

## Hermann Remsperger: Macroeconomic risk and policy responses

Welcome address by Professor Hermann Remsperger, Member of the Executive Board of the Deutsche Bundesbank, at the 7th Bundesbank Spring Conference "Macroeconomic Risk and Policy Responses", Berlin, 27 May 2005.

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I have the pleasure of welcoming you to the 7th Bundesbank Spring Conference which is organised jointly by the Humboldt University Berlin, the London-based Centre for Economic Policy Research and the Deutsche Bundesbank. The focus of this year's conference is on "Macroeconomic Risk and Policy Responses".

Risk and uncertainty are key elements of many decisions, above all those extending into the future. Hence, the optimal response to risk has always been a topic of great interest to political, military and economic decision-makers. Concern with this crucial issue is also reflected in the works of our great philosophers and writers.

Among those men of letters, a rather positive attitude towards taking risks seems to prevail. For example, the Roman poet Ovid claimed that "*Both fortune and love befriend the bold*". And Friedrich von Schiller wrote "*He that is overcautious will accomplish little*".<sup>1</sup>

Now, in general, central bankers are not known for their boldness or love of risk, and I would claim that there are some good reasons for this. So – as a cautious central banker - I was very happy to find that at least the Greek dramatist Sophocles displayed a more balanced attitude towards risk when he warned that "*Quick decisions are unsafe decisions*".

There is no need to explain to this audience that central banks face many forms of risk when taking monetary policy decisions. This was particularly true for the ECB when it started monetary policy in January 1999, but it is also true for central banks who act under more normal circumstances. Alan Greenspan has repeatedly made the point that: "*...uncertainty is not just a pervasive feature of the monetary policy landscape; it is the defining characteristic of that landscape*".<sup>2</sup>

Against this background, it comes as no surprise that the forms and consequences of risk and uncertainty for the optimal conduct of monetary policy have been a very active field of research in recent years. Let me use this opportunity to render a very brief summary of what we have learned - and what we have not learned - from this research so far.

Today it is generally recognised that maintaining price stability is the best contribution which monetary policy can make to long-run macroeconomic welfare. Therefore, most central banks – like the ECB and the Bundesbank before it – are committed to the primary objective of achieving and maintaining price stability.

In order to be able to assess the risks to price stability, monetary policy makers need *models* which represent the relevant structural relationships between the price level, the monetary policy instruments and other factors affecting price movements like changes in oil prices or exchange rates.

However, the exact nature of these relationships is surrounded by a high degree of uncertainty. As a consequence, the question of which relationships are the "relevant" ones and which simplifications are "adequate" is – and will probably always be - a contentious one.

One of the lessons that we have learned from recent research is that focusing on specification errors or parameter uncertainty in the neighbourhood of a particular reference model may dramatically understate the true degree of model uncertainty.

It is therefore advisable for central banks to base their decisions on a broad range of models which reflect various assumptions regarding the transmission process. In fact, this is the approach which most central banks – and certainly the ECB – are already practising.

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<sup>1</sup> "Wer gar zu viel bedenkt, wird wenig leisten" aus: Wilhelm Tell.

<sup>2</sup> Siehe Greenspan, Alan: Monetary Policy under Uncertainty, Rede auf dem Symposium der Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, 29. August 2003, sowie Greenspan, Alan: Risks and Uncertainty in Monetary Policy, Rede auf dem Treffen der American Economic Association, San Diego, California, am 3. Januar 2004.

Now, the question is which weights should policy makers attach to each of these competing models when assessing the risks to price stability? This is a very controversial issue.

Part of the academic literature assumes that policymakers or their staff form priors over the models and choose the approach which minimises average expected loss (Bayesian approach).

In contrast, the robust control approach assumes that policymakers are completely agnostic with respect to the probability that a specific model may represent the actual economy and thus choose the approach which minimises the maximum loss across all models (minimax preferences).

In order to implement the Bayesian approach, policymakers need to be able to attach a specific probability weight to each of the competing models. While this may be a very difficult task, the minimax approach also suffers from several drawbacks.<sup>3</sup>

One fundamental problem is that such an approach is vulnerable to policy makers giving excessive weight to low probability, but high-cost scenarios. Therefore, as was pointed out by Chris Sims in his 2001 paper, this approach should only be seen as one method for generating reference priors. Its results should be compared to more direct approaches to assessing prior beliefs.

At the end of the day, and here I am happy to quote Mervin King, "there is no escaping the need to make judgements about which models are more plausible than others".<sup>4</sup>

Another important lesson we can learn from recent research is that the problem of model uncertainty is compounded by measurement problems regarding key variables like real output and its components.

Moreover, a number of studies have shown that the problem of measurement error is likely to be particularly severe for variables that cannot be observed directly. Take the output gap and the "neutral" level of real interest rates as two variables which figure very prominently in much of the recent literature on optimal monetary policy.

As a consequence, every attempt to fine-tune the economy bears the risk of policy errors with the corresponding negative effects on price stability. In my view, this line of research has very much strengthened the case against output stabilisation as a target of monetary policy – a case which was already made by Milton Friedman as early as 1961.

Let me give you another example of a measurement problem which also shows how closely linked data and model uncertainty are. In a current research project at the Bundesbank we try to shed some light on the factors that drive the recent strong money growth in the euro area.

Our study shows that economic agents tend to increase their money holdings when the financial environment is characterised by low yields, high volatility and a change in risk perception. Such an environment may be referred to as one of heightened macroeconomic uncertainty.

Trying to integrate this uncertainty into a model for money demand poses a severe measurement problem. A variable has to be revealed which cannot be observed directly. We at the Bundesbank try to uncover such uncertainties from a variety of observable variables which describe the financial market situation and economic sentiment. The estimated proxy for macroeconomic uncertainty - or risk sentiment - helps us to explain recent monetary developments in the euro area.

Against this background, we believe that difficulties with standard specifications of money demand should not be taken as an argument for abandoning monetary indicators and monetary analysis all together. Rather, in our view, we need to deepen our understanding of the link between money and prices by integrating uncertainty into our analysis of money demand.

Recent research on data uncertainty has also strengthened the case for a cautious, gradual approach to monetary policy as advocated by William Brainard as early as 1967. In particular, this research has taught us that monetary policy makers should not react strongly to first releases of data which could easily be revised. They should rather make a broadly-based estimate of such variables, taking into account information from other, less revision-prone sources as well as the past history of revisions to the variable in question.

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<sup>3</sup> See Sims, C. A.: The Pitfalls of a Minimax Approach to Model Uncertainty, American Economic Review, Papers and Proceedings, May 2001.

<sup>4</sup> King, M.: Comments on 'Risk and Uncertainty in Monetary Policy' by Alan Greenspan, AEA Annual Conference, 2004, p. 3.

You may have realised that by now, I have already presented a number of arguments which favour *caution* rather than *boldness* as the adequate approach to monetary policymaking. However, recent research has also shown that under certain conditions monetary policy makers may be well advised to take the kind of bold decisions advocated by Ovid and Schiller.

In this respect, the idea that both the private sector and the central bank possess only limited knowledge about the “true” structure of the economy is particularly relevant. Therefore we have to continually update our estimates for the specific parameters. Moreover, learning by the private sector has to be taken into account when taking monetary policy decisions.

With this kind of learning, a series of inflation shocks can easily turn into a high degree of inflation persistence perceived by the private sector. And this makes it more difficult for the central bank to stabilise inflation at the desired low level.

Few central bankers would dispute the need to firmly anchor long-run inflation expectations at a low level. However, there may be different ways to achieve this aim.

For instance, the ECB is not known for responding aggressively to short-run fluctuations of inflation around target. Instead, it relies on a clear definition of its ultimate objective, an explicit medium-term orientation, and its two-pillar approach as the primary means to anchor inflation expectations.

I am very much in favour of the ECB’s approach. At the same time, I do not want to dispute that there may be situations when central banks have to act rather aggressively. In particular, this may be the case when an economy is subject to large negative shocks which could trigger off extremely unfavourable developments. I am thinking here of major shocks like a stock-market crash, a financial crisis or other extreme events.

Unfortunately, in such situations, the log-linear approximate models currently available for monetary policy analysis provide little guidance. Therefore, in times of large idiosyncratic shocks, decision-making at central banks involves significant judgement – judgement which can be drawn, for example, from evidence about past behaviour of markets and the economy as a whole.

While monetary policymakers are well-advised to follow a cautious “steady-as-she-goes” approach under more normal circumstances, boldness may be required in exceptional situations.

However, this is by no means a case yet closed. Thus I am very interested to see what results come out of the studies that will be presented here today and tomorrow. I wish you stimulating discussions and a pleasant stay in Berlin. Thank you very much for your attention.