7 | 84.8 |
| Italy | 60.6 | 64.4 | 68.9 | 78.0 | 95.7 | 99.5 |
| Luxembourg | 63.5 | 66.6 | 68.0 | 79.3 | 86.9 | 81.1 |
| Netherlands | 61.2 | 63.8 | 70.4 | 80.0 | 89.1 | 84.5 |
| Austria | 62.1 | 61.9 | 62.1 | 74.9 | 87.1 | 87.0 |
| Portugal | 63.6 | 64.5 | 67.9 | 70.2 | 80.1 | 87.1 |
| Finland | 65.2 | 64.7 | 75.7 | 85.3 | 84.7 | 84.8 |
| Sweden | 70.9 | 68.9 | 72.9 | 81.1 | 85.4 | 83.8 |
| United Kingdom | 69.3 | 66.4 | 69.2 | 79.1 | 86.8 | 84.6 |
| EU-15 | 64.4 | 65.1 | 69.2 | 78.4 | 88.3 | 89.5 |

Source: Eurostat - <http://ue.eu.int/emu/OtherTopics/pensions.pdf>

While the slight decline in the population growth rate may not harm peoples' growing welfare per se, i.e. per capita GDP growth, there are several problems linked with the increase in the dependency ratio:

- (a) The ageing population can be expected to have a direct impact on future GDP growth and per capita income. For instance, in an ageing population the private aggregate savings rate should fall, given that an increasing proportion of the population will dis-save rather than accumulate wealth, thereby reducing the resources channelled into investment spending.
- (b) Each working person must support a larger number of individuals who are not in the work process. This weakens the incentive to work because taxes and social security contributions will rise. Rising labour costs would, in turn, tend to reduce companies' competitiveness. The negative impact on per capita GDP growth is obvious, especially in the absence of productivity growth. That said, only an increasing productivity growth can prevent per capita growth from declining.
- (c) In addition, high dependency ratios mean that government social assistance programs are set to become overly expensive, causing more government resources to be diverted away from programs such as infrastructure investment and education. This will also have a negative impact on per capita growth.

Even though the empirical evidence on the effects of population ageing on private and national saving is not conclusive, there is a widespread concern that there will be substantial capital supply shortages and a decline in the average per capita GDP growth rate resulting from demographic developments. In view of the demographic trends and the dependency ratios in the rest of continental Europa, it becomes evident that the shrinkage and ageing of the population is unlikely to be solved by immigration within Europe itself.

The dramatic economic and social problems caused by the ageing population and increasing dependency ratio in EU15 can be explained by a simple scenario analysis including the level of desired GDP (per capita) growth (welfare accumulation), the rising dependency ratio, labour force and the required labour productivity growth compensating for the negative impact of the population pyramid on growth. Table 2 shows the results of the relation between growth, the dependency ratio and the required productivity growth until 2050.

Table 2: Growth, dependency ratio, and required productivity growth in EU 15

| 2000 | | | | | | 2050 | | | | | | |
|-------|------|-------|-------|--------|-------|-------|------|-------|-------|--------|--------|------|
| Pop | DR | LF | LP | GDP | GDPpC | Pop | DR | LF | ΔGDP | ΔGDPpC | LP | ΔLP |
| 376.2 | 64.4 | 228,8 | 366,7 | 8390.5 | 22,3 | 364,5 | 89.5 | 192,3 | 1 % | 1.06 % | 717.4 | 1.35 |
| | | | | | | | | | 1.5 % | 1.56 % | 918,3 | 1.85 |
| | | | | | | | | | 2.0 % | 2.06 | 1174,1 | 2.36 |
| | | | | | | | | | 2.5 | 2.56 | 1499,3 | 2.86 |
| | | | | | | | | | 3.0 | 3.06 | 1912,3 | 3.36 |

Legend: Pop is population in millions. DR is the dependency ratio (under 19 and above 65 in relative to those between 19 and 65). LF is labour force (people between 19 and 65). LP is labour productivity, i.e. GDP to labour force ratio. GDP is the real gross domestic product in thousands. GDPpC is the real gross domestic product per capita. Δ is the average growth rate per anno

According to our findings, a desired annual average growth rate of x % requires an annual average productivity growth of (x % + 0.355 %). So if a GDP growth rate of, let’s say, 2.0 % is to be maintained, the economy has to realize an average productivity growth of 2.36 %. Compared to the average productivity and GDP growth in the 1990s – the annual average productivity growth was 1.3 % and the average annual GDP growth rate 1.9 % – maintaining an average euro area output growth rate of 2.0 % is, in fact, a very ambitious objective. In fact, the European governments aspire an annual GDP growth rate of 3.0 %, which would require a productivity growth of 3.36 % – which seems to be utopian.

Growing public pension expenditures – Increasingly early retirement and longer life expectancy are causing the proportion of pensioners relative to those in work to rise inexorably. This will impose a substantial increase on the funds required for the provision of old age pensions and it will cause higher expenditures in the public health sector. (We will examine the implications of this for fiscal policy in Europe over the long-term future in part 2 of this report). Thus, the rising “elderly dependency ratio” (EDR) defined as the “ratio of people aged over 64 as a percentage of those of working age, i.e. 19 to 64” will probably have an impact on public expenditure, especially through higher pension expenditures as shown in table 3.

Table 3: Elderly dependency ratio and pension expenditure increase

| Country | Elderly Dependency Ratio (%) | | Pension expenditure increase (% relative to GDP) | |
|----------------|------------------------------|------|--|------|
| | 2000 | 2050 | 2000 | 2050 |
| Belgium | 28.1 | 49.7 | 9.3 | 12.6 |
| Denmark | 24.1 | 41.9 | 10.2 | 13.2 |
| Germany | 26.0 | 53.3 | 10.3 | 14.6 |
| Greece | 28.3 | 58.7 | ... | ... |
| Spain | 27.1 | 65.7 | 9.4 | 17.7 |
| France | 27.2 | 50.8 | 12.1 | 15.8 |
| Ireland | 19.4 | 44.2 | 4.6 | 9.0 |
| Italy | 28.8 | 66.8 | 14.2 | 13.9 |
| Luxembourg | 23.4 | 41.8 | ... | ... |
| Netherlands | 21.9 | 44.9 | 7.9 | 13.6 |
| Austria | 25.1 | 55.0 | 14.5 | 15.1 |
| Portugal | 25.1 | 48.7 | 9.8 | 14.2 |
| Finland | 24.5 | 48.1 | 11.3 | 16.0 |
| Sweden | 29.6 | 46.1 | 9.0 | 10.0 |
| United Kingdom | 26.4 | 46.1 | 5.1 | 3.9 |
| EU-15 | 26.7 | 53.4 | 9.8 | 14.0 |

Assumptions: No reforms of the pension systems in the member states. Productivity growth is expected to converge to around 1.7 % p.a. for all countries. Somewhat more controversially, unemployment is forecast to fall to its estimated structural level by 2005 and remain at this level thereafter.

Source: Progress Report on the Impact of Ageing Populations on Public Pensions Systems, Economic Policy Committee, November 2000.

Whereas today the elderly dependency ratio for the EU as a whole is a relatively comfortable 26.7 %, this ratio is expected to rise sharply to 43.8 % by 2030 and 53.4 % by 2050. The projected doubling in the proportion of pensioners to the number of potential workers represents a substantial increase in the pensions burden for the EU as a whole. The increase in the pension burden is not evenly distributed among EU countries. The outlook for Italy and Spain is particularly acute. In these countries the ratio is expected to rise dramatically to 66.8 % and 65.7 %, respectively. The ratio rises to well over 50 % in other countries which are projected to see significant population declines (Germany, Austria, Greece). In other countries such as the UK, by contrast, population is expected to rise moderately, so that the increase in the dependency ratio is much less extreme.

A further factor increasing the pension burden is the trend of a falling age of retirement. This reflects a variety of factors such as the increase in labour saving technology and the desire on the part of companies to pay off older, more expensive labour. There is also a self-reinforcing process to the extent that the more generous pension provision becomes, the more people decide to retire early. The average retirement age has come down and in some European countries it is now below 60 years. Thus the old age burden is actually higher than that suggested in table 3 which assumes a retirement age of 65. Furthermore, the time of schooling is relatively long in some European countries.²

² For instance, to get a final high school certificate in Germany one has to go to school for 13 years.

The pension expenditures relative to GDP will rise even if the productivity growth rate is twice the average level seen in the last decade. – But, nevertheless, the higher the annual productivity rate and the GDP growth, the easier it is for the EU member states to fulfil their central tasks, e.g. provide investments in human capital and infrastructure. Facing the problem of rising pension expenditures a relatively low productivity growth rate runs the risk of member states cutting investment expenditures that are actually needed to foster future growth. In some countries, the rise in pensions expenditure envisioned will impose severe strains. This is particularly so for those which already suffer from high debt levels, namely Italy, Belgium, and Greece.

It should be noted that switching from a pay-as-you-go system to a funded pension system is accompanied by specific problems when there is an ageing population. First, once a pay-as-you-go system has been established, the change-over creates substantial costs. For more than a generation the system contributors will be burdened with (i) the cost of paying out pensions that are due and (ii) the cost of allocating funds for future private pension plans. – The switch to a funded pension system will increase financial asset demand and, as a consequence, lead to lower capital market yields. This process, combined with a widely assumed increase in the savings rate, can be expected to have a positive impact on growth. However, higher savings favour a reduction in consumer demand which, in turn, is to be assumed to have a negative impact on growth. That said, the overall growth impact resulting from the costs of switching from a pay-as-you-go to a funded system is not clear *ex ante*.

In this context, a potential impact on capital market yields is worth mentioning. In order to pay out pension claims pension funds have to cash-in assets. Unfortunately, a shrinking ratio “working people to pensioners” can be expected to be accompanied by a decline in overall asset demand. Thus, the increasing supply of assets coupled with a decline in asset demand will cause a rise in the interest rates, presumably providing foreigners with an incentive to buy domestic assets (see the example in box 1). However, a potential rise in interest rates may well harm the economy if the GDP growth rate is relatively low compared to the interest rate level. In such a situation investors in real capital would be required to pay interest rates that are higher than the return on real capital investment on average. As a result, the investment ratio and GDP growth would tend to fall. – This, admittedly simplified, example puts further emphasis on the fact that Europe needs an average high(er) GDP growth and reforms to increase total factor productivity.

Box 1: Dependency ratio and a funded pension scheme – an example

Within a simple model world, we highlight the basic implications of introducing a funded pension scheme in an ageing population economy.

Period t1: In period t1, the gross income is assumed to be EUR 1000. The tax rate is 0.25, the social security system contribution rate is 0.21. Assuming an economy made up of 10 employed persons and 6 pensioners, the dependency-ratio (defined as pensioners in percent of employed persons) is 60.0 %. The employees’ net income amounts to EUR 540, that is EUR 54 per employed person. The old age pension is EUR 210, amounting to a disposable income of EUR 35 per pensioner (the latter are tax exempted). That said, the pensioners’ disposable income amounts to around 65.0 % of the employed persons’ income.

Period t2: Assuming a nominal GDP growth rate of 2.5 % and an increase of the dependency ratio to 100.0 % (that is 8 employed persons and 8 pensioners), total gross income amounts to EUR 2685 in 40 years time. Assuming an unchanged tax and social security system contribution rate, the disposable income of the employed amounts to EUR 1450, that is EUR 181 per person employed. The pension income amounts to EUR 564, that is EUR 70.5 per pensioner. As a result, the pensioners’ income has declined to 39.0 % of employed persons’ disposable income when compared to 65.0 % in t1.

Conclusion: To (i) keep the contribution rate constant at 21.0 % and (ii) secure a pensioner’s income level of 65.0 % of an employed person’s income level, the introduction of an additional funded pension scheme (4.0 % contribution rate) would be required. In our example, an additional EUR 309 is needed to keep the pensioner’s income at 65.0 % of employed persons’ income level. This amount has to be built up by investing in securities (assuming a nominal interest rate of 2.5 %) starting in t1. At the beginning of the retirement period, that is in t2, individuals have to “cash in” their investments. As a result, the supply of securities rises. If, for instance, non-residents buy the securities, net capital imports would, under a system of flexible exchange rates, have to rise to 11.5 % of GDP. To make residents and non-residents hold securities, the required rate of return would tend to rise. That said, the introduction of a funded pension scheme could be expected to increase market interest rates as the dependency-ratio converges to its maximum.

Government debt levels – The level of euro area government debt levels as a percentage of GDP have declined in recent years but remained high by economic standards (see table 4). Unfortunately, the largest euro area countries in particular are still far from running balanced budgets or being in a position to start paying down debt to a considerable extent which will be necessary to prevent the government debt level ratio from rising as the effects of ageing population start kicking in.

Table 4: Government debt level ratios in the euro area (in % of GDP)

| Country | 1997 | 1998 | 1999 | 2000 |
|-------------|-------|-------|-------|-------|
| Belgium | 125.3 | 119.8 | 116.4 | 110.9 |
| Germany | 60.9 | 60.7 | 61.1 | 60.2 |
| Spain | 66.7 | 64.7 | 63.4 | 60.6 |
| France | 59.3 | 59.7 | 58.7 | 58.0 |
| Ireland | 65.1 | 55.0 | 50.1 | 39.1 |
| Italy | 120.1 | 116.2 | 114.5 | 110.2 |
| Luxembourg | 6.0 | 6.4 | 6.0 | 5.3 |
| Netherlands | 70.0 | 66.8 | 63.2 | 56.3 |
| Austria | 64.7 | 63.9 | 64.7 | 62.8 |
| Portugal | 59.1 | 55.3 | 55.0 | 53.8 |
| Finland | 54.1 | 48.8 | 46.9 | 44.0 |
| Greece | 108.3 | 105.5 | 104.6 | 103.9 |
| EU-11 | 74.8 | 73.1 | 72.0 | 69.7 |

Source: ECB, Annual Report 2000.

The costs of government debt pose a serious burden for euro area competitiveness in a global economy: the interest payments on government debt, in addition to the already high level of taxes in a number of euro area countries, have ultimately to be borne by firms and private households located in the euro area, translating into relative cost disadvantages when compared with other currency areas such as for instance the US. This, in turn, may hamper the level of domestic and foreign investment in the euro area and thus GDP growth. GDP growth is to be considered an essential factor for stabilizing, i.e. reducing, government debt-to-GDP levels (see box 2).

Purely from the point of view of public debt levels, a stable GDP and productivity growth rate above 2.0 % would certainly help to reduce the government debt levels before the major demographic problems (rising dependency ratio) kick in. But even then, for some countries the rise in pensions expenditure envisioned will impose severe strains on public finances. This scenario applies particularly to those countries which already suffer from a high government debt level, namely Italy (111 % of GDP), Belgium (110 %) and Greece (104 %).

Box 2: Government debt dynamics

The “government debt dynamic“ is the relationship between the state of government debt and deficits, real and nominal interest rates, real and nominal growth and inflation. A government’s debt-to-GDP ratio d (defined as the total debt outstanding as a percentage of nominal GDP) in period t can be calculated as the primary deficit p (defined as the deficit excluding interest payments as a percentage of nominal GDP) in period t plus interest rate payments on total debt of the previous period $t-1$:

$$d_t = p_t + ((1 + i) / (1 + g)) \cdot d_{t-1},$$

with i = nominal interest rate on state debt, g = nominal growth rate of GDP (consisting of real growth rate g_r and the deflator π). The change in overall debt outstanding as a percentage of nominal GDP, that is $\Delta d_t = d_t - d_{t-1}$, can be written as follows:

$$\Delta d_t = p_t + (i - g_r - \pi) / (1 + g) \cdot d_{t-1}.$$

The trend in government debt can therefore be explained by three factors:

- (1) the magnitude of the primary deficit as a percentage of nominal GDP;
- (2) the relationship between the nominal growth rate and the debt-to-GDP ratio of the previous period; and
- (3) the difference between the nominal interest rate and the real GDP growth rate (i.e.: the “growth-adjusted interest rate“).

The impact of the “growth-adjusted interest rate“ can, in turn, be broken down into three separate effects:

- | | |
|---------------------------------------|---------------------------------|
| (1) the nominal interest rate effect: | $i / (1 + g) \cdot d_{t-1}$; |
| (2) the real growth effect: | $g_r / (1 + g) \cdot d_{t-1}$; |
| (3) the GDP price effect: | $\pi / (1 + g) \cdot d_{t-1}$. |

Given the above relations, we can arrive at a number of conclusions that are of importance within this context:

- if the real interest rate exceeds the real growth rate, the primary surplus has to increase in order to stop the debt ratio from rising, other things being equal;
- the relation between the overall interest rate level and the growth rate strongly affects the consolidation efforts required, even if the debt ratio is modest. The higher the interest rate, the higher the primary surplus must be in order to stop the debt ratio from rising, other things being equal.

To summarize, most euro area countries face three major interrelated problems: (i) a demographic trend by which the dependency ratio is increased over time, (ii) high future public expenditures on pensions and social security systems, and (iii) high government debt levels. If this unfavourable situation is not adequately addressed and finally resolved, Western European countries will suffer from a decline in output growth and hence a loss of welfare. It becomes obvious that implementing a policy enhancing productivity and growth has become of the utmost importance.

2. What drives growth?

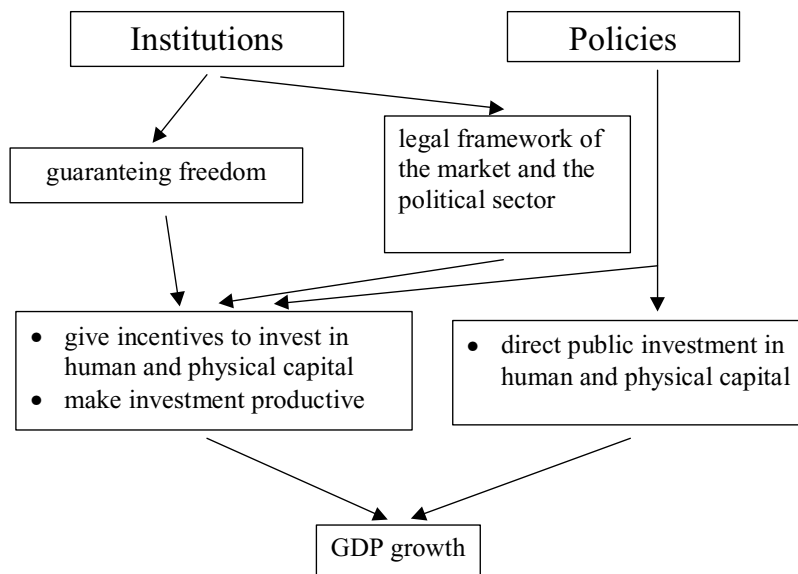
According to the simplest version of the neoclassical growth model, an economy's per worker GDP growth rate (labor productivity growth) depends on the saving / investment ratio, the population growth (constant dependency ratio assumed), the initial per worker per GDP, and exogenously given technological progress. In this model, there seems to be not much room for monetary and fiscal policy affecting growth.

In the more recent *endogenous growth models* long-term growth is explained by additional factors, for example, a knowledge-producing sector, knowledge spillover-effects, and other positive externalities. This more recent literature suggests that policy changes can affect the growth rate by influencing economic agents' decisions, e.g. giving incentives to invest in human capital. But even these extended growth models do not give a sufficient explanation of what drives growth. Factor accumulation alone leaves a significant number of the differences in growth between all the countries still unexplained. So the question arises: what are the major factors determining total factor productivity? What makes physical and human capital productive and what are the incentives to make people invest in physical and human capital? The answer lies in the field of institutional economics. If one seeks to understand the development of economies around the world, i.e. past, present and future, a closer look at institutions, the formal rules of the economy, the political constitution and the informal rules, such as moral attitudes, conventional wisdom, and ideologies, is required.

An institutional framework is useful for supporting the peoples' welfare if it guarantees freedom under the law, and if it prevents governments from making discretionary policies such as, for instance, providing privileges to special groups. Policy guided by binding rules and institutions is able to carry out two productive tasks: (i) guaranteeing the basic principles of a market-oriented economic framework, and (ii) securing a reliable legal framework guiding market forces. Both tasks are of the utmost importance for making the market system become a wealth-creating arrangement. The first task includes securing a mechanism of free prices, wages, and interest rates, free trade, free transactions with non-residents, etc. The second task encompasses securing a stable inflation rate, rule of law, property right, enforcement of contracts, and guarantee of political liberties, rules of the labour market, etc. Figure 1 summarizes the arguments.

The influence of fiscal policies on growth can only be evaluated within an appropriate policy framework. In general, sound public budgets support a macro-economic environment in which the task of a stability-oriented central bank is greatly facilitated, thereby securing an environment conducive to growth-enhancing savings and investment. Fiscal policies that foster employment or innovation exert their strongest influence when they are not undermined by less favorable policies and regulations of labor markets, trade or competition. Besides maintaining price stability, there is indeed little evidence that monetary policy can induce an increase in the long term growth level.

Figure 1: The role of institutions and policies for growth



One cannot dismiss the hypothesis that monetary policy may affect GDP growth in the short- to medium term. There are economists who strongly disagree with a strictly stability-oriented monetary policy, favouring a policy of low interest rates providing incentives to investment, thereby fostering growth. As a consequence, we attempt to shed some light on the question as to whether monetary policy should, in addition to maintaining price stability, aim at steering growth.

3. Monetary policy and growth – pros and cons of an inflationary policy

The relationship between monetary policy and real GDP (growth) is traditionally discussed in some type of “Phillips-curve” model. In its original form, the Phillips-curve describes the relation between unemployment and nominal wages. The modified Phillips-curve derived by Samuelson and Solow in 1960 analyses the relation between inflation and unemployment: Under the assumption of exogenously determined, perfectly static expectations, an expansion of money growth will foster real GDP (growth) and reduce unemployment. However, the emergence of the monetarist (Friedman) and the neo-classical (Lucas) school of thought challenged the classical argumentation: Assuming adaptive or even rational expectation, employment becomes, at least over the medium-term, independent from inflation and, as a result, monetary policy. Even under the realistic assumption of transaction costs, which may well explain the existence of medium-term contracts, an inflationary policy will be effective for a relatively short period of time only, that is until certain contract-specific “threshold values” are met. Thus, even in a neo-Keynesian world (Taylor) the traditional Phillips-curve does not hold over an extended period.

In standard macroeconomic theory the medium term Phillips-curve is closely linked to the so-called “NAIRU” (non-accelerating inflation rate of unemployment) concept. The NAIRU corresponds with the natural growth path of the economy, which cannot be altered on a purely temporary basis by monetary policy. In this context, a more microeconomic-oriented argument for admitting higher inflation should be mentioned:

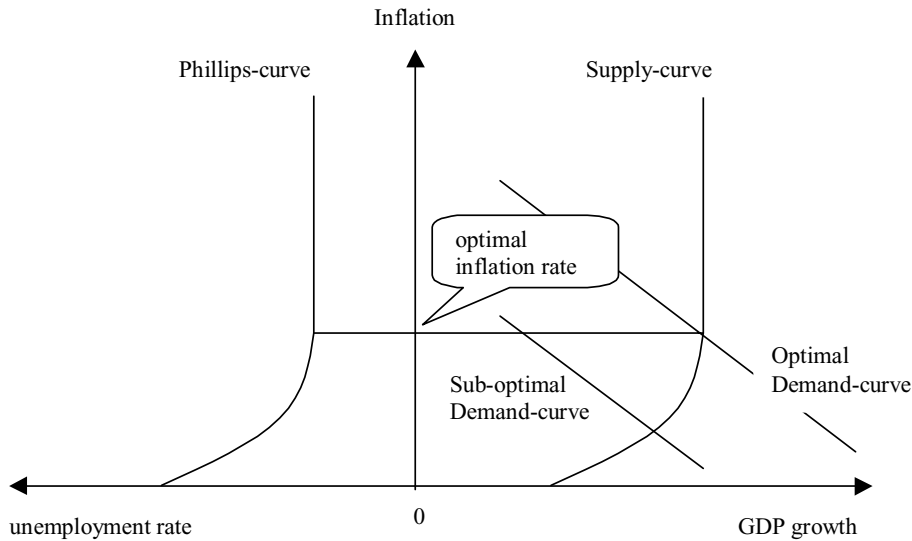
the so called “*grease-effect*”. According to this concept, inflation promotes wage flexibility because it helps to overcome “downward nominal wage rigidity”. Groshen and Schweitzer characterise this effect as follows: To understand how the grease effect of inflation operates, consider the position of a manager who must allocate a firm’s fixed salary budget between two kinds of employees: highly skilled and low skilled.

In a non-inflationary environment, the manager wishing to keep the wage of the highly skilled in line with the prevailing market wage may be forced to lay off low-skilled workers because wage rigidity rules out a reduction in money wages. In periods of inflation, however, there is no need to take recourse to layoffs or money salary cuts. Here, the manager can leave the wage of the second group unchanged or raise it by an amount less than the change in the cost of living. While the latter amounts, in fact, to a real wage reduction, they are typically not perceived as such by most workers. Thus, by preventing the overpayment of workers in occupations with declining market wages, inflation allows employers to avoid laying off workers and, most importantly, charging higher prices than competitors (which, in turn, runs the risk of losing market share). Moreover, by giving employers greater flexibility to adjust compensation in response to changes in labor market supply and demand, inflation is said to help give appropriate wage signals. Thus, ambitious individuals will be encouraged to pursue occupations that offer increasing, rather than diminishing remuneration.

In such a world, inflation would, on balance, allow the firms’ management to respond more flexibly to changes in (labour) market conditions. The “acceptable” inflation rate is said to be within the range of 2.5 % to 5.0 %, depending on the range of the nominal wage rigidity. Nobel laureates Tobin and Akerlof are presumably the most prominent supporters of this line of argument. However, the grease effect systematically ignores the benefits of a strictly stability oriented monetary policy. That said, there is a traditionally shaped Phillips-curve, starting at zero inflation and ending at the optimal inflation rate which, in turn, determines NAIRU (see figure 2). From this point of view, monetary policy should realize the optimal inflation rate by shifting the demand curve to the right until the optimal demand and inflation is reached.

Under this concept, inflation is actually assumed to exert a positive effect on the economy. Downward nominal wage rigidities can be overcome both at the micro level (adjustment of relative wages) and macro level (Phillips curve effect, which is, however, only short-lived). In today’s world, however, an increasing number of economists are well aware of the costs of inflation, e.g. disturbances of relative prices and wages (“sand effect” of inflation). In fact, it is an empirical question whether inflation supports or harms growth and employment.

Figure 2: The Phillips-curve and the Supply-curve



That said, we turn to our empirical work on the relation between inflation and growth. Table 5a shows our estimation results using the growth rate of the real GDP per capita as the dependent variable and the inflation rate as one of the independent variables. In order to eliminate the effect of the business cycle in the data, growth and inflation are calculated as average rates over a gliding five-year period. To eliminate effects of auto-correlation of the residuals, lagged GDP growth rates were included in the estimation equation. To isolate the oil price effects from inflation, the oil price increase is also incorporated in the estimation. The time trend (time) represents the trend of (decreasing) technological progress. The estimated equation is:

$$\text{GDPpCgrowth} = C + a_{11} \text{ Inflation} + a_{12} \text{ Oil-Inflation} + b_{11} \text{ GDPpCgrowth}_{t-1} + b_{12} \text{ GDPpCgrowth}_{t-2} + b_{13} \text{ GDPpCgrowth}_{t-3} + b_{14} \text{ GDPpCgrowth}_{t-4} + c_1 \text{ Time} + \varepsilon$$

Table 5a shows the coefficients a_{11} and a_{12} , the t-statistics in brackets, the Breusch-Godfrey Lagrange Multiplier Test to identify first order (LM (1)) and fourth order auto-correlation of the residuals (LM (4)), and the R^2 . The findings of the estimations are straightforward: There are only two countries, Finland and the United Kingdom, where the coefficient of the inflation rate (a_{11}) has a positive sign, indicating that higher inflation leads to an increase in the GDP growth per head. (It should be noted, however that the coefficient in Finland is not significant at a 5 % level.) In all other countries it is fair to say that inflation cannot be regarded as supporting growth per capita. A significantly negative influence of inflation on growth (significant at a 5 % level) can be seen in Austria, Belgium, France, Greece, Ireland, Italy, Portugal, Spain, Sweden, and EU15.

Table 5a: The influence of inflation on GDP per capita growth (1966-1998)

| Country | a ₁₁ | a ₁₂ | LM (1) | LM (4) | R ² |
|----------------|------------------------|------------------------|----------|----------|----------------|
| Austria | -0.3836 (-2.951) | 0.0079*** (0.807) | 0.020 | 1.732 | 0.919 |
| Belgium | -0.2241 (-2.447) | 0.0078*** (0.5857) | 0.707 | 1.422 | 0.864 |
| Denmark | -0.0573*** (-0.926) | -0.0170** (-1.933) | 0.059 | 0.902 | 0.795 |
| Finland | 0.0376*** (0.727) | -0.0182** (-1.771) | 6.579*** | 2.725*** | 0.954 |
| France | -0.1526 (-3.334) | 0.0100*** (1.281) | 5.750*** | 2.707*** | 0.942 |
| Germany | -0.1683*** (-1.450) | 0.0029*** (0.326) | 0.351 | 0.850 | 0.811 |
| Greece | -0.1484 (-4.226) | -0.0105*** (-1.027) | 0.240 | 0.747 | 0.970 |
| Ireland | -0.1121* (-2.349) | 0.0194*** (1.583) | 0.092 | 0.756 | 0.917 |
| Italy | -0.0500* (-2.338) | -0.0013*** (-0.197) | 9.679*** | 2.586* | 0.907 |
| Luxembourg | -0.1443*** (-1.151) | -0.0300* (-2.105) | 1.852 | 2.067 | 0.850 |
| Netherlands | -0.0128*** (-0.116) | -0.0122*** (-1.389) | 0.020 | 0.571 | 0.900 |
| Portugal | -0.1194 (-3.058=) | -0.0047*** (-0.344) | 4.283* | 2.805* | 0.924 |
| Spain | -0.1402 (-3.001) | 0.0081*** (0.715) | 0.496 | 2.517** | 0.948 |
| Sweden | -0.0829 (-3.058) | -0.005*** (-1.216) | 4.254* | 3.526** | 0.951 |
| United Kingdom | 0.0453 (1.428) | -0.0233* (-2.807) | 2.608 | 2.238 | 0.901 |
| EU15 | -0.1182* (-2.375) | 0.0065*** (0.715) | 0.879 | 0.733 | 0.922 |

t-values in brackets.

not * significant on a 1 % level, * significant on a 5 % level, ** significant on a 10 % level, *** not significant on a 10 % level.

The inflation rates of Germany and Italy have a one-year time lag. All variables are sliding averages over five years.

Data Sources: Bundesministerium für Arbeit und Soziales, www.bma.de/de/asp/statistiken/; World Bank, Global Development Network Growth Database by Easterly/Yu, www.worldbank.org/research/growth/GDNdata.htm; International Monetary Fund, www.imf.org/external/pubs/ft/weo/2001/01/data/index.htm.

To shed more light on the consequences of inflation on economic welfare, we also estimated the influence of the one-year-variation of the 5-year inflation on the one-year-variation of the 5-year per-capita growth rate. The estimated equation is:

$$\begin{aligned} \Delta \text{GDPpCgrowth} = & C + a_{21} \Delta \text{Inflation} + a_{22} \Delta \text{Oil-Inflation} + b_{21} \Delta \text{GDPpCgrowth}_{t-1} \\ & + b_{22} \Delta \text{GDPpCgrowth}_{t-2} + b_{23} \Delta \text{GDPpCgrowth}_{t-3} \\ & + b_{24} \Delta \text{GDPpCgrowth}_{t-4} + \varepsilon. \end{aligned}$$

Table 5b: The influence of changes in inflation on changes in GDP per capita growth (1966-1998)

| Country | a ₂₁ | a ₂₂ | LM (1) | LM (4) | R ² |
|----------------|------------------------|------------------------|-----------|-----------|----------------|
| Austria | -0.8452 (-3.584) | 0.0125*** (1.033) | 0.090 | 0.081 | 0.486 |
| Belgium | -0.5761 (-3.263) | 0.0184*** (1.183) | 4.374** | 5.512*** | 0.369 |
| Denmark | -0.0871*** (-0.504) | -0.0362* (-2.503) | 2.953 | 2.977 | 0.573 |
| Finland | 0.0528*** (0.409) | -0.0172** (-1.148) | 0.807 | 0.447 | 0.845 |
| France | -0.2015** (-1.858) | -0.0093*** (0.893) | 17.595*** | 6.547*** | 0.328 |
| Germany | -0.3835** (-1.848) | -0.0176*** (-1.404) | 0.192 | 1.323 | 0.439 |
| Greece | -0.3328 (-3.822) | -0.0423 (-3.555) | 6.377*** | 1.731 | 0.789 |
| Ireland | -0.1168*** (-1.221) | 0.0005*** (0.033) | 1.078 | 1.245 | 0.390 |
| Italy | -0.2295 (-2.859) | 0.0155*** (1.211) | 0.015 | 0.565 | 0.380 |
| Luxembourg | -0.6576 (-2.911) | -0.0281*** (-1.567) | 0.005 | 0.787 | 0.385 |
| Netherlands | -0.2560*** (-1.640) | 0.0011*** (0.009) | 1.056 | 1.127 | 0.258 |
| Portugal | -0.2338* (-2.600) | 0.0016*** (0.087) | 0.637 | 0.340 | 0.738 |
| Spain | -0.2588 (-2.829) | 0.016*** (1.268) | 0.507 | 2.937** | 0.522 |
| Sweden | -0.2415* (-2.147) | -0.0034*** (-0.314) | 5.820* | 17.450*** | 0.545 |
| United Kingdom | 0.0193*** (0.297) | -0.0335 (-3.815) | 1.623 | 0.739 | 0.730 |
| EU15 | -0.2358** (-2.045) | 0.0063*** (0.611) | 6.460** | 2.280 | 0.439 |

-values in brackets.

no * significant on a 1 % level, * significant on a 5 % level, ** significant on a 10 % level, *** not significant on a 10 % level.

The inflation rates of Germany, France, Greece, Ireland, Italy, Luxembourg, and the EU15 fit best with a one-year time lag. All variables are sliding averages over five years.

Data sources: Bundesministerium für Arbeit und Soziales, www.bma.de/de/asp/statistiken/;

World Bank, Global Development Network Growth Database by Easterly/Yu, www.worldbank.org/research/growth/GDNdata.htm;

International Monetary Fund, www.imf.org/external/pubs/ft/weo/2001/01/data/index.htm.

Table 5b shows the coefficients a₂₁ and a₂₂, the t-statistics in brackets, the Breusch-Godfrey Lagrange Multiplier Test to identify first order (LM (1)) and fourth order auto-correlation of the residuals (LM (4)), and the coefficient of determination (R²). Table 5b supports the hypothesis that inflation variations harm the economy. The only countries with a positive sign of the coefficient a₂₁ are again Finland and the United Kingdom. In Austria, Belgium, France, Germany, Greece, Italy, Luxembourg, Portugal, Spain, Sweden, and EU15, however, there is a significant, negative influence of changes in the inflation rate on changes in growth, at least at a 10 % level.

The traditional theories may establish a positive short-term and a long-term neutral relation between monetary policy and growth. In all these models, the monetary policy leverage is increasing inflation. Empirical analyses, however, support the notion that an inflationary environment is negative for economic welfare. It harms growth. Thus, a monetary policy trying to influence output and employment via changing inflation does not recommend itself for improving growth. The channel through which monetary policy enhances growth is by providing a credible promise of maintaining price stability and stabilising inflation expectations.

4. The ECB's policy objectives

In view of demographic trends and the actual government debt levels – including both credit market indebtedness and accumulated social security liabilities – maintaining and even strengthening growth has become a “*conditio sine qua non*” in the euro area. This naturally poses the question: what can monetary policy do to foster growth?

Article 105 paragraph 1 of the Maastricht Treaty (“Treaty”) sets out the objectives of the European System of Central Banks (ESCB) and thereby also of the European Central Bank (ECB): “[The] primary objective of the ESCB shall be to maintain price stability.” The following sentence in the same paragraph describes an additional objective: “Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Community” Right from the start, the ECB has emphasised that guaranteeing short and long-term price stability is actually the best way to support the economic policies in the Community. The rationale for this interpretation is certainly supported by plenty of theoretical and empirical evidence.

Price stability is said to contribute to growth and employment through a number of ways. For instance:

- (a) Price stability allows market agents to detect changes in relative prices more easily. As a result, the market will allocate scarce resources more efficiently.
- (b) If investors can be assured that (future) inflation will be low and stable, they will not demand an inflation risk premium to compensate them for the risk of holding assets over the long-term. A lower interest rate environment contributes to a higher level of investment.
- (c) Price stability eliminates real costs of inflation resulting from the distortionary impact of nominal based tax and social security systems.

That said, it is certainly hard to challenge the view that a strictly price stability-oriented monetary policy would not be conducive to improving the overall economic and social welfare. The objective of having a low and stable inflation is actually compatible with the ECB's price stability definition, that is establishing an inflation of no more than 2 % per year over the medium-term.

5. Conclusion

In traditional Phillips-curve type models monetary policy induces output and employment changes by altering inflation. In such a framework, monetary policy retains its effectiveness on output and employment only because market agents are assumed to suffer from a certain degree of “money illusion”. This indeed is an unrealistic assumption, and the results of such models do not live up to experience. In modern Phillips-curve models – no matter whether they emerge from the Monetarist or to the neo-Keynesian line of thought – monetary policy induces output and employment changes by altering inflation in the short run. If one assumes perfect rationality, monetary policy has no impact at all on the real economy. In the long run money is neutral from the view-point of modern macro-economic theory.

Various economists maintain the view that inflation actually enhances the flexibility of relative wages when nominal wages are rigid (“grease effect”). Thus, an inflation rate undershooting an assumed “optimal” inflation would actually harm the labour market and growth. However, our own as well as most other empirical research does not support these arguments. The real costs of inflation appear to overcompensate for positive impacts of inflation on the economy. By taking into account the real cost of inflation, neither the benefit hypothesis nor the neutrality hypothesis of inflation seem to hold true. Empirical evidence in a number of countries suggests that inflation caused by monetary policy is detrimental to investment, growth, and employment. That said, there is a strong rationale for believing that low and stable inflation is actually conducive to economic welfare. The ECB’s primary objective of maintaining price stability should be considered as a welfare-enhancing objective; in fact, it is a “modal target” for achieving the final target, that is growth and high employment.

Finally, arguments against a strictly stability-oriented monetary policy in Europe, allowing a kind of “smoothing the output gap” policy, do not seem to be convincing from our point of view. On the one hand monetary policy is not an adequate tool for influencing real GDP (demand-side monetary policy) because of the well-known time-lag problem. In principle, fiscal policy would be a more appropriate instrument for tackling demand shortfalls. On the other hand, and most importantly in this context, a stability-oriented monetary policy automatically exerts a smoothing effect on the business cycle. To conclude, we do not see convincing arguments supporting calls for the ECB to pursue a more growth-oriented monetary policy.

Part 2: Government finances and ECB policy – the discussion of the European Stability and Growth Pact

There is a strong rationale for having the Stability and Growth Pact (“Pact”) in place. The Pact aims to prevent “negative externalities” in terms of building up unsustainable government debt levels and supports the credibility of the ECB’s price stability promise. We strongly think that governments should, even under the current economic slowdown, continue to adhere strictly to the Pact’s requirements. – In view of forthcoming demographic changes, balanced deficits may well prove insufficient to render sustainable fiscal positions in a number of euro area countries. Most countries will have to start generating substantial surpluses and paying down debt. A lack of commitment to bring about sustainable government finances clearly threatens the credibility of the ECB’s price stability promise.

Content: 1. Introduction – 2. Rationale for the European Stability and Growth Pact – 3. Consolidation progress of public finances in the EU – 4. Conclusion.

1. Introduction

The Maastricht Treaty (“Treaty”) has given substantial incentives to improve the fiscal positions in the countries participating in Stage Three of EMU. Since 1995, the deficit-to-GDP-ratio for the euro area as a whole has declined from 5.0 % to 0.8 %. In the same period, the government debt-to-GDP ratio fell from 74.2 % to 69.6 %. In view of the objective to improve fiscal balances further, the implementation of the European Stability and Growth Pact (“Pact”) in 1999 seems to be a logical continuation to support fiscal consolidation progress in the euro area. In recent months, however, a political debate has emerged discussing ways to relax the deficit-to-GDP target ratios as outlined in the national stability and convergence plans, or even to abolish the Pact altogether. Such discussions raise questions about the governments’ determination to stick to their growth strategy declared by the European heads of state and governments in Lisbon in March 2000:

- preparing the transition to a knowledge-based economy through better policies for the information society and R&D,
- stepping up the process of structural reform for competitiveness and innovation and completion of the single market,
- combating social exclusion and modernizing the European social model by investing in people,
- and sustaining the healthy economic outlook and favourable growth prospects by continuing with an appropriate macroeconomic policy mix and improving the quality of public finance.

Unsurprisingly, the discussion on the future of public finances has raised questions about the role monetary policy should play in this context.

2. Rationales of the Stability and Growth Pact

The European Stability and Growth Pact has been criticized by various economic and political quarters. In the following, we outline the rationales of the Pact taking into account political-economic considerations.

Avoiding negative externalities

The basic rationale for the European Stability and Growth Pact (“Pact”) rests on the notion that unrestricted public sector recourse to debt funding tends to create “negative externalities” which can be considered detrimental to economic and social welfare. Governments which are subject to the “re-election restriction” tend to find it politically advantageous to finance additional spending by way of increasing government debt rather than restructuring current budgets or increase taxes. The electorate, in turn, may be willing to accept today’s debt funded benefits as the costs of increasing borrowing (interest payment and the pay down of debt) occur at a later point in time, e.g. have to be borne by future generations. Such a development is set to increase the economy’s public sector relative to the private sector which, in turn, can be expected to translate into lower future growth for at least three reasons. First, an increase in the public sector tends to reduce the economy’s efficiency, if the public production to GDP ratio is relatively high already. Unfortunately this is true for most European countries. Second, growing government debt can be expected to crowd-out private investment. And third, burdened with a high level of debt, governments tend to increase public consumption at the expense of higher public investment.

A closer look at the spending structure of euro area governments over the last decades gives rise to the assumption that additional borrowing has been used to finance consumption rather than investment. Numerous countries have effectively used debt financing as an instrument to uphold unproductive industries and to increase government’s consumption spending. As a result, the Pact can be considered as a proper instrument to reduce politicians’ incentive to systematically take recourse to debt funding. That said, the Pact reduces “negative externalities” resulting from government borrowing (see box 3).

Box 3: What the Maastricht Treaty envisages

The general guidelines and rules provide that Member States shall conduct their economic policies with a view to contributing to the achievement of the objectives of the Community. According to Article 2 of the Maastricht Treaty, these objectives are: “to promote throughout the Community a harmonious and balanced development of economic activities, sustainable and non-inflationary growth respecting the environment, a high degree of convergence of economic performance, a high level of employment and of social protection, the raising of the standard of living and quality of life, and economic and social cohesion and solidarity among Member States”.

The budgetary rules of the Stability and Growth Pact

The European Council decided to provide clarification of the Treaty’s budgetary rules in 1997 by implementing the Stability and Growth Pact which lays down the rules for economic policy co-ordination and defines the conditions under which to apply the excessive deficit procedure in Stage Three of EMU. In tune with the Maastricht Treaty the Pact mainly aims at (a) ensuring lasting compliance of fiscal policies with the requirement of budgetary prudence, and (b) monitoring fiscal developments with a view to releasing early warnings in the event of budgetary slippage. In this context, the European Council underlines the importance of safeguarding sound government finances as a means of strengthening the conditions for price stability and strong sustainable growth conducive to employment creation.

As the main provision to ensure sound budgetary policies on a permanent basis, the Resolution of the European Council on the Stability and Growth Pact incorporates the Member States’ commitment to respect the medium-term budgetary objective of positions close to balance or in surplus. This objective will allow all Member States to deal with normal cyclical fluctuations, while keeping the government deficit at or below the reference value of 3.0 % of GDP. Deficits of above 3.0 % of GDP will be regarded as excessive, unless they are expected to be temporary and have occurred under exceptional circumstances.

Circumstances are qualified as temporary and exceptional if the deficit overshoot is driven either by an unusual event beyond the control of the Member State or by a severe recession. An excess over the reference value resulting from a severe economic downturn will, as a rule, only be considered to be exceptional by the European Commission if there is an annual fall in real GDP of at least 2 %. A smaller decline in real GDP can only be considered as exceptional by the ECOFIN Council, on the initiative of the Member State concerned, when this is suggested by supporting evidence, related in particular to the abruptness of the downturn or the accumulated loss of output relative to past trends. In evaluating whether or not an economic downturn is severe, as a rule Member States will take as a reference point an annual fall in real GDP of at least 0.75 %.

The implementation of the Stability and Growth Pact

The procedure for the implementation of the Stability and Growth Pact starts with the presentation of the stability and convergence programmes by Member States. After that, the European Commission has to adopt a recommendation on each programme. This recommendation will constitute the basis on which the ECOFIN Council will elaborate an opinion, after consulting with the Economic and Financial Committee, within two months of submission. The ECB participates in the Economic and Financial Committee, where its members have the opportunity to discuss in depth the programmes presented by Member States. If the ECOFIN Council considers that the objectives announced in the programme should be strengthened, it invites the Member State concerned to do so. In the event of significant divergence from the objectives set in previous programmes being detected, the ECOFIN Council has the prerogative to issue a recommendation urging the Member State concerned to adopt offsetting measures. Annual updates of the programmes shall provide a detailed account of plans to offset deficit overruns in the short term. This latter requirement is aimed at preventing the medium-term objective of a budget in balance or in surplus from being deferred indefinitely.

Excluding the “prisoners’ dilemma”

An important rationale for having the Pact in place is the exclusion of a “prisoners’ dilemma situation”. In general, under a system of national currencies, financial markets will penalise a lack of fiscal discipline by devaluing the nation’s exchange rate and/or increasing the yield required for holding that nation’s bonds. In a single currency area, however, the negative effects of a country’s lack of fiscal austerity on the exchange rate and interest rates tend to be “socialised” across the whole monetary union. Thus, from the point of view of a single country, one may even argue that it is even more tempting and advantageous for governments to take recourse to debt financing as the economics sanctions will be lower compared to a system of national currencies.

Rendering the ECB’s price stability promise credible

The Pact plays an essential role in rendering the ECB’s price stability promise credible. In fact, disciplining the scope of discretionary fiscal deficit spending will contribute to stabilising market agents’ inflation expectations. If, however, government debt levels are widely considered unsustainable, rational investors might expect that even an independent central bank could not withstand the political pressure and will ultimately have to take recourse to an inflationary policy. In such a case it would be hard for the central bank to keep market agents’ inflation expectations in line with the bank’s price stability promise. That said, the Pact supports the credibility of the ECB’s price stability promise as long as investors feel assured that a situation of unsustainable public finances will be prevented.

Inflation plays an important role in government debt dynamics. At first glance, higher inflation will reduce real government debt in real terms. Provided a higher inflation rate stimulates the economy in the short-term, a higher nominal GDP helps reduce the debt- and deficit-to-GDP ratio, other things being equal. However, as the negative impact of inflation on investment, growth and employment kicks in, real growth will decline, reversing the initial beneficial effect. However, given that politicians have an incentive to overweigh short-term benefits over long-term costs, the Pact actually prohibits an accumulation of unsustainable debt levels which, in turn, might foster investor expectation of imposing the “inflation tax”.

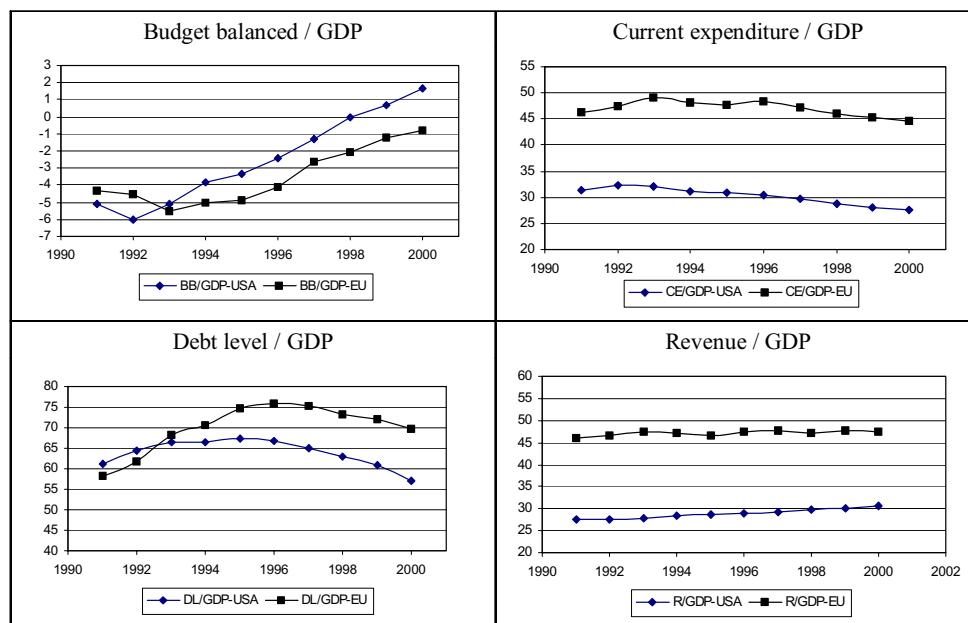
3. Consolidation progress of public finances in EU

In the euro area, government spending absorbs nearly half of GDP on average compared with just one-third in the US. This implies a much higher taxation in the euro area than in the US (see figure 3). There should be a broad consensus that the development of public finances has contributed to the relatively weak growth performance in the euro area to a significant degree. In fact, the deficits of the past have been too high, resulting in the accumulation of significant public debt burdens which run the risk of undermining macro-economic stability. In the past years, government deficit-to-GDP and debt-to-GDP ratios have declined in the euro area, standing at 0.8 % and 69.9 %, respectively, at the end of 2000, which is still very high by economic standards. The interest payments on government debt keep the tax burden higher than necessary to finance primary expenditures. To make things worse, there have been

estimates that total government debt ratios in the euro area – that is government credit market debt plus implicit social security system liabilities as a percentage of GDP – could amount to as much as three times the officially stated debt ratios.

The improvement of budgetary positions and the decline in the debt-to-GDP ratios seen in recent years is encouraging. However, there should be no doubt about the fact that in a number of euro area countries further progress is required – especially in view of forthcoming demographics (see part 1, chapter 1) – to secure the stability of public finances going forward. In fact, a number of countries would have to start paying down debt in order to prevent debt levels per capita from rising as demographic trends unfold. In order to prevent the tax burden from rising further, government will have to reduce expenditures drastically, e.g. at a much quicker rate than is currently the case. It should be noted that for improving the growth momentum in the euro area it is also important that governments do not increase the tax burden to compensate for the reduction in debt funding. (For instance, in 2000 direct and indirect taxes were at their highest in the last decade. At the same time, total government revenues in percent of GDP were only 0.4 percentage points lower than at their peak of 48.3 % in 1999. Unfortunately, total government revenues as a percent of GDP have not yet embarked on a downward trend (see figure 3).)

Figure 3: Euro area and US government key fiscal variables

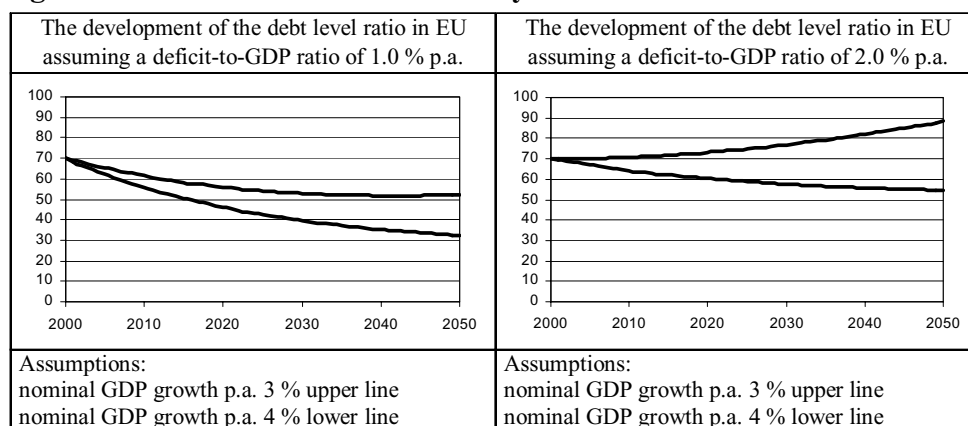


Sources: ECB, Monthly Report; <http://www.neatideas.com/data/index.htm>;
<http://www.publicdebt.treas.gov/opd/opdpdodt1.htm#years>;
<http://www.imf.org/external/pubs/ft/weo/2001/01/data/index.htm>

To reduce government debt levels in Europe it is of the highest importance to stick strictly to the requirements of the Pact. If, for instance, the annual inflation rate in the euro area does not increase by more than 1.5 % on average, and the annual real GDP growth does not exceed 2.0 %, a deficit-to-GDP ratio of 2.0 % will not result in a reduction in the government debt level (see figure 4). If the average budget deficit remains at 2 % rather than below 1 % it is virtually impossible that government debt

ratios will decline in the years to come. In order to bring down government debt-to-GDP ratio, a balanced budget should be the “minimum” aim of fiscal policy.

Figure 4: Results of a simulation analysis



Source: own calculations.

From the point of view of public finances, the US is in a much better shape than the euro area. The private sector has to pay much less taxes, the public expenditures and revenues are by far less extensive than in the countries of the euro area, and even the government debt level ratio is smaller in the US than in the euro area. In addition, the US economy is much more market-oriented, so it’s no wonder that the US growth and employment performance has been much more favorable than in most euro area countries. In order to meet the future challenges, the reduction in government debt, government spending, and taxes has to be a top priority in most euro area countries. Abandoning the consolidation course as envisaged by the Pact would certainly be detrimental to future economic welfare in the euro area and, of course, the ECB’s ability to render its price stability promise credible. Abandoning the Pact would almost certainly lead to a decrease in GDP growth and increase political pressure on the ECB to lower interest rates.

5. Conclusion

Even though being heavily criticized we regard the European Stability and Growth Pact as a productive policy rule. From a political-economic point of view there are strong arguments that the European Stability and Growth Pact is actually conducive to bringing about fiscal consolidation in the euro area which, in turn, can be expected to exert a positive impact on future growth. The Pact exerts a disciplinary impact, thereby avoiding “negative externalities” and “moral hazard”. Most importantly in this context, the Pact helps render the ECB’s stability promise credible. Against the background of forthcoming demographic trends in the euro area and the level of government debt outstanding (see part 1), it is hard to justify any deviation from the consolidation course, let alone the scrapping of the Pact altogether. It is fair to say that efforts to bring down deficits or, even more preferable, start paying down government debt must become a top-priority of fiscal policy in a number of euro area countries.

There might be another aspect which could raise concern on the part of monetary policymakers. If governments seek interest rate cost savings, a reduction in the average duration of debt outstanding appears inevitable. However, reducing governments' average debt maturity without attempts to lower the overall debt burden may potentially generate a conflict between fiscal and monetary policy: ECB's interest rate changes would tend to have an increasingly strong impact on governments' funding costs. This would certainly increase the lingering conflict between fiscal and monetary policy if budgets remain strained: fiscal policy problems may provoke political pressure on the central bank to gear rates towards budget needs which might stand in conflict with the objective of keeping prices stable.

Part 3: "Price gap" versus reference value concept

Under the ECB's "two pillar strategy", the stock of M3 has been assigned a prominent inflation indicator role. We argue that the so-called "M3 price gap" or "real money gap" rather than a simple comparison of M3 growth relative to the reference value should guide ECB decisions. In our analysis we find that the "price gap" exerts a highly significant influence on the changes in the future inflation rate and that the "price gap" outperforms other indicators such as, for instance, the "output gap" or variations in the exchange rate in terms of predicting future changes in the euro area price level. The ECB, which has started analysing the "price gap" in its Monthly Bulletins, should integrate the "price gap" into the first pillar of its strategy. Even though there are risks to the stability of the demand for M3, for a number of institutional reasons we remain confident that M3 will continue to serve as a reliable inflation indicator for monetary policy.

Content: 1. The role of money in the ECB strategy – 2. Rational Monetary Targeting and the ECB's concept of Monetary Targeting – 3. "Price gap" and euro area inflation – 4. A critique of the reference value concept – 5. Conclusion.

1. The role of money in the ECB strategy

The ECB Governing Council has assigned a prominent role to the money aggregate M3 in its stability-oriented strategy. This is reflected in an ex ante announcement of a reference value for the annual M3 growth rate, which is considered compatible with price stability. The pre-announcement of the envisaged M3 growth rate serves a number of purposes. Firstly, it contributes to the stabilisation of market agents' expectations as the central bank's reaction function in terms of forthcoming interest rate changes becomes more transparent. Secondly, the central bank can signal to tariff partners the amount of money it is willing to provide, thereby setting a strict limit for the funding of nominal wage increases through monetary policy. Thirdly, the pre-announcement of money growth enhances the accountability of monetary policy. Fourthly, the pre-announcement of M3 growth provides the ECB with a shield against political pressure to trade off price stability against growth. Focusing on M3 growth as the main inflation indicator is to be seen as a consequence of the aggregate's statistical ability to explain future inflation. To use the informational content of M3, the ECB Governing Council compares actual M3 growth rates with the reference value on a monthly, e.g. 3-month moving average, basis. Persistent deviations in M3 growth from the reference value signal to the ECB Governing Council, under normal circumstances, danger to the future price stability and, consequently, a need for policy action. The ECB Governing Council has set the reference value at 4 ½ percent for 1999, 2000 and 2001.

In comparing the actual M3 growth and the reference value, the question arises: How should we interpret M3 deviations from the reference value? In a naive interpretation, the positive (negative) difference between the actual M3 growth rate and the reference

value shows the percentage points by which the actual future inflation will overshoot (undershoot) the envisaged rate. For instance, average M3 growth for 1999 was 5.7 %, that is 1.2 % in excess of the reference value of 4.5 percent. As a consequence, future inflation should rise by 1.2 % *in excess* of the ECB's envisaged rise in the price level. At this juncture, two factors have, however, to be taken into account. First, the M3 demand function can be assumed to be stable on a long- rather than short-term, e.g. annual, basis. As consequence, the M3 expansion has to be analysed on a long-term rather than short-term basis in order to yield meaningful information about future inflationary, or deflationary, pressures in the euro area. Second, it is common wisdom that monetary policy affects the economy with unknown time lags, so that the exact realisation of its effects are not known in advance. As a result, not only current M3 deviations but also those of former periods have to be taken into account to assess the future price stability perspectives of the euro area.

2. Rational Monetary Targeting and the ECB's concept of Monetary Targeting

To show the difference between rational Monetary Targeting (RMT) and Monetary Targeting, we must take a closer look at the determinants of (future) inflation. Suppose inflation (Δp) in period $t + 2$ is determined by the price gap (pg), and by other non-monetary variables (ov) in period $t + 1$, then:

$$(1) \quad \Delta p_{t+2} = a pg_{t+1} + b ov_{t+1}, \text{ with } a, b > 0.$$

The price gap can be written as the difference between the price level and the equilibrium price level $pg = p^* - p$ in log-form. p is the actual price level, and p^* describes the price level in a world without transaction costs. It is $p^* = m + v^* - y^*$ (money supply plus trend of velocity minus GDP potential, all in log-form). Thus, the price gap can be expressed as $pg = m - p + v^* - y^*$. When real money supply plus velocity trend exceeds the potential output the price gap will rise. So the price gap is nothing more than the real money gap as it is called by, e.g., Lars Svensson. Δm^*_{t+1} is the monetary growth target for the next period; then pg_{t+1} can be expressed as:

$$(2) \quad pg_{t+1} = pg_t + \Delta m^*_{t+1} + \Delta v^* - \Delta y^* - \Delta p_{t+1}.$$

Δp_{t+2} is the inflation target Δp^* , then the monetary growth target by using equation (1) can be written as:

$$(3a) \quad \Delta m^*_{t+1} = \Delta y^* - \Delta v^* + \Delta p_{t+1} - pg_t + (1/a) \Delta p^* - (b/a) ov_{t+1}.$$

If (1) and (2) are right, the monetary growth target is determined by the growth rate of the real GDP potential (Δy^*), the long-term velocity growth (Δv^*), the inflation forecast (Δp_{t+1}), the actual price gap (pg_t), the inflation target (Δp^*) and other non-monetary variables (ov_{t+1}). Real money growth – rather than nominal money growth – is the valid indicator of future inflation. We can see this very clearly by writing equation (3a) as:

$$(3b) \quad \Delta m^*_{t+1} - \Delta p_{t+1} = \Delta y^* - \Delta v^* - pg_t + (1/a) \Delta p^* - (b/a) ov_{t+1}.$$

Even if we ignore the influence of other variables ($b = 0$), there are some differences between rational Monetary Targeting (RMT) and the ECB's concept of Monetary Targeting (MT) that are worth mentioning.

In December 1998, 1999 and 2000, the ECB Governing Council set the reference value at 4½ percent, respectively, for the following year, as shown by equation (4):

$$(4) \quad \Delta m^* = \Delta y^* - \Delta v^* + \Delta p^*.$$

Here, the money target is determined by the growth rate of the GDP potential (about 2 % – 2.5 %), the velocity trend (0.5 % – 1 %), and the inflation target (about 1.5 %). As long as these variables do not change, the monetary target will be $\Delta m^* = 4.5$ % each year. However, keeping the reference value for the next year constant is, in principle, only viable if the actual M3 expansion is measured against the envisaged M3 growth starting from a „once and for all“ fixed base period. But this does not take into account excess M3 growth built up in former periods. So price target deviations could be the consequence: even M3 growth rates close to the reference value could be accompanied by an unwanted rise in the overall price level as M3 overhangs (defined as deviations of actual M3 expansion less the reference value) start feeding through into a higher price level. Furthermore, *real money* overhangs within the price gap rather than simple nominal money overhangs (corrected by the normative inflation rate) affect the inflation rate in the euro area.

3. The “price gap” and euro area inflation

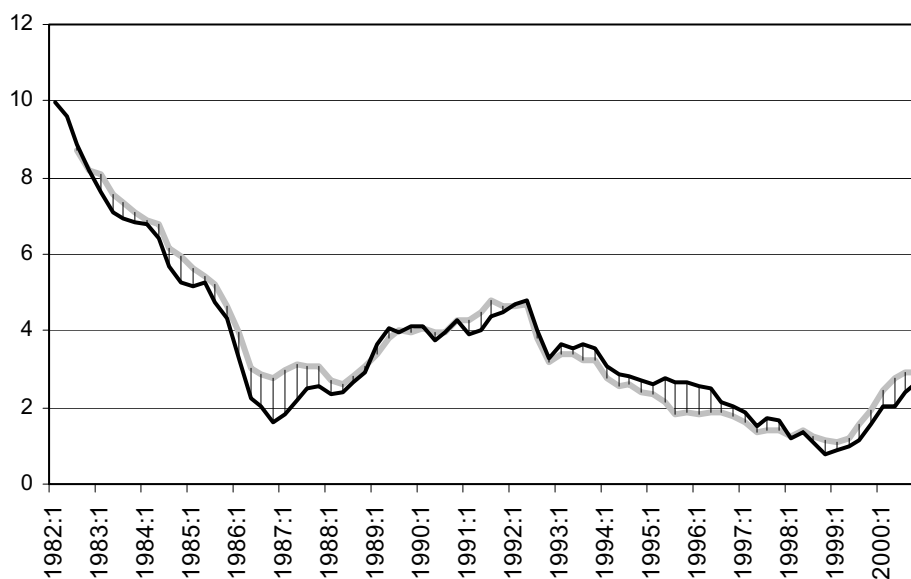
One of the conclusions of our first report (see ECB OBSERVER, “Inflation perspectives in the euro area”, 19 April 2001) was that the so-called “price gap” has a strong impact on future inflation in the euro area. Below, we attempt to analyze this relation from an empirical point of view. Following the work of Gerlach and Svensson we use a simple model containing the quarter-to-quarter changes in the annual inflation as the endogenous variable (D4DLNP) and variations in the price gap (D4LNPG), changes in the output gap (D4LNOPG), changes in the variations of the Euro-Dollar exchange rate (D4DLNEURO), changes in oil price inflation (D4DLNOIL) and two dummies (DUM) as exogenous variables. The estimated equation is shown in detail in table 6.

Table 6: Estimating Changes in the Inflation Rate in the Euro Area

| Dependent Variable: D4DLNP | | | | |
|------------------------------------|-------------|-----------------------|-------------|--------|
| Sample (adjusted): 1983:2 2001:1 | | | | |
| Included observations: 71 | | | | |
| Independent Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -0.001603 | 0.000410 | -3.906951 | 0.0002 |
| D4LNPG(-1) | 0.500994 | 0.094347 | 5.310102 | 0.0000 |
| D4LNOPG(-1) | 0.495356 | 0.110405 | 4.486720 | 0.0000 |
| D4DLNEURO(-1) | -0.018590 | 0.004290 | -4.333427 | 0.0000 |
| D4DLNP(-4) | -0.260469 | 0.077847 | -3.345925 | 0.0013 |
| D4DLNOIL | 0.002516 | 0.001014 | 2.480479 | 0.0156 |
| DUM80 ₁ 88 ₂ | -0.002996 | 0.000545 | -5.501099 | 0.0000 |
| DUM92 ₃ 92 ₄ | -0.005208 | 0.001555 | -3.348956 | 0.0013 |
| R ² | 0.6971 | JB | | 0.9041 |
| AR ² | 0.6659 | White (4) F-statistic | | 0.6244 |
| LM (4) F-statistic | 1.4492 | Arch (4) F-statistic | | 1.9249 |

List of variables: D4DLNP changes in the inflation rate; DUM80₁88₂ Dummy from 1980 first quarter to 1988 second quarter; DUM92₃92₄ Dummy from 1992 second quarter to 1992 fourth quarter; D4DLNOIL changes in oil price inflation; D4DLNEURO changes in the yearly growth rate of the Euro-Dollar exchange rate; D4LNOPG changes in the logarithm of the yearly average output gap; D4LNPG changes in the logarithm of the yearly average price gap. The numbers in brackets indicate the time lag in quarters. Data sources: M3 (since 2001 excluding holdings of money market fund shares/units by non-residents of the euro area, since 2001 including Greece (EU 12)) - European Central Bank; Euro-Dollar exchange rate - European Central Bank; ECU-Dollar exchange rate - <http://www.neatideas.com/data/index.htm>; Price index - European Central Bank and Eurostat; real GDP (since 2001 including Greek (EU 12)) - European Central Bank and Coenen/Vega (1999); real GDP potential - estimated by filtering the GDP values using the Hodrick-Prescott filter (n = 100); Oil price index - West Texas Intermediate, www.neatideas.com/data/index.htm.

Figure 5: Actual inflation (black line) and estimated inflation (grey line) in the euro area in percent for the period 1980-Q1 to 2000-Q4

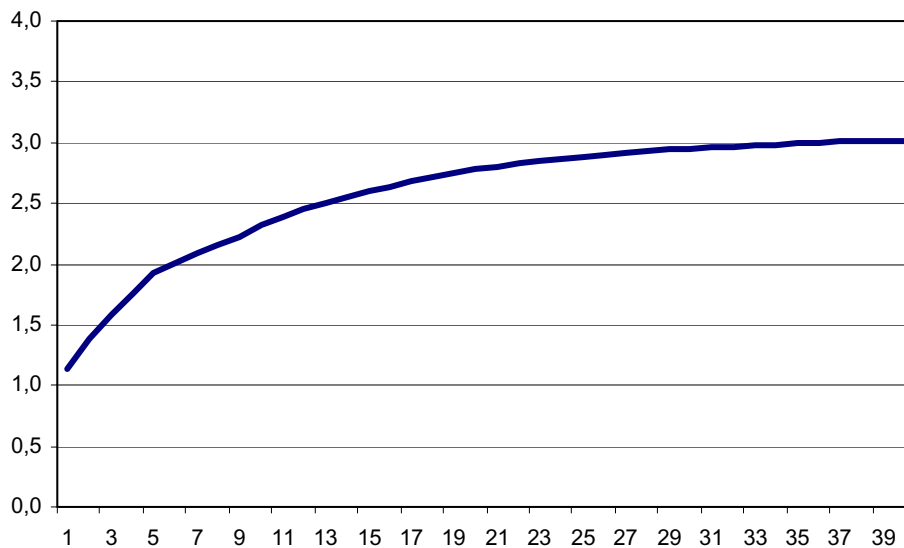


Estimation based on equation in table 6; quarters on the x-axis, Inflation rate in % on the y-axis.

Table 6 shows that estimated coefficients are significant at least at a 5 % level. In addition, the statistical tests do not indicate violations of the assumption concerning the OLS-method. Changes in the price gap as well as changes in the output gap and variations of the EUR/USD exchange rate growth and the oil inflation have a systematic influence on changes in the inflation rate. Figure 5 contains the graphical presentation of the estimated equation.³ The estimated inflation deviates only slightly from the actual inflation rate.

Neither the estimated equation nor the graphical presentation provide a direct hint to what extent changes in money growth, changes in the GDP growth, and/or variations in the EUR/USD exchange rate may affect the euro area inflation rate. Fortunately, any such effects can be analyzed by way of simulations that are based on the estimation equation.

Figure 6a: Simulation of an extension of the M3-growth by 2 % on the inflation rate in the euro area



Simulation based on estimation in table 6; quarters on the x-axis, Inflation rate in % on the y-axis.

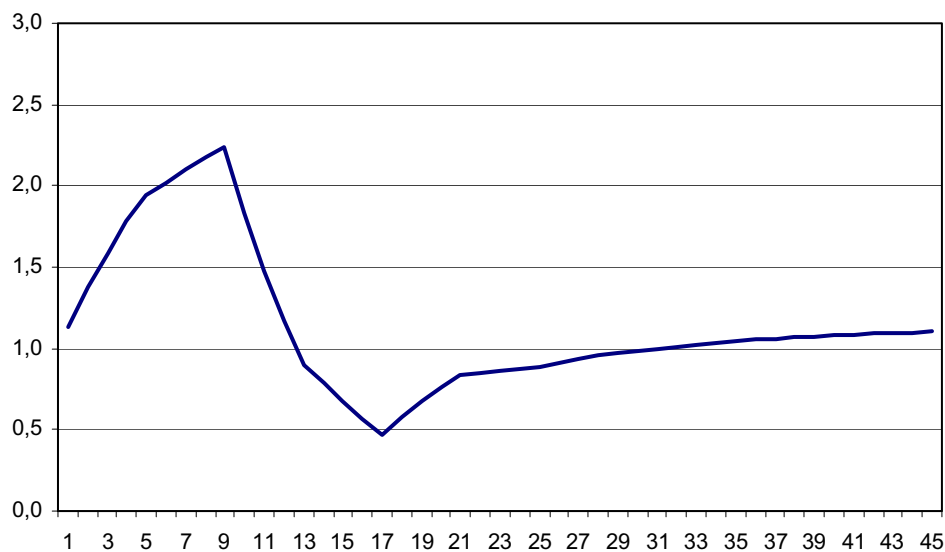
Figure 6a shows the effect an increase in the M3 growth rate by 2 % each year will have on inflation under the assumption that all other independent variables are being held constant (*ceteris paribus* clause). A two percent increase in the money growth translates into a two percent increase in inflation, albeit with a relatively long time lag of more than 9 years. However, 75 % of the adjustment process already occurs after just a little more than three years, and 50 % of the adjustment process already after 18 months. Thus a permanent increase (decrease) in money growth leads to a corresponding permanent rise (reduction) in inflation. The results are clearly in line with the theoretical rationale of the monetarist school.

In terms of output, we find that the maximum difference between GDP growth and GDP potential growth since 1960 was about 3.5 percent (in the recession year 1975)

³ It should be noted that the estimation equation explains changes in the inflation whereas the graph shows the estimated and actual inflation.

in the euro area. Under normal circumstances however, the business cycle causes differences between GDP growth and GDP potential growth within a relatively narrow range of ± 2.0 percent. In order to demonstrate the effect of output variations on inflation we assume that the GDP growth initially exceeds the GDP potential growth rate for two years and then falls short against the long-term growth rate. Figure 6b shows the result.

Figure 6b: Simulating the influence of GDP growth variations on inflation in Europe: first two years 2 % above long-term growth, second two years 2 % less than long-term growth

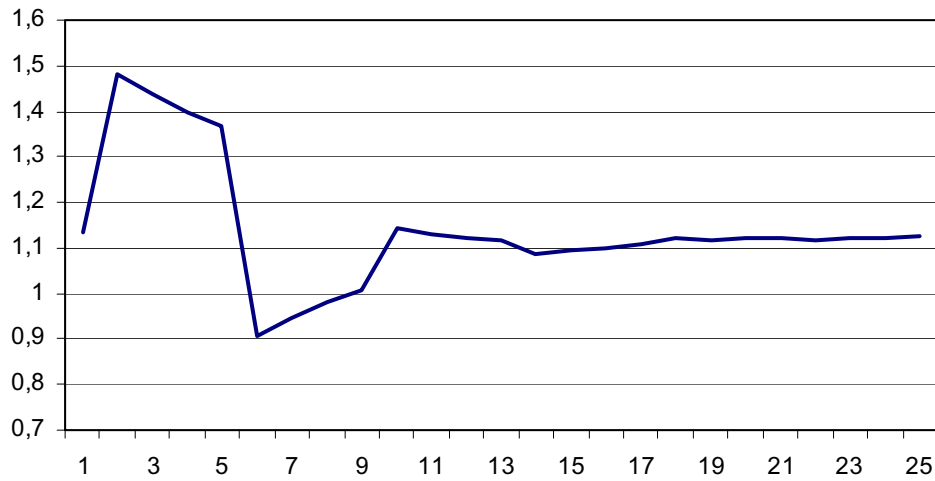


Simulation based on estimation in table 6; quarters on the x-axis, Inflation rate in % on the y-axis.

Figure 6b strengthens the hypothesis that variations in the output gap do not lead to pronounced inflation variations. Under normal circumstances, variations in the output gap (plus/minus 2 %) cause changes in inflation within a range of plus/minus 1 %. It is interesting to note that this result will only occur when there is no monetary funding of the changes in GDP growth. If we assume that M3 growth varied corresponding to GDP growth, the range of inflation variations will become much more pronounced, i.e. in the range of more than plus/minus 2 %. This leads us to the conclusion that output gaps will cause harmful variations in the inflation only when monetary policy (deliberately or unintentionally) supports changes in the output gap.

For analyzing the consequences of exchange rate variations on inflation, we used the approach outlined above. Figure 4c shows the response of the euro area inflation following a 20 percent euro exchange rate depreciation against the US dollar within one year.

Figure 6c: Simulation of a devaluation in the Euro against the Dollar (from 0.9 to 0.75 permanently)



Simulation based on estimation in table 6; quarters on the x-axis, Inflation rate in % on the y-axis.

Without any monetary funding, a 20 % devaluation in the Euro against the Dollar feeds through into a rise of the euro area inflation rate of more than 0.3 % points, instantaneously. It should be noted, however, that additional inflation translates into a decline in real money growth (c.p.), exerting a dampening effect on growth and the price level. This explains why inflation falls below the original level and then converges back towards its equilibrium rate. In view of these findings it is fair to say that the effects of exchange rate variations on euro area inflation are quite insubstantial. Of course, this result hinges on the assumption that monetary growth does not accommodate any price shock with additional money. A monetary funding of the rise in inflation would cause an increase in the price gap and, therefore, lead to higher inflation.

Our empirical evidence presented so far is broadly consistent with the theoretical view that cost push shocks as well as output gap variations do not have a permanent and serious effect on inflation. As a result, inflation problems can be expected to emerge if shocks are accommodated by monetary policy.

The validity of money respectively the price gap as a useful indicator of future inflation depends on a number of assumptions, most importantly the stability of long run money demand. Box 3 summarizes some risks to the validity of the price gap as an inflation indicator. However, we remain confident that M3 has good prospects of remaining a reliable indicator for monetary policy over the coming years.

Box 3: Risks to the validity of the price gap as an inflation indicator

The validity of the price gap to function as a reliable inflation indicator depends essentially on the trend stability of the demand for the money aggregate M3. We identify four major sources that could potentially destabilize the stability of the demand for M3:

Introduction of financial innovations. The emergence of financial innovations can alter banks' and non-banks' portfolio behavior substantially, thereby exerting a strong impact on the hitherto stable relation between money, prices, output and interest rates. For instance, the potential substitution of time deposits or other elements of M3 by investment vehicles that are not components of M3 could lead to a weakening of the relation between money, interest rates, prices and output.

Wealth effects. There could be material changes in an economy's stock of wealth (as, for instance, a prolonged stock market depression, etc.) which, in turn, can be expected to change the (trend) velocity of the money stock, e.g. the demand for money.

Changes in banks' refinancing behavior. Money aggregates are basically influenced by banks' and non-banks' portfolio behavior. If banks change their refinancing behavior by, for instance, making increasing use of asset sales compared to a hitherto more liability-side oriented refinancing procedure, this could have a major bearing on the behavior of the money demand.

"Disintermediation" and "securitisation". Non-bank financial intermediaries (insurance companies, mutual funds, etc.) are becoming increasingly important in transferring money from the saver to the investor, thereby taking over the role traditionally played by banks. In addition to the trend towards securitization, banks may well change their asset and liability management which, in turn, could destabilise hitherto stable money demand functions. This is all the more important as the signals provided by the stock of M3 are actually the reflex of (i) changes in the stock of payments, that is M1, and (ii) changes in the velocity of M1, induced by banks' liability management.

Changes in the demand for euro. If the Euro were to establish itself increasingly as an international investment and transaction currency, special events such as, for instance, international financial crises, could make the demand for Euro denominated assets more volatile and, as a result, change hitherto reliable properties of money aggregates.

Even though the factors mentioned above must be seen as potential risks for the validity of the „price gap“, there are also a number of arguments lending comfort that the stock of M3 will retain its information content for the foreseeable future. First of all, the ECB monetary policy objective of keeping inflation stable should actually prevent „monetary policy induced“ shocks to money demand. This must be seen as an important factor: we do not think it is too far-fetched to assume that the breakdown between the relation between prices and money, which has been observed in various countries, is to a large extent a consequence of a misguided monetary policy. Second, a broadly defined money aggregate can be expected to „absorb“ many of the changes in banks' and non-banks' portfolio behavior. And third, as long as there is no full harmonization of savings patterns, business cycles and taxes and regulations across the countries participating in the euro area, a broadly defined monetary aggregate can be expected to remain fairly robust. From this point of view, the enlargement of the European Union and the euro area should function as a kind of stabilizer, supporting the validity of a broadly defined monetary aggregate such as M3.

4. A critique of the reference value concept

The critical point of the ECB's M3-growth calculation is that it is not nominal money growth plays the major part but real money within the price gap. Thus deviations in money growth from the growth target have only little influence on inflation, whereas changes in real money and the price gap do have a major impact on inflation. So, we

have to conclude: The ECB's concept of Monetary Targeting is easy to understand but it is not a useful concept for influencing inflation. In particular, there is no room in the ECB's concept for understanding the effects of cost push inflation. If we look at the recent oil inflation we could see that the European Central Bank has clearly realized the dangers of higher inflation expectations and higher wages agreements. But it has not realized that higher inflation rates depress real money and the price gap, and, therefore, have a negative impact on future inflation. Ignoring this well known real balance effect repeatedly leads to situations where one could lower interest rates without danger, but the Central Bank – blind in one eye – believes in the danger of growing inflation, and, thus, is not able to change monetary policy.

This misjudgement can lead to blaming the ECB for only being interested in low inflation rates without taking care of GDP growth and employment. Those critics are right if the ECB's monetary policy is more restrictive than necessary to achieve price stability. And, we are afraid sometimes this is true due to a monetary concept that is misleading.

In contrast to regular Monetary Targeting (MT) the concept of rational Monetary Targeting (RMT) is strictly forward-looking, and it is an encompassing concept that is totally compatible with the Inflation Targeting-concept (IT). Of course, a difference between RMT and IT occurs, if the central bank prefers only to react to monetary variables. Then other non-monetary variables (*ov*) do not play any role. This, indeed, can only make sense if inflation is mainly influenced by the price gap, so that the impact of other variables can be ignored. If the central bank decides to set the reference value each year anew, it has to determine the reference value for the coming period according to the following formula:⁴

$$\begin{aligned}
 \text{Next period's envisaged M3 expansion} = & \text{GDP potential growth} \\
 & - \text{growth in the velocity trend} \\
 & - (+) \text{positive (negative) former M3} \\
 & \quad \text{overhangs (positive/negative price} \\
 & \quad \text{gap)} \\
 & + \text{inflation forecast for the next period} \\
 & + \text{normative inflation} \\
 & (- \text{other variables influencing future} \\
 & \quad \text{inflation}).
 \end{aligned}$$

According to this reference value calculation (which can be characterized as some form of „formula flexibility“), the dynamics of money supply implications on future prices are systematically taken into account. Given that the price gap (real money gap) has a dominant impact on inflation in the euro area, the central bank should not only monitor this variable but also vary interest rates due to changes in the price gap. Unfortunately, central banks – including the European Central Bank – do not vary interest rates in tune with the real money gap. On the contrary interest rates are changed with regard to the inflation gap – i. e. deviations from the price target – and to the

⁴ See also equations (3a) and (3b).

output gap – i. e. deviations from real GDP (growth) from real GDP potential (growth). This kind of reaction is very similar to a reaction function described by John Taylor. It can be written as follows:

$$(5) \quad \Delta i = a (\Delta p - \Delta p^*) + b (\Delta y - \Delta y^*) \text{ with } a > 0 \text{ and } b > 0.$$

This kind of reaction function as a stylized description of a central bank's monetary policy contains three problems:

- (a) With regard to the price target, monetary policy in fact reacts instead of influencing the inflation rate in a way so that deviations from the price target are as small as possible. To act as a rational monetary planner one should act when certain valid indicators – e.g. the price gap – point out the danger of future inflation or deflation.
- (b) Changing interest rates without paying attention to the price gap carries the danger that inflation won't react as desired.
- (c) Focusing on the output gap in addition to the inflation gap, directs peoples' attention to the real sector and to the business cycle. As a result, unions and politicians will watch all interest decisions critically. The pressure on the central bank will be relatively high compared to a situation where the interest decision is based on monetary variables like the price gap.

These problems stress the ratio to give monetary policy, if possible, a monetary base. The basic requirements are given in the euro area to assign the M3-price gap a prominent role. The ECB has started to observe the price gap, which we consider a step in the right direction. The ECB should integrate the price gap into the first pillar of the monetary strategy.

5. Conclusion

Inflation in the euro area, measured as the annual change in the (harmonized) consumer price index, is influenced by a number of variables of which the most prominent is certainly the “M3-price gap” or the “real M3-money gap”. The M3-price gap can be defined as real money overhangs which have accumulated over the past and have not yet translated into an increase in the price level. Other variables such as, for instance, the output gap, exchange rate variations and changes in other cost push variables (wage, energy prices, etc.) may exert a strong impact on inflation in the short-run to a greater or lesser extent. However, as long as these shocks are not financed by additional money, they exert a rather limited and only temporary influence on the future price level in the euro area. Our main conclusion is that the ECB should integrate the “M3-price gap” into the concept of monetary growth targeting. Having said that, the ECB should base its monetary policy decisions – the change in interest rates – on the basis of the “M3-price gap” rather than on a simple comparison between actual M3 growth and the reference value based on potential GDP growth, the trend change in velocity, and a normative inflation rate.

Part 4: Assessment of recent ECB policy and outlook

The global economic slowdown, which started around the beginning of this year, has had a much greater impact on the euro area economies than was originally expected. The consequences following the acts of terror in the US on 11 September are slowly becoming visible. However, the dimensions and the timing of the recovery are not yet predictable with an appropriate degree of certainty. We expect the ECB to lower interest rates further. Should signs of a recovery not materialize until the end of this year, it is likely that the ECB will lower its main refinancing rate to 2.5 % by the end of the first quarter of 2002. In view of the signals provided by the variables of the ECB strategy, we consider such an easing compatible with price stability in the euro area. Even under relatively positive growth assumptions, our “real money gap”-based estimation model predicts a consumer prices inflation of well below 2.0 % in 2002.

Content: 1. Macro-economic environment – 2. ECB strategy variables – 3. Review of ECB policy actions – 4. Interest rate and inflation forecast.

1. Macro-economic environment

The global economic slowdown, which started around the beginning of this year, has had a much greater impact on the euro area economies than was originally expected. Fading hopes for an early global economic recovery marked the onset of summer 2001. In June and early July, however, disappointing macro-economic data from Japan, Europe and the United States, accompanied by profit warnings from European and North American companies, indicated that the slowdown was not only continuing but also spreading. Stock markets fell sharply, giving back their earlier gains and extending the correction that had begun a year before.

The general deterioration in stock markets was compounded in July by turmoil in emerging markets. News about problems in Argentina, Turkey and Poland affected equity values and currencies of a number of emerging economies, although there were also many countries that escaped these spillover effects. The contagion started to abate shortly afterwards as market participants again began to differentiate between countries. In contrast to the gloom in global equity markets, there was little sign of a credit crunch in global fixed income markets. Yield curves in the major economies retained their steep slopes, indicating a degree of confidence in a near-term economic recovery.

Despite rising losses from defaults, credit spreads narrowed steadily over the first half of the year, as investors sought to add corporate bonds to their portfolios. Even spreads in the troubled telecom sector narrowed. In the international market, firms continued to take advantage of favorable conditions by floating long-term debt securities in the second quarter, albeit at a slower pace than before. Many corporate borrowers, however, used the funds to pay off other obligations, especially maturing long-

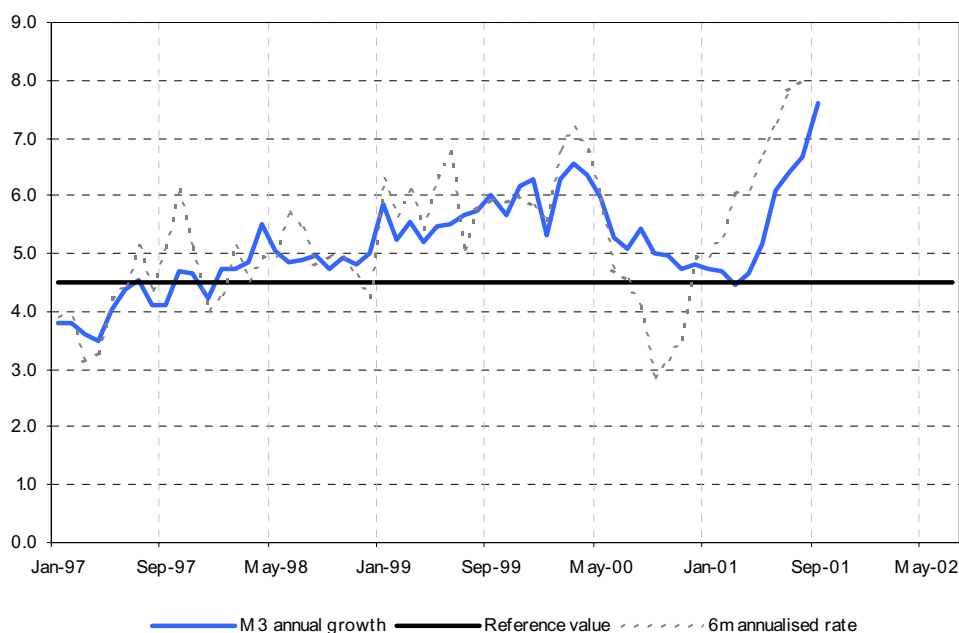
term debt and commercial paper, rather than investing in new equipment and acquisitions.

The acts of terror in the US on 11 September 2001 prevented the stock markets and industrial economies from regenerating. Surely, a recovery will start, but later than expected. Even a short-lived regression in the USA and Europe does not seem impossible.

2. ECB strategy variables

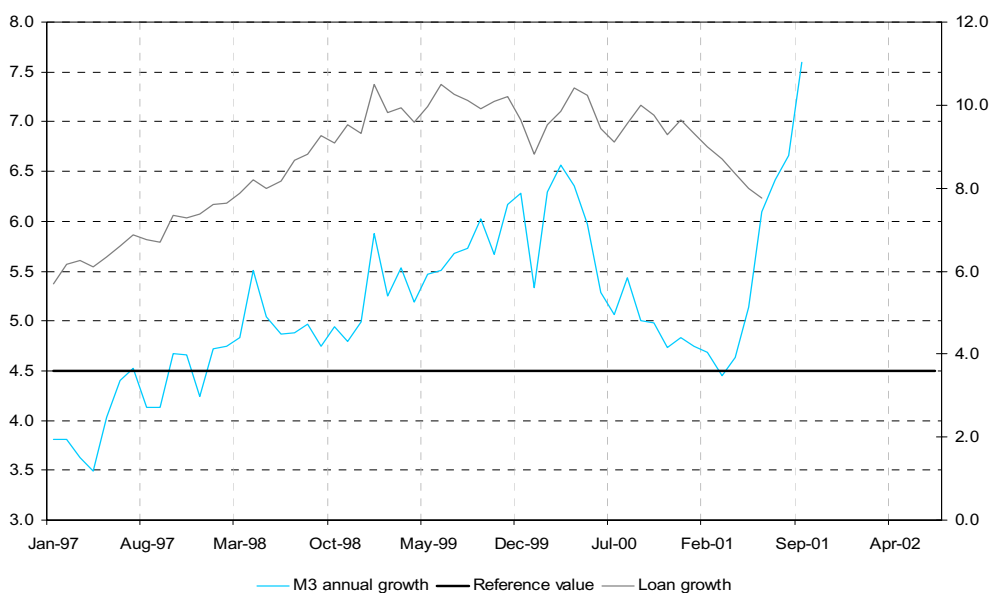
First strategy pillar: Since May 2001, the annual growth rate of the stock of M3 has been deviating from the 4.5 % reference value (see figure 7). In August the growth rate stood at 6.7 % and in September 7.6 %. However, there are strong reasons to believe that the stock of M3 is subject to “portfolio shifts” which are not related to an excessive money production. For instance, the equity market turbulences have induced non-banks to place their funds into short-term bank liabilities – especially marketable instruments – rather than shifting them in long-term bank liabilities. Moreover, the gap between US and euro area short-term rates may have induced short-term portfolio-shifts inflating the stock of M3. When looking at the M3 counterparts, the growth rate of the total credit to the private sector, which may be considered as an important source of money production, has slowed down substantially since September 2000 (see figure 8). Taken together, monetary data does not point to future inflationary pressures in the euro area.

Figure 7: M3 (annual growth and 6-months annualised growth) and reference value in percent



Source: ECB; own calculations.

Figure 8: M3 (lhs) and credit growth (rhs) in percent



Source: ECB.

Second strategy pillar: The variables of the ECB’s second strategy pillar no longer indicate risks to price stability. Euro area output growth is slowing, giving rise to an expectation of below-potential growth in 2002. The annual increases in euro area price indices – consumer prices, producer prices, etc. – have started slowing down as “cost push” factors related to energy prices and special factors such as, for instance, BSE, peter out. Moreover, other variables such as, for instance, wage settlements do not provide any unfavorable signals to future price stability. When interpreted in view of slowing growth, further downward pressure on future price increases are to be reckoned with. The assessment of a low inflation environment is actually supported by the recent decline in the “break even inflation” rates in the euro area.

3. Review of ECB policy actions

The ECB cut the interest rate by 25bp on 10 May 2001. The cut was largely explained by the need to adjust borrowing costs to make allowance for an upward distortion in the stock of M3. A further 25bp rate cut was delivered on 30 August. On both occasions, the ECB took, more or less, most market observers by surprise in terms of timing. As an immediate response to the acts of terror in the US on 11 September, central banks took measures aimed at preventing concerns of a liquidity squeeze in the payment and settlement systems on the part of investors. Following the US Fed 50bp rate cut on 17 September, the ECB reduced rates by 50bp, bringing the ECB refinancing rate to 3.75 %. From a financial market stability point of view, the move was certainly warranted. It has surely helped support investor confidence in times of a serious crisis without causing rising inflation expectations. The 50bp rate cut on 8 November, bringing the ECB refi rate to 3.25 %, was justified by the improved inflation outlook.

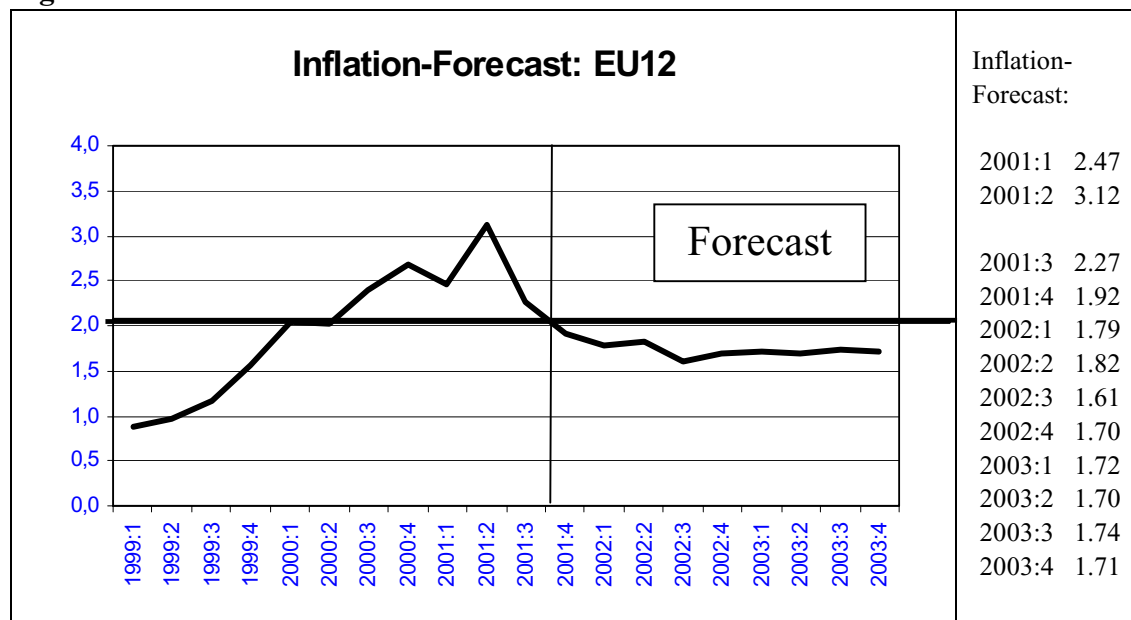
Throughout the last six months, the ECB has been keeping inflationary expectations stabilised which is, especially in view of the marked deviation from the envisaged 2.0 % ceiling, a great achievement of monetary policy. In terms of communication

policy, however, the ECB has been criticised by various quarters. In fact, the interest rate cut on 10 May was, judging from market and press comments, largely perceived as a kind of compromise within the ECB Governing Council rather than driven by news on monetary data. Moreover, the timing of the rate cut on the afternoon of 17 September surprised most observers given the ECB President’s statement that morning suggesting no immediate ECB rate cut. That said, communication of the ECB actions, even though fundamentally justified, has remained a “weak spot” in the ECB’s overall strategy.

4. Interest rate and inflation forecast

The dimensions of the hit to global growth following the acts of terror in the US on 11 September are slowly becoming more visible. However, the dimensions and timing of the recovery are not yet discernible. Together with declining inflation, further interest rate cuts in the US and the euro area are to be expected. The signals provided by the variables of the ECB’s first and second pillar will allow the bank to lower rates further. This forecast is largely driven by the fact that the ECB policy will presumably be driven by the deviation of actual inflation from the 2.0 % ceiling. Should an economic recovery not materialise by the end of the year, further ECB rate cuts could bring the ECB refinancing rate to 2.5 % by the end of the first quarter 2002. Given that a rate cut will translate into a steeper yield curve, the chances are good that M3 growth will decline as the opportunity costs of M3 holdings will increase.

Figure 9: Inflation Forecast

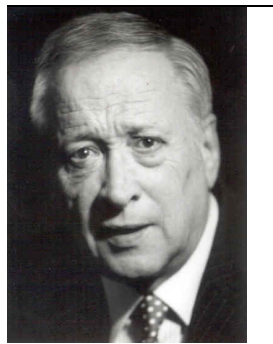
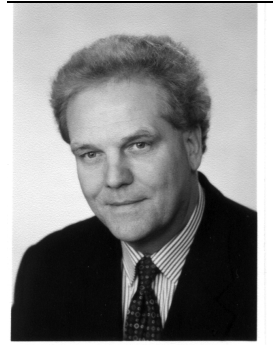




Against the background of this rate forecast, we estimated future inflation on the basis of the price gap model which was outlined in Part 3. According to this approach, the inflation rate is influenced by the price gap, the output gap, and some cost-push variables, namely the oil price and the EUR/USD exchange rate. The forecast, of course, is based on certain presuppositions concerning the above-mentioned variables. Our presuppositions for the period 2001-Q3 to 2003-Q4 are:

- (i) M3 growth-rate 5.5 %, 6.5 % in 2001-Q3 and 2001-Q4,
- (ii) GDP potential growth rate 2.5 %,
- (iii) GDP growth rate 1.0 % in 2001-Q3 and 2001-Q4, 1.5 % in 2002-Q1 and 2002-Q2, 2.0 % in 2002-Q3, 2.5 % in 2002-Q4,
- (iv) oil price per barrel \$ 25, and
- (v) EUR/USD 0.90.

Figure 9 shows the inflation-forecast which starts in 2001-Q3. In 2001-Q4 the inflation rate will start remaining below the critical value of 2.0 %. With annual M3-growth expanding by no more than 5.5 %, inflation will be benign in the coming quarters. Of course, the model does not capture the short-term dynamics of the change in the consumer price index. That said, inflation could well be lower than the model forecast suggests, especially so if the output gap rises more than suggested by the model. It should be noted that inflation in low-growth countries (like, for instance, Germany) is set to decline stronger than in fast-growing countries (like, for instance, Ireland). Most importantly, the model shows that current monetary conditions are certainly in line with delivering an inflation in the euro area which will be below 2.0 % for the foreseeable future.

ECB OBSERVER – The Team:

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|  | <p>Professor Dr. <i>Manfred Borchert</i>, geb. am 10. Februar 1939 in Berlin, von 1959 bis 1964 Studium der Volkswirtschaftslehre an der Hochschule für Wirtschafts- und Sozialwissenschaften in Nürnberg, von 1964 bis 1967 wissenschaftlicher Assistent bei Professor E. Heuß an der Universität Erlangen-Nürnberg, 1967 Promotion an der Universität Erlangen-Nürnberg, von 1967 wissenschaftlicher Assistent bei Professor J. Klaus und Professor O. Issing, 1968 Visiting Fellow an der Princeton-University, Princeton, N. J., USA (gefördert v. d. DFG), von 1969 bis 1970 wissenschaftlicher Assistent bei Professor E. Heuß an der Universität Marburg, 1971 Habilitation an der Universität Marburg, seit 1972 Inhaber des Lehrstuhls für Volkswirtschaftslehre, insbesondere für Geld und Währung an der Universität Münster, seit 1972 regelmäßige Auslandsaufenthalte als Visiting Professor u. a. bei der Weltbank, dem Internationalen Währungsfonds, dem Federal Reserve Board, der American University, der Johns Hopkins University und der Brookings Institutions in Washington, Forschungsgebiete, Geld- und Währungstheorie und -Politik, Außenwirtschaft, Europäische Integration, Struktur des Bankenmarktes. Adresse: Prof. Dr. Manfred Borchert, Lehrstuhl für Volkswirtschaftslehre (Geld und Währung), Westfälische Wilhelms-Universität Münster, Am Stadtgraben 9, 48143 Münster, 07mabo@wiwi.uni-muenster.de.</p> |
|  | <p>Professor Dr. <i>Wim Kösters</i>, geboren am 26. November 1942 in Greven/Kr. Steinfurt, von 1963 bis 1968 Studium der Volkswirtschaftslehre an der Universität Münster, von 1968 bis 1969 Fulbright Stipendiat an der Florida State University und der Harvard University, von 1969 bis 1982 Assistent bei Prof. Dr. Hans K. Schneider in Münster und Köln, Promotion 1972 an der Universität Münster, Habilitation 1982 an der Universität zu Köln, von 1982 bis 1991 Professor für VWL an der Universität Münster, seit 1991 Inhaber des Lehrstuhls für Theoretische Volkswirtschaftslehre I (zugl. Jean Monnet Lehrstuhl) an der Ruhr-Universität Bochum. Mitgliedschaften: u.a. Wirtschaftspolitischer Ausschuß der Gesellschaft für Wirtschafts- und Sozialpolitik - Verein für Socialpolitik, Arbeitskreis Internationale Wirtschaftsbeziehungen und Arbeitskreis Deutscher Binnenmarkt der List Gesellschaft, Arbeitsgruppe Wirtschaftspolitik und Entwicklung sowie Arbeitsgruppe Europa in Politik und Wissenschaft der Konrad Adenauer-Stiftung, Brussel's Initiative, Lateinamerikazentrum der Universität Münster (korrespondierend), Präsidium des Arbeitskreises Europäische Integration, European Community Studies Association/USA. Forschungsschwerpunkte und fachliche Spezialgebiete: Geldtheorie und -politik, Konjunkturtheorie und Stabilitätspolitik, Währungstheorie und -politik, Arbeitsmarkttheorie und -politik, Integrationstheorie und -politik, insbesondere Fragen der monetären Integration, internationale Handelspolitik. Adresse: Prof. Dr. Wim Kösters, Lehrstuhl für Theoretische Volkswirtschaftslehre I, Universitätsstraße 150, 44801 Bochum, wim.koesters@ruhr-uni-bochum.de.</p> |
|  | <p>Privatdozent Dr. <i>Martin Leschke</i>, geboren am 2. März 1962 in Oberhausen, von 1983 bis 1989 Studium der Volkswirtschaftslehre an der Universität Münster, von 1989 bis 1993 Assistent am Lehrstuhl für Volkswirtschaftslehre, insbesondere für Geld und Währung bei Professor M. Borchert, Promotion 1993 an der Universität Münster, 1994 einjähriger Forschungsaufenthalt am Center for Study of Public Choice, George Mason University, Fairfax, VA, USA (gefördert v.d. DFG), Habilitation 1998, seit 1999 Hochschuldozent an der Universität Münster, Forschungsgebiete: Geldtheorie, Geldpolitik, Europäische Integration, Institutionenökonomik, allgemeine wirtschaftspolitische Probleme. Adresse: Priv.-Doz. Dr. Martin Leschke, Lehrstuhl für Volkswirtschaftslehre (Geld und Währung), Westfälische Wilhelms-Universität Münster, Am Stadtgraben 9, 48 143 Münster, 07male@wiwi.uni-muenster.de.</p> |
|  | <p>Dr. <i>Thorsten Polleit</i>, geboren am 4. Dezember 1967 in Münster. Von 1988 bis 1993 Studium der Betriebswirtschaftslehre an der Westfälischen Wilhelms-Universität in Münster. 1995 Promotion bei Professor Dr. Manfred Borchert, Lehrstuhl für Volkswirtschaftslehre, insbesondere Geld und Währung. Von 1995 bis 1997 Bayerischen Landesbank, München, London. Von 1997 bis März 1998 ABN AMRO (Deutschland) AG, Frankfurt, Institutional Investor Equity Advisory. Ab Juni 1998 bis September 2000 Chief Economist (Germany) bei ABN AMRO (Deutschland) AG und ABN AMRO Asset Management GmbH. Seit Oktober 2000 Chief Economist (Germany) bei Barclays Capital, Frankfurt. Tätigkeitsbereiche: EZB-Geldpolitik, Euro-Konjunktur und EU Covered Bond Research. Forschungsgebiet: Geldtheorie und -politik sowie Kapitalmarkttheorie. Adresse: Dr. Thorsten Polleit, Chief Economist (Germany), Barclays Capital, Bockenheimer Landstr. 38-40, 60320 Frankfurt, thorsten.polleit@barclayscapital.com.</p> |