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A central banker's interest in Phillips curves

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1 Introduction

Ladies and gentlemen, dear Professor Snower

It is both a pleasure and honour for me to address such a distinguished audience. The organisers have to be congratulated on bringing together an impressive number of outstanding researchers to exchange views on one of the most relevant macroeconomic issues. Please let me say right at the outset that I shall be speaking about monetary policy and the Phillips curve in general terms. In particular, owing to the rules of the Governing Council which will be meeting in Frankfurt next Wednesday, I shall not be dealing with the current stance of monetary policy in the euro area in my following remarks.

The primary objective of the Eurosystem's monetary policy is to maintain price stability. Only when this goal is achieved is there room for monetary policy to support the general economic policies in the euro area. Given our focus on price stability, it is clear that a thorough understanding of the inflation-generating process and inflation dynamics is of the utmost importance for the Governing Council in deciding on short-term interest rates.

As the Phillips curve is the building block of inflation dynamics in many macroeconomic models, a policymaker's interest in Phillips curves would appear to be self-evident. So, on the one hand, with regard to the title of my speech today – “A central banker's interest in Phillips curves” – one might wonder whether such an interest is debatable at all. On the other hand, the

Phillips curve concept has undergone massive shifts over the past decades. The starting point was the seemingly stable consensus of the 1960s that there is a lasting option for the government authorities to increase employment by pursuing an inflationary policy. But one should always be suspicious about the stability of a consensus reached in the macroeconomists' profession. This was true in this case as well. Indeed, economists' belief in the Phillips curve's trade-off was soon shaken. In 1976, the year I started studying economics at university, Robert Lucas argued that the Phillips curve relationship collapses as soon as the government tries to exploit it.

The Lucas critique constituted a severe blow to the Phillips curve. By then, the concept had already been under concerted theoretical attack from the monetarist and New Classical camps for several years. Furthermore, the initially stable empirical support of the trade-off had broken down during the stagflation crisis in the 1970s. Accordingly, there were times when the famous dictum of Robert Solow that "any time seems to be the right time for reflections on the Phillips curve" was not acknowledged by our profession.

However, in recent years, research on the Phillips curve has experienced a renaissance. About a year ago, the Economist wrote that "If haircuts and dress styles can come back into fashion, then so can the Phillips curve." And this weekend's conference clearly proves that the idea of A. W. Phillips is again of major relevance for macroeconomists and monetary policymakers alike.

However, developments over the past 30 years have dramatically transformed the economic thinking underlying the Phillips curve. Thanks to the Lucas

critique and the earlier contributions of Ned Phelps and Milton Friedman, we know today that the empirical relationship expressed in the Phillips curve is not structural, but (inter alia) influenced by expectations and differences in underlying policy regimes.¹ Thus, the current theoretical consensus model is markedly different to the original one. Based on solid microfoundations and rational expectations, the New Keynesian Phillips Curve (NKPC) has taken up the fierce criticism of New Classical economists. Emphasising, however, stickiness of prices or information still delivers Keynesian features and allows for real effects of monetary policy in the short-run. At the same time, extended versions of the Phillips curve have been the starting point for policy analysis: The insights of the literature on time-inconsistency, based on an expectations-augmented Phillips curve, have been well taken by monetary policy makers. Thus, the famous inflation bias poses much less of a problem today than it did back in the 1980s when Barro and Gordon or Rogoff popularised the idea.

Being here as the President of the Bundesbank, let me just mention as an aside that there were few central banks that followed a stability-oriented monetary policy framework early on and which did not fall into the trap of a crude Phillips curve thinking in times when this concept was still in fashion in other policy circles. But given that, in the long-run, we are all stability-oriented monetary policymakers, it is nonetheless legitimate to ask what the Phillips curve concept has to tell us today. The wide and impressive spectrum of

¹ To do some justice to history it should be mentioned that even Solow and Samuelson in their 1960 paper, which is widely regarded as promoting a crude Phillips curve philosophy, presented their arguments in a more subtle way. Both wrote “We must give another caution. All of our discussion has been phrased in short-run termsIt would be wrong, though, to think that our Figure 2 menu [i.e. the Phillips curve] ... will maintain its shape in the longer run. It might be that the low pressure demand would so act upon wage and other expectations as to shift the curve down in the longer run.”

issues covered at this conference makes clear that no one single speech can hope to find answers to this question. In my following remarks, I would just like to highlight a number of aspects that I feel to be of importance in my capacity now as a practitioner of monetary policy in the Eurosystem.

2 The Phillips curve in monetary policy research

2.1 Monetary policy design and challenges in a low-inflation environment

As a starting point, let me go into slightly more detail concerning the lessons learnt over the past few decades. It is indeed the case that various institutional changes in monetary policymaking can be traced back to research on the Phillips curve. And I would like to argue that, in a period of low and stable inflation, these achievements are not merely of historical interest. On the contrary: In my view, what is key is the insight that most of the credit for the beneficial inflation climate worldwide is due to monetary policy having – sometimes painfully – learnt the lessons of the past, especially those related to the Phillips curve. And, as success breeds complacency, it is vital that these lessons are not forgotten.

This is more than the usual claim of a cautious central banker as, in my view, there is also some risk that the current environment of low and stable inflation rates might lead us to some mistaken beliefs about policy implications. And such wrong-headed policy advice might be inferred from a too naïve belief in that policy could exploit the relationship expressed in (reduced form) Phillips curves. The contributions of Lucas and Kydland and Prescott initiated fruitful

research on the optimal design of central banks. To name just a few of the subsequent fundamental advances: The key role of inflation expectations and therefore the key role of credibility in monetary policy. For these the central issues are the overriding importance of central bank independence, the investment in a “good reputation” by combating inflation, as well as the potential benefit of legislated monetary policy rules.

Lucas had raised serious doubts about the validity of the then popular macroeconomic models that were not based on a firm microeconomic underpinning. His call was answered by a wide array of research building on microfounded equilibrium models with rational expectations. In academia and in central banks, the New Keynesian dynamic stochastic general equilibrium framework, which includes an expectations-augmented Phillips curve, now provides a workhorse model for monetary policy analysis. The policy advice offered by this framework stresses the importance of the management of private sector expectations even more than the traditional time inconsistency literature. According to Woodford (2003), “not only do expectations about policy matter, but ... very little else matters.” Even if one does not completely share this view, inflation expectations are undoubtedly a prerequisite for achieving the primary objective of many central banks nowadays: price stability in the medium term and also undoubtedly a crucial measure of a central bank’s performance and credibility. Inflation expectations therefore closely link the success of monetary policy to its credibility; and the latter is supported if the central bank follows a systematic decision-making process, that is a rule-based policy strategy, and the general public has as clear an understanding of it as

possible: in other words, monetary policy is transparent and communicated effectively.

These advances in monetary policy, especially the anchoring of inflation expectations, have been the main driving forces for globally declining inflation rates over the past few decades. A more solid anchoring of inflation expectations at lower levels than in the past as well as the Eurosystem's transparency about its policy objectives has also been crucial for the fall in inflation persistence in the euro area which has been documented by the Eurosystem's Inflation Persistence Network (IPN). The empirical results of the IPN are based on a new dataset in which national micro data were a key ingredient. By incorporating real wage rigidities into a New Keynesian Phillips curve, the network also demonstrates that inflation persistence in the euro area (moderate as it is) is partly generated by developments in the labour market. I am therefore looking forward to the research results of the IPN's springoff – the Eurosystem's Wage Dynamic Network.

But back to the original subject: The successful anchoring of inflation expectations and the more effective monetary policy response to inflationary shocks will both show up in a flattened Phillips curve when it is estimated in reduced form. This is, in fact, an application of Goodhart's Law: For example, once monetary policy is responding more effectively to inflationary pressures due to changes in capacity utilisation, the output gap will empirically lose the information content that has qualified it to play the role of a leading indicator. Just as a side remark: When it comes to evaluating ex-post the information content of various indicators in forecasting exercises, Goodhart's law is, of

course, not only relevant for the real economic indicators, but also for monetary ones.

The empirical evidence of a flatter Phillips curve is a phenomenon that has been documented for several economies, including the United States and the euro area (see, for instance, BIS (2006)). But as also stated by Mishkin (2007), the main reason for this is arguably monetary policy having been more successful in stabilising both inflation and output. And here is the point where estimated Phillips curves may end up in misguided policy advice when the monetary policy reaction and its effects are not properly taken into account.

- 1) The empirical result that inflation is less responsive to economic shocks and that inflation persistence has lowered could lead monetary policy to be too complacent when it comes to the appropriate response to economic shocks.
- 2) The empirical result of a flatter Phillips curve implies a seemingly higher sacrifice ratio. Accordingly, the impression that a given reduction in inflation is more costly in terms of output may lead policymakers to be more reluctant to respond to inflationary pressures.

But the important point to take into account is that if the dominant structural factors for a flatter Phillips curve lie on the side of a more stability-oriented monetary policy in the past, these policy implications may mistakenly induce too lax a monetary policy today. This opens up the possibility of inflation expectations becoming less well anchored and, once this scenario materialises the task of monetary policy becomes much more difficult.

2.2 Inflation dynamics and globalisation

It is thus of vital importance for policymakers to draw the right conclusions from the empirical fact that Phillips curves have changed. I have argued that the main reason is likely to be found in a more stable monetary policy regime in many countries. To be more precise, it might be because increased credibility of central banks has anchored inflation expectations, thereby also reducing the volatility of actual inflation. Moreover, lower trend inflation has reduced the frequency of nominal price adjustment. Additionally, Goodhart's Law might have come into play. Apart from this chain of reasoning, though, there might be complementary explanations for the decreased cyclical responsiveness of inflation.

As the flattening of the Phillips curve appears to be a global phenomenon, it is often argued that part of the change in inflation dynamics can be ascribed to the surge in international competition. This is supported by preliminary Bundesbank findings (Gadzinski/Hoffmann (2007)) suggesting that trade openness negatively affects the slope of the Phillips curve in most of the G-7 countries.

Globalisation may enter the traditional Phillips curve by affecting the wage and price-setting behaviour of households and firms, the extent and frequency of price shocks and the responsiveness of domestic inflation rather to slack in the global economy than to the domestic output gap. With regard to the labour market, one might believe that globalisation has weakened the bargaining

power of trade unions because firms have easier access to labour supply in low-cost countries. The recent wage policy moderation in Germany is a case in point. Similarly, it can be argued that globalisation has curtailed the market power of domestic firms, thereby pushing down their mark-ups. For Germany, however, this price-setting effect must have been weaker than the wage-setting effect. After all, profit margins have been at rather elevated levels in recent years.

In addition to changes in the price and wage-setting behaviour, globalisation may influence the Phillips curve through other channels as well. It is frequently stated that global competition puts downward pressure on the prices of imported (labour-intensive) goods. But that is just one side of the coin: At the same time, globalisation has boosted the prices of other commodities, especially raw materials and energy. The overall effect of both channels on inflation is uncertain. But taking the energy and raw material markets into the picture makes clear that the popular view of the price-dampening effects of globalisation has to be qualified. Moreover, even if the dampening price effects were dominating at the moment we should not forget that, in the end, it is monetary policy that determines the trend rate of inflation. Globalisation will ultimately only influence relative prices, not absolute price levels.

Finally, some have proposed extending the domestic Phillips curves by adding a proxy of global economic slack. A recent BIS study (Borio/Filardo (2007)) finds empirical evidence in support of the assumption that economies have become more sensitive to changes in global factors. However, the idea is still controversial. In particular, the robustness of the preliminary estimates has

been challenged (Bernanke (2007), Ihrig et al (2007)). Irrespective of the empirical underpinning, there are serious practical problems with including global economic slack in the day-to-day decision-making process, not least because the task of finding a meaningful measure of global slack seems daunting.

In the light of all these arguments, how strong is the impact of globalisation on domestic inflation dynamics – as opposed to that of an improved conduct of monetary policy? To my mind, globalisation has arguably had some visible effect, but its strength does not live up to popular expectations. Nonetheless, the effects of globalisation are an issue for central bankers be it because of increased model, data and parameter uncertainty, or, more generally, because the flattening of the inflation-activity trade-off is more of a double-edged sword than a clear-cut blessing. It should suffice to say that, in the Eurosystem, we understand that the currently low inflation levels do not allow for complacency on our part. Instead, we will continue to do our utmost in order to keep long-run inflation expectations solidly anchored.

2.3 New Keynesian models and money

The New Keynesian paradigm at its current stage leaves no role for monetary variables in the inflation process. In its standard form, it does not allow for an active role for monetary indicators in monetary policymaking, either as an important variable in the monetary transmission process, or as an indicator of future inflation.

Does that really mean that money no longer matters – and that it should not matter for monetary policy? No, clearly not. Firstly, from an empirical point of view, there is plenty of evidence that monetary aggregates contain valuable information about risks to long-run price stability and the monetary transmission process. Our own research (Schumacher/Scharnagl (2007)) shows that monetary variables help predict future inflation over and above the information content of economic factors included in traditional Phillips curves. Additionally, recent studies (Greiber/Setzer (2007)) support the assessment that the recent surge in house prices and loose monetary conditions are related phenomena. Significant bidirectional links between money and housing can be identified for both the euro area and the USA. This proves that integrating money into our analytical framework delivers important and indispensable insights for monetary policy.

Secondly, from a modelling perspective, the diagnosis of the “irrelevance of money” relies on a number of simplifying assumptions. Relaxing one or more of these assumptions can restore a more meaningful role to money even in this model framework. For instance, Christiano, Motto and Rostagno (2007) extend the basic New Keynesian model by including various measures of money and credit. They thereby achieve a rather detailed and more realistic description of financial markets and the transmission process. In addition, acknowledging model uncertainty and the quest for a robust policy framework, it can be shown that taking monetary factors into account may lead to more desirable outcomes compared with a purely New Keynesian framework (Kilponen/Leitemo (2007)). And it is exactly the need for a more robust framework in the face of uncertainty that is the main motivation for the Eurosystem’s two-pillar

approach. By the way: Even many of those central banks which would label themselves as pure inflation targeters, e.g. the Bank of England, have put monetary indicators more to the heart of their monetary policy analysis framework in recent years.

Integrating monetary and financial factors into the current New Keynesian paradigm is a fairly recent development in modelling which have only just begun to be incorporated into the present vintage of DSGE models. Progress on these lines would be highly welcome from a policymaker's point of view. But, on the basis of the evidence just mentioned, it would be unwise to discard monetary analysis – especially now that we find ourselves in a period in which asset prices and liquidity are at a high level and ample on an unprecedented scale worldwide.

3 Concluding remarks

Conferences like this one, which bring together academics and policymakers, serve as a useful reminder that the challenges to our respective professions have not become less. On the contrary, the challenges are likely to have increased since monetary policymaking is confronted with many forms of uncertainty. Research on the Phillips curve is an excellent example of academic work being of interest far beyond academia itself. The findings of Lucas, Kydland, Prescott, Woodford and many others also shape our everyday decision-making process – and we central bankers continuously seek such advice.

So, let us continue our cooperation in a mutually beneficial exchange of views for the public good that we aim to achieve: price stability, that is low and stable inflation. This is admittedly the best contribution monetary policy can make to fostering long-run sustainable growth and job creation.

Thank you for your attention.

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