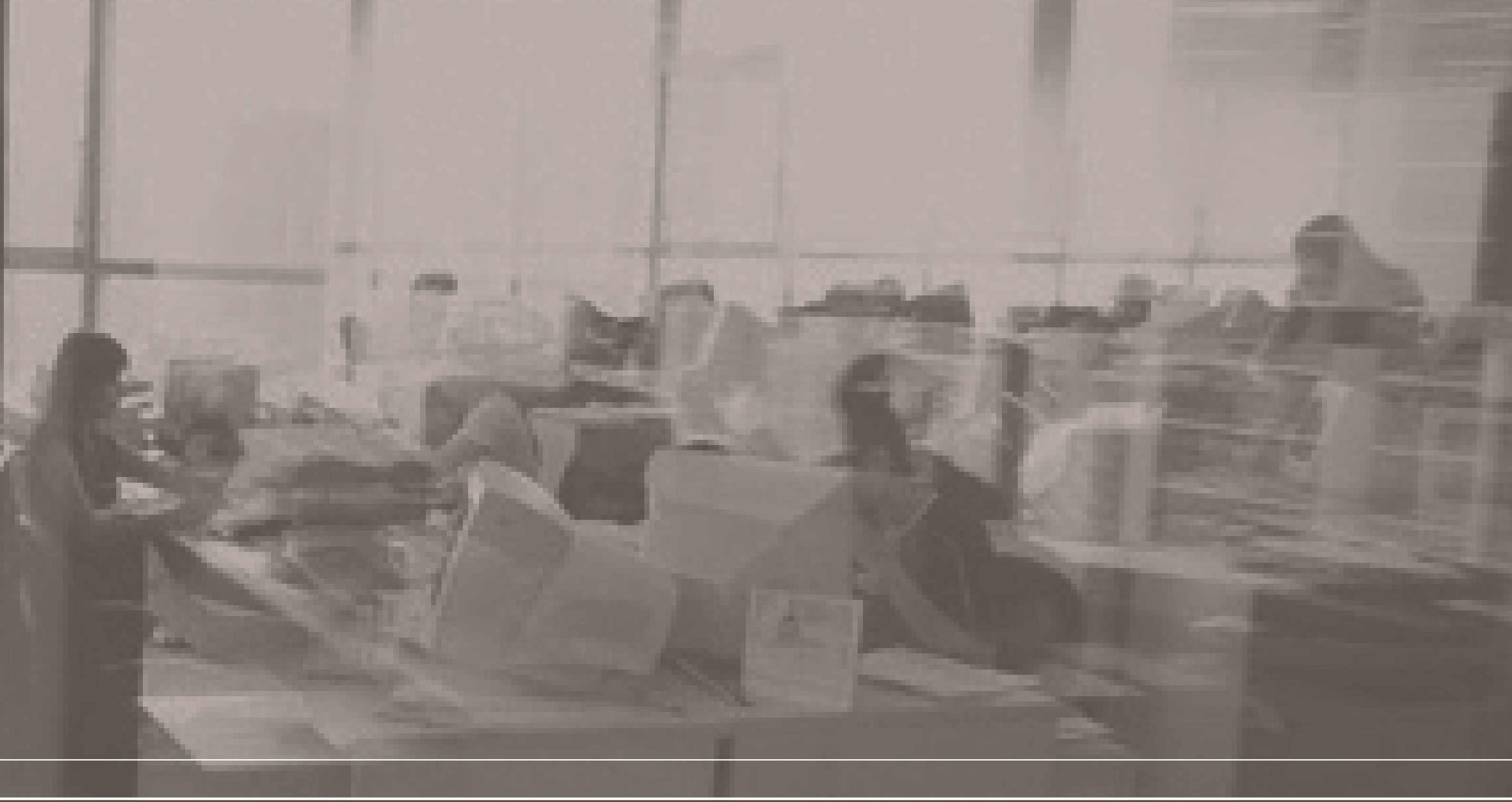
Monetary Policy and Structural Reforms in the Euro Area

Ad van Riet

European Central Bank

20 September 2006



Structural **reforms** and macro-economic policy

European Trade Union Confederation

Structural **reforms** and macro-economic policy

AVEC LE SOUTIEN DE
LA COMMISSION EUROPÉENNE

WITH THE SUPPORT OF
THE EUROPEAN COMMISSION

EUROPEAN TRADE UNION CONFEDERATION

overview

PART 3
Structural reforms and the european macro-economic policy regime

PART 3
Structural reforms and the european macro-economic policy regime

MONETARY POLICY AND STRUCTURAL REFORMS IN THE EURO AREA

Ad van Riet[1]

1. Introduction and overview

The Governing Council of the European Central Bank (ECB) set out its monetary policy strategy for maintaining price stability in the euro area in October 1998, just before the inception of the single currency on 1 January 1999. This stability-oriented monetary policy strategy, which was reviewed and confirmed in May 2003, provides a medium-term framework for analysing and assessing how changes in the economic and monetary environment affect the outlook for price developments and the risks for price stability in the euro area[2].

The ECB naturally takes account of the structural characteristics of the euro area economy (notably in terms of the functioning of its labour, product and capital markets, the efficiency of its institutions and the effectiveness of its adjustment mechanisms), as well as the authorities' structural policy measures in these fields. More precisely, it examines how changes in these structural features alter the economy's response to shocks and to what extent structural reforms are likely to affect the euro area's current and expected economic and financial conditions, its longer-term economic performance and, in particular, the medium-term outlook and risks for inflation in the euro area.

In this context, the ECB also considers how changes in the structural characteristics of the euro area economy – including those resulting from structural policy measures – may affect the conduct of monetary policy via their impact on the operation of the monetary transmission mechanism. The focus in this respect is on the efficiency and effectiveness of its interest rate actions in achieving the desired impact on the euro area economy in general and price developments in particular (see ECB, 2000).

Overall, this comprehensive analysis of the inflation prospects and the optimal interest rate response provides the basis for the ECB's monetary policy decisions, which are geared in an unambiguous manner towards the maintenance of price stability over the medium term. This credible anchor for longer-term inflation expectations is an indispensable contribution to a stable economic environment in which the decisions of other policy-makers – also in the field of

[1] Head of the EU Countries Division, Directorate General Economics, European Central Bank. The original presentation at the ETUC conference on 21-22 March 2006 was prepared with valuable input from Nadine Leiner-Killinger and Roger Stiegert. Comments on this written contribution from Hans-Joachim Klöckers, Klaus Masuch, Victor López and Giovanni Vitale are greatly appreciated. The views expressed in this contribution do not necessarily reflect those of the EC

[2] See ECB (2004a) for a general overview of the characteristics of the monetary policy of the ECB.

structural policies – and the actions of individual firms and households can be most welfare-enhancing. Maintaining price stability in a lasting manner should therefore be seen as the best way for the ECB to support the standard of living of the euro area's citizens and, thereby, the realisation of the strategic objective for the European Union (EU) set by the Lisbon European Council in March 2000 (see European Council, 2000; and Trichet, 2004a).

Following this introductory overview of the main mechanisms at work, the purpose of this contribution is to give a broad-based account of the possible interactions between the ECB's monetary policy, on the one hand, and structural policies in the euro area, on the other. While it does not provide a model-based framework, the aim is to present in a qualitative manner the most relevant channels. Two questions will be addressed in this context. Section 2 will deal with the question of how structural reforms may affect the conduct of monetary policy in the euro area. Section 3 discusses how, in turn, the euro area's monetary policy through its consistent focus on maintaining price stability supports the reform process and, thereby, the realisation of the Lisbon agenda. Finally, Section 4 emphasises the urgency of further structural reforms in Europe.

2. How do structural reforms affect the conduct of monetary policy in the euro area?

Starting with this first question, the key point to observe is that structural reforms change the economic and financial environment which is relevant for monetary policy decisions. In particular, effective reform measures affect the structure, institutions, flexibility, potential and performance of the economy through various channels, depending on the composition of reform packages. A few examples may illustrate this point[3].

- Completing the EU internal capital market and deepening the degree of financial integration in Europe would offer further scope for exploiting economies of scale and increasing competition in financial markets. This would relax liquidity constraints, cut transaction costs, reduce the cost of capital, and make it easier for investors to diversify risks and hedge against the consequences of unforeseen economic developments. The resulting more efficient allocation of capital, in turn, should be expected to raise the productivity of financial investments.
- Measures aimed at opening up goods and services markets to domestic and foreign competition would also offer more scope for exploiting economies of scale, allow for a more productive (re)allocation of resources and stimulate market entry. A higher level of competition would reduce excessive rents of firms, which translates into lower prices, facilitates wage moderation and raises output and employment. More competition also creates stronger incentives for firms to have a flexible production capacity and a less rigid price-setting mechanism in place and to be as efficient as possible. This drive towards greater flexibility and efficiency is likely to stimulate technological innovation and promote new investments, supporting both productivity growth and job creation.
- A free mobility of workers in the EU internal market, less regulations which unduly protect the jobs of 'insiders' at the expense of 'outsiders', and adequate training facilities to support occupational mobility and a better 'matching' between jobs and workers should be expected to improve the functioning of labour markets. Together with wage differentiation in line with regional, sector-specific and local labour market conditions and productivity developments, this will help to avoid excessive wage increases and reduce structural unemployment. In this context, a more forward-looking and flexible wage formation process increases the capacity to absorb negative shocks, thereby avoiding prolonged output and employment losses.
- Well-focused fiscal reforms undertaken by the government would complement and enhance the above benefits. A 'high-quality' public sector would offer stronger incentives to work, save, invest and innovate. In particular, reducing distortions caused by tax and benefit systems, relaxing excessive regulations to ensure a business-friendly environment and providing adequate facilities for education and research would contribute to increasing the effective supply of resources. In addition, fiscal consolidation and lower government debt ratios would support the public's confidence in the longer-term sustainability of public finances, thus fostering economic stability and output growth.

Overall, appropriately designed structural reforms aimed at well-functioning labour, product and capital markets characterised by efficient institutions and effective adjustment mechanisms will

[3] For a more detailed overview, see e.g. European Commission (2005).

translate into a more dynamic and resilient economy with a stronger economic performance, more employment, lower prices and higher real incomes.

For the conduct of monetary policy in the euro area, the possible effects of structural reforms such as those mentioned above are highly relevant. Two aspects need to be considered in this context, namely:

1) The impact of reforms on the medium-term outlook for inflation and the risks for price stability in the euro area; and

2) The impact of reforms on the operation of the monetary transmission mechanism and the optimal interest rate adjustment.

As regards *the first aspect*, following its EU Treaty mandate to maintain price stability in the euro area, the monetary policy strategy of the ECB requires a comprehensive examination of all factors of relevance for the cyclical and the longer-term components of the inflation process. The favourable impact of well-designed EU-wide or aggregated national structural reforms should be expected to show up in two ways (see e.g. Duisenberg, 2003; and Trichet, 2004b). Assuming successful implementation, the effects of such reforms would arise at the euro area level firstly in the form of a positive supply shock (which in some cases may be accompanied by a negative demand shock) with possible consequences for the inflation prospects. Secondly, they change the structural characteristics of the euro area economy. As these determine how shocks which threaten price stability pass through the economy, they are of key interest when analysing the inflation dynamics and prospects. Several channels may be considered in this respect.

From a longer-run perspective, effective reform measures should be expected to increase the structural efficiency and flexibility of the euro area economy and thereby its growth potential. In particular, stronger potential output growth would raise the benchmark for desirable medium-term money growth and raise the level at which the economy can sustain output growth without inflationary pressures arising. The outlook for inflation is also likely to be affected by the associated reduction of structural unemployment, which should delay the emergence of wage pressures during a recovery. Measures allowing for free market entry and more effective competition should reduce excessive mark-ups of firms, which in turn would allow for lower relative prices in the affected sectors. This also implies that during the period of transition to the new equilibrium the rate of price increases in these sectors, and possibly also in the economy at large, would fall. A more flexible economy, allowing for a faster reallocation of available labour and capital resources would help to avoid bottlenecks and excessive wage and price rises. Furthermore, a greater flexibility of wages and prices in absorbing rather than accommodating shocks threatening price stability and a more forward-looking behaviour of economic actors more generally may reduce the risk of second-round effects of such shocks appearing in the form of wage and price increases. The implementation of supply-enhancing reforms (especially when associated with an initial contraction of demand) may in the short run change the balance between aggregate supply and demand, temporarily raising the degree of slack in the economy. However, an offsetting factor in this case could be that convincing structural reforms are conducive to supporting consumer and business confidence, thereby improving demand conditions and the short-term economic outlook. Overall, if there is firm evidence that structural reforms – taking all other economic and monetary factors into account – contribute to reducing wage and price pressures at the euro area level, a central bank with a mandate and strategy like the ECB will normally react in order to maintain price stability over the medium term.

Moving on to the second aspect, structural reforms may also affect the conduct of monetary policy via their impact on the operation of the monetary transmission mechanism and the most appropriate interest rate adjustment (see ECB, 2000; and Trichet, 2004a, 2004b). In particular, measures which improve the functioning of markets (notably by removing barriers to competition and breaking down rigidities which constrain the adjustment of wages, prices or supply) will tend to make it easier for monetary policy-makers to deal with temporary shocks to inflation. This derives from the fact that, as noted above, in more flexible labour and product markets, workers and firms have more room for manoeuvre to absorb such shocks without protracted inflationary pressures unfolding. Under such favourable circumstances, a smaller interest rate response than would otherwise be necessary may be sufficient to maintain price stability. Moreover, in less rigid economies a period of interest rate adjustments may be shorter than otherwise, as their impact would pass through the economy more quickly. Accordingly, successful structural reforms leading to better-functioning markets and a more resilient economy also tend to reduce the volatility of output and employment associated with shocks to

inflation and the necessary monetary policy reaction. Overall, structural reforms enhance the efficiency and effectiveness of monetary policy actions and thus facilitate the task of the central bank to maintain price stability.
To the extent that structural reforms generate a stronger dynamic efficiency and permanently raise the level of potential output and productivity growth, and thus the return on capital, economic theory argues that the level of the 'natural' real interest rate must rise, in order to generate sufficient savings to meet the higher investment demand. Arguably, from a conceptual point of view, this 'natural' real interest rate is an important benchmark for monetary policy, providing guidance for the central bank's optimal real short-term interest rate in the long run. However, as the 'natural' real interest rate is unobservable and can only be estimated with a large degree of uncertainty, the ECB has clarified that it does not use this concept in the actual conduct of its monetary policy (see ECB, 2004b).

While all the aforementioned effects of structural reforms on the euro area economy would in principle be taken account of in the conduct of monetary policy, a careful evaluation is always needed, since considerable uncertainty exists about the quantification and persistence of their impact. A relevant question is, for example, whether favourable reform measures should be expected to just raise the level of economic potential as a one-off, in which case the economy will temporarily enjoy stronger output growth in the period of adjustment to the new equilibrium; or, alternatively, the economy may be seen as moving to a permanently higher potential growth path as a result of a greater dynamic efficiency. A similar question is whether effective reforms reduce the rate of relative price changes in the affected sector(s) only temporarily, or for a prolonged period of time, for example by generating a more anti-inflationary attitude among economic actors [4].

A further complication in assessing the impact of structural reforms is that some measures may entail short-term implementation costs, which could trigger opposition from interest groups, even when over time these costs would be far outweighed by the longer-term gains for the whole society. The occurrence and persistence of such opposition critically depend on the credibility of the political reform process. Sometimes, reforms are not implemented in the way they are announced, they comprise piecemeal rather than comprehensive measures, their design or sequencing may be questioned, their long-run benefits are communicated poorly, or there is no instrument in place to facilitate the adjustment process for those affected. Under such circumstances, the general public might be doubtful about the (net) positive effect of reforms. This makes it more difficult to gain approval for new reform measures and/or complicate their successful implementation in practice (especially when this depends on a change of behaviour by households or firms). Given this complex reality, in which the 'actual results' of structural reforms may deviate substantially from the initial 'expectations', monetary policy-makers have no alternative than to take a cautious approach when conducting a 'real-time' assessment of how the whole range of structural policies will affect the economic and financial structure and the outlook for inflation.
Another important point to note is that there is no mechanical link from structural reforms to the monetary policy stance, as a decision to change interest rates must always take account of the full range of factors – including those unrelated to structural reforms – which determine the outlook and risks for price stability at the euro area level. Accordingly, accommodating a priori the positive effects of structural reform measures, irrespective of the prevailing uncertainties and inflation risks, would undermine the credibility of monetary policy in the euro area and conflict with the EU Treaty mandate of the ECB to maintain price stability as an independent institution [5]. As discussed in Section 3, such a result would be the exact opposite of how monetary policy-makers could best support the political reform process in Europe.

3. How does the euro area's monetary policy contribute to supporting structural reforms and the Lisbon agenda?

The second question to address is how the euro area's monetary policy helps to increase the incentives for implementing structural reforms and thus

4 For a discussion of these two questions, see ECB (2006b).
5 In a similar vein, the OECD (2006, p. 17 and 54) stresses four key conditions for a monetary policy reaction to supply-enhancing structural reforms: 1) a prevailing low and stable inflation environment; 2) a credible commitment to implement a series of reforms; 3) a prudent estimation of the positive impact of reforms on potential output, and 4) clear signs of downward pressure on inflation in case demand does not autonomously expand in line with the increased output potential.

contributes to the implementation of the Lisbon agenda. The key point to note with this question is that the ECB's credible commitment to maintaining price stability over the medium term, as well as its contribution to safeguarding financial stability, have a favourable influence on the economic and financial environment in which the reform process takes place. Again, two aspects may be considered, namely:
1) How price stability helps to identify where reforms are needed; and
2) The way price stability facilitates the implementation of reforms and the achievement of the Lisbon objectives.
As regards *the first aspect*, in an environment characterised by price stability it is much easier to distinguish changes in relative prices from changes in the general price level. Even in an environment of stable average prices, some prices for individual goods and services will still be rising and prices for other goods and services falling. This diversity in price developments reflects specific demand patterns for individual products due to changing preferences, as well as specific supply developments in individual industries such as those related to the pace of technological progress. In this respect, the distribution of price changes for individual goods and services around the average for all products provides signals for economic actors on the basis of which they can take well-informed consumption and investment decisions, adequately assess market developments, and if necessary adjust their demand or supply. However, they will not be able to recognise the signals provided by relative prices when these are obscured by overall inflationary tendencies.

Accordingly, an environment characterised by price stability facilitates very much the identification of those sectors in the economy where reforms may be most necessary. In particular, it would be easier to isolate excessive cost and price increases in a specific sector when there is not at the same time a more general tendency for prices to rise in the economy. For example, 'underperforming' industries may be faced with a lower productivity growth than other, comparable industries, causing relatively high unit labour cost and price increases and damaging their competitiveness. This signals a need for efficiency-enhancing measures to improve performance. Also, rent-seeking behaviour associated with lacking competition in a particular market will normally show up in relatively strong price rises. As in an environment of overall price stability such excessive relative price developments will be transparent to everybody, they provide a clear signal for the competent authorities to take corrective action aimed at opening up the market concerned and ensuring more effective competition. By contrast, a significant decline in relative prices in a particular market arising from free entry of new competitors clearly shows the benefits of such actions for consumers and producers [6]. In a similar way, the micro-studies of price-setting behaviour in the euro area countries undertaken by the Eurosystem's Inflation Persistence Network have provided indications of the (lack of) price responsiveness for individual product categories in the consumption basket as well as in specific industries. These results are very useful for identifying the sectors where reform measures should aim at increasing competition and flexibility (see ECB, 2005b).

Regarding the *second aspect*, it is important to recognise the substantial benefits of price stability for society (for an overview, see ECB, 2004a, pp. 42-43). As already noted above, a stable general price level makes it easier for everybody to rely on the signals provided by relative price changes. Since the euro area's monetary policy via its consistent focus on price stability provides a credible anchor for longer-term inflation expectations, there is also no reason for creditors to demand inflation risk premia in real interest rates, for workers and firms to let their wage and price formation be influenced by inflationary tendencies, or more generally for individuals to engage in costly hedging activities against future inflation (or deflation) risks. Furthermore, price stability avoids that the distortions to economic behaviour caused by tax and social security systems are further exacerbated by inflation (or deflation). An environment of price stability – in conjunction with financial stability – is therefore a vital contribution to a stable economic and financial environment. As inflation (or deflation) also often causes an arbitrary and unpredictable redistribution of incomes and wealth and typically hits the weakest members of society most, price stability also helps to maintain social stability.

Such an overall stable environment promotes more forward-looking behaviour and allows for individual decisions of workers, savers and investors about the supply and allocation of labour, capital and other

6 See e.g. ECB (2001) and Martin et al. (2005), which take a closer look at the case of network industries.

resources to be taken in the most efficient and productive way. In the euro area, these benefits are further enhanced by the many opportunities offered by a large single currency area in which internal cost and price transparency is not clouded by exchange rate uncertainty. This favourable constellation, in turn, will foster non-inflationary and sustainable economic growth, enhance employment and support social cohesion, in line with the Lisbon objectives.

Moreover, as noted above, in such a stable environment the benefits of structural reforms are both more obvious and less diffuse. They are more obvious, because the welfare-enhancing effects would surface faster and would be more substantial. And they are more visible, as they are not masked by overall inflationary dynamics or surrounded by major uncertainties about whether they are for real. Overall, this should be expected to underpin the credibility of the political reform process and the Lisbon agenda. As a consequence, it will be easier for structural policy-makers in Europe to persuade the general public of the advantages of reforms in the longer run and remove scepticism regarding any short-term costs. This should facilitate the political decision-making process in support of such reforms as well as their implementation.

4. The urgency of structural reforms in Europe

As argued by Issing (2004), the ambitious Lisbon agenda agreed in the year 2000 has been crucial for raising Europe's awareness of the need for structural reforms. However, in the first few years the implementation of this agenda was disappointing. Following the mid-term evaluation of the progress made, the European Council (2005) therefore decided to relaunch the Lisbon strategy and to refocus its priorities on growth and employment – also as a way to reach those related to the environment and social cohesion (see ECB, 2005a). In addition, more convincing fiscal consolidation should improve the conditions for stronger output growth and job creation. The introduction of a Community Lisbon Programme and the stronger commitment of EU Member States through the submission of National Reform Programmes (after consultation with national stakeholders and national parliaments) are welcome improvements in order to pursue the implementation of the Lisbon agenda in a more determined manner. This determination is all the more important, as since the year 2000 the challenges from accelerating globalisation, rapid technological progress and ageing populations have not abated, but only become more pressing.

To address these challenges, a comprehensive and consistent reform strategy would have the best chances of success[7]. Completing the EU internal market should be a key ingredient of this strategy in order to foster an efficient allocation of resources, larger economies of scale and an attractive business environment in which competition is the driving force behind ongoing investment, innovation and the creation of new firms and jobs. The necessary labour market measures are wide-ranging. They should comprise reform of tax and benefit systems to increase labour supply, both in terms of the number of workers and the hours worked on a life-time basis[8]; address labour market rigidities and promote wage flexibility to increase labour demand; and create better life-long education and training systems as a way to improve human capital and prepare workers for the future[9]. Last, but not least, governments need to contribute their share by providing sustainable and high-quality public finances (see e.g. ECB, 2006a). In line with the original strategic goal of the Lisbon agenda, such a comprehensive and consistent reform package would be conducive to a more dynamic and 'shock-resistant' European economy, which features well-functioning labour, product and capital markets and stronger incentives to work, save, invest and innovate.

As noted by the European Council (2006), enhanced structural reforms and further fiscal consolidation are of special importance for the euro area countries. A more critical assessment of

7 Evidence presented by Hauptmeier et al. (2006) suggests that public expenditure reforms in industrialised countries in the 1980s and 1990s were most successful in terms of raising economic growth and improving fiscal performance if they were part of a comprehensive package rather than a piecemeal approach. Annett (2006) stresses the consistency of structural policies, both internally and over time, as a keylesson from successful reform cases, i.e. the selected product market, labour market and fiscal reforms should complement and reinforce each other and be continued over a longer period.

8 For an analysis of the causes and consequences of the trend decline in average hours worked in euro area countries over the past decades, see Leiner-Killinger et al. (2005).

9 See ECB (2002) for a discussion on the efficiency of the matching process on the euro area labour market.

the progress made by these countries would therefore be in order. Three arguments may be offered which support this view. In the first place, well-functioning markets and stronger supply incentives would offer scope to better exploit the substantial welfare-enhancing benefits of the euro associated with the implied internal cost and price transparency and low transaction costs. Given these benefits, the adoption of the single currency should in principle have created strong incentives for euro area countries to undertake reforms – even if a supporting monetary policy reaction, as explained above, cannot be taken for granted (compare Duval and Elmeskov, 2006; and OECD, 2006, p. 54). Secondly, in an integrated single currency area the advantages of moving to flexible euro area economies are more obvious, as this would increase the capacity to cope with asymmetric shocks. For example, in several euro area countries structural reforms should promote more rapid wage and price adjustments and more effective adjustment mechanisms in general in order to deal with deviating trends in intra-euro area competitiveness. Thirdly, moving to sound public finances would create scope to let automatic stabilisers work in case of asymmetric shocks in the euro area. Moreover, fiscal discipline and the long-term sustainability of public finances in the member countries are essential to underpin confidence in the internal and external stability of the euro. Overall, realisation of the Lisbon agenda would improve the performance of the euro area economy, increase its resilience to shocks, and also strengthen its cohesion. This is vital for the long-term credibility of the euro.

While there is a political consensus about the urgency of further structural reforms in Europe, there is still some resistance to taking the necessary steps. Some observers have raised the question of 'the right time' for implementing structural reforms. As observed by Blanchard (2006, p. 47), reforms encounter less opposition in an economic upswing, when unemployment is falling. However, he also notes that a cyclical upturn in fact also alleviates the political need for reforms and thus tends to delay rather than encourage them. This suggests that the underlying economic challenges facing a society must rather be addressed as and when they arise, irrespective of the stage of the business cycle[10]. Postponing unavoidable measures would not increase the chances of their implementation, but only raise the burden of adjustment and prolong the period needed to offset any initial output and employment losses.

The challenge is to explain in a convincing manner the need to rejuvenate the European economy and the longer-run welfare-enhancing benefits of reforms to the general public, while facilitating to the extent possible the adjustment process for those affected. For its part, the ECB will continue to support the reform process in Europe, in the first place by maintaining price stability for the euro area; secondly, by contributing to safeguarding financial stability; and, finally, by explaining the necessity of structural reforms for safeguarding the standard of living of Europe's citizens.

References

- Annett, A. (2006), 'Lessons from successful labour market reformers in Europe', in Euro area policies: selected issues, International Monetary Fund, *Country Report*, No. 06/288, August, pp. 35-83.
- Blanchard, O. (2006), 'European unemployment', *Economic Policy*, January, pp. 6-59.
- Duisenberg, W.F. (2003), 'Structural reform and its implications for monetary policy', speech at the meeting of the Executive Board of the Deutsche Bundesbank, Berlin, 10 June.
- Duval, R. and J. Elmeskov (2006), 'The effects of EMU on structural reforms in labour and product markets', *ECB Working Paper Series*, No. 596, March.
- European Central Bank (2000), 'Monetary policy transmission in the euro area', *Monthly Bulletin*, July, pp. 42-58.
- European Central Bank (2001), 'Price effects of regulatory reform in selected network industries', March.
- European Central Bank (2002), 'Labour market mismatches in euro area countries', March.
- European Central Bank (2004a), *The monetary policy of the ECB*, 2nd edition, January.
- European Central Bank (2004b), 'The natural real interest rate in the euro area', *Monthly Bulletin*, May, pp. 57-69.
- European Central Bank (2005a), 'The Lisbon strategy – five years on', *Monthly Bulletin*, July, pp. 69-84.
- European Central Bank (2005b), 'Price-setting

10 Case studies presented by Hauptmeier et al. (2006) and Annett (2006) find that the most successful reform programmes have been initiated in 'bad times' and tended to continue in 'good times', i.e. the countries concerned did not wait for the 'good times' before taking action.

behaviour in the euro area', *Monthly Bulletin*, November, pp. 63-74.
• European Central Bank (2006a), 'The importance of public expenditure reform for economic growth and stability', *Monthly Bulletin*, April, pp. 61-73.
• European Central Bank (2006b), 'Competition, productivity and prices in the euro area services sector', report prepared by a Task Force of the Monetary Policy Committee of the European System of Central Banks, *ECB Occasional Paper Series*, No. 44, April.
• European Commission (2005), 'The economic costs of non-Lisbon: A survey of the literature on the economic impact of Lisbon-type reforms', Directorate-General for Economic and Financial Affairs, *Occasional Papers*, No. 16, March.
• European Council (2000), 'Presidency Conclusions of the Lisbon European Council', 23-24 March.
• European Council (2005), 'Presidency Conclusions of the Brussels European Council', 22-23 March.
• European Council (2006), 'Presidency Conclusions of the Brussels European Council', 23-24 March.
• Hauptmeier, S., M. Heipertz and L. Schuknecht (2006), 'Expenditure reform in industrialised countries: a case study approach', *ECB Working Paper Series*, No. 634, May.
• Issing, O. (2004), 'The euro and the Lisbon agenda', speech at the 32nd Economics Conference of the Oesterreichische Nationalbank, Vienna, 28 May.
• Leiner-Killinger, N., C. Madaschi and M. Ward-Warmedinger (2005), 'Trends and patterns in working time across euro area countries 1970-2004', *ECB Occasional Paper Series*, No. 41, December.
• Martin, R., M. Roma and I. Vansteenkiste (2005), 'Regulatory reforms in selected EU network industries', *ECB Occasional Paper Series,* No. 28, April.
• OECD (2006), *Employment Outlook*, Paris.
• Trichet, J.-C. (2004a), 'The role of the ECB in the Lisbon process' in C. Randzio-Plath (ed.) *Wege aus der Krise – Plädoyer für eine Europäische Wachstums- und Investitionsoffensive*, Nomos Verlag, Baden-Baden.
• Trichet, J.-C. (2004b), 'Supply-side economics and monetary policy', speech at the Institut der Deutschen Wirtschaft, Cologne, 22 June.

POTENTIAL OUTPUT - A QUESTIONABLE CONCEPT [1]

Gustav Horn [2] - September 2006

1. Introduction

Potential output measures a country's sustainable aggregate living standard and is thus one of the most important categories of economics. It is also a key indicator for monetary and fiscal policy. The ECB, for example, uses the output gap – the relative difference between potential output and GDP – as a leading indicator of inflation and requires a precise growth rate of potential output to determine its reference value for M3. Potential output is also relevant for fiscal policy and medium-term fiscal planning, for example to determine the structural budget deficit. Despite its importance, however, potential output is a difficult concept to pinpoint both theoretically and even more so empirically.

In this article results are presented that highlight the theoretical difficulties of defining potential output in an unambiguous way. We then discuss the causes of the marked revisions of potential output estimates by major international research institutions. In the final section policy conclusions are drawn from the fact that estimates of potential output are rather inexact and even unreliable.

2. Potential output in a theoretical perspective

Potential output is the sustainable level of real (inflation-adjusted) GDP. It is constrained due to limited natural resources (population, raw materials), institutional factors (e.g. on labor markets) and the factor

1 This article is an abbreviated version of Horn/Tober /Logeay (2006).
2 Gustav Horn, IMK-Düsseldorf