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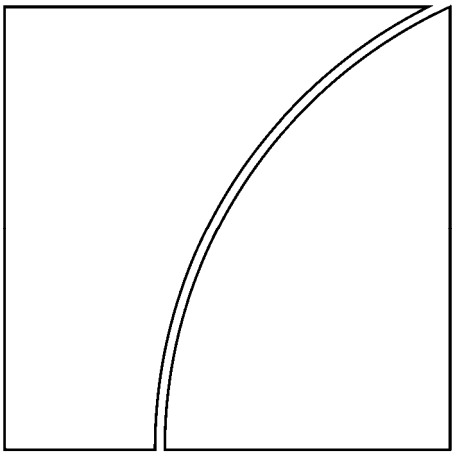

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In search of monetary stability: the evolution of monetary policy

by Otmar Issing

Monetary and Economic Department

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Foreword

On 26–27 June 2008, the BIS held its Seventh Annual Conference on "Whither monetary policy? Monetary policy challenges in the decade ahead" in Luzern, Switzerland. The event brought together senior representatives of central banks and academic institutions to exchange views on this topic. BIS Paper 45 contains the opening address of William R White (BIS), the contributions of the policy panel on "Beyond price stability – the challenges ahead" and speeches by Edmund Phelps (Columbia University) and Martin Wolf (Financial Times). The participants in the policy panel discussion chaired by Malcolm D Knight (BIS) were Martin Feldstein (Harvard University), Stanley Fischer (Bank of Israel), Mark Carney (Bank of Canada) and Jean-Pierre Landau (Banque de France). The papers presented at the conference and the discussants' comments are released as BIS Working Papers 273 to 277.

Conference programme

Thursday 26 June

10:00	Registration and refreshments	
11:00	Opening remarks:	William White (Bank for International Settlements)
	Chair:	Guillermo Ortiz, Bank of Mexico
11:15	**Session 1:**	**In search of monetary stability: the evolution of policy regimes**
	Paper title:	*In search of monetary stability: the evolution of monetary policy Some reflections. Experience – Lessons – Open issues*
	Author:	Otmar Issing (Centre for Financial Studies)
	Discussants:	José de Gregorio (Central Bank of Chile) Allan Meltzer (Carnegie Mellon University)
12:45	Lunch	
	Chair:	Durmus Yilmaz (Central Bank of the Republic of Turkey)
14:15	**Session 2:**	**Monetary policy communication**
	Paper title:	*Talking about monetary policy: The virtues (and vices?) of central bank communication*
	Author:	Alan Blinder (Princeton University)
	Discussants:	Benjamin Friedman (Harvard University) Y V Reddy (Reserve Bank of India)
15:45	Coffee break	
	Chair:	Tito Mboweni, South African Reserve Bank
16:15	**Session 3:**	**Expectations formation: beyond rational expectations**
	Paper title:	*Inflation expectations, uncertainty and monetary policy*
	Author:	Christopher Sims (Princeton University)
	Discussants:	Athanasios Orphanides (Central Bank of Cyprus) Lars Svensson (Sveriges Riksbank)
18:00	End of day one	
19:00	Reception followed by formal dinner	
	Keynote address by Edmund Phelps (Columbia University)	

Friday 27 June

	Chair:	Donald Kohn (Board of Governors of the Federal Reserve System)
09:00	**Session 4:**	**Changes in monetary policy transmission**
	Paper title:	*Has the monetary transmission process in the euro area changed? Evidence based on VAR estimates*
	Author:	Axel Weber (Deutsche Bundesbank)
	Discussants:	Marvin Goodfriend (Carnegie Mellon University) Arminio Fraga Neto (Gávea Investimentos)
10:30	Coffee break	
	Chair:	Hamad Saud Al-Sayari (Saudi Arabian Monetary Agency)
11:00	**Session 5:**	**Price stability and the external dimension**
	Paper title:	*China's financial conundrum and global imbalances*
	Authors:	Ronald McKinnon (Stanford University) and Gunther Schnabl (Leipzig University)
	Discussants:	Ricardo Caballero (Massachusetts Institute of Technology) Michael Mussa (The Peterson Institute for International Economics)
12:30	Lunch	
	Luncheon remarks by Martin Wolf (Financial Times)	
	Chair:	Lucas Papademos (European Central Bank)
14:00	**Session 6:**	**Credit frictions and monetary policy analysis**
	Paper title:	*Credit frictions and optimal monetary policy*
	Author:	Michael Woodford (Columbia University)
	Discussants:	Olivier Blanchard (Massachusetts Institute of Technology) Charles Goodhart (London School of Economics)
15:30	Coffee break	
16:00	**Panel discussion: Beyond price stability: the challenges ahead**	
	Chair:	Malcolm Knight (Bank for International Settlements)
	Panellists:	Martin Feldstein (Harvard University) Stanley Fischer (Bank of Israel) Mark Carney (Bank of Canada) Jean-Pierre Landau (Banque de France)
17:30	Close of conference	

Contents

In search of monetary stability: the evolution of monetary policy

Some reflections – experience, lessons, open issues

Otmar Issing

1. Introduction[1]

The mid-1980s began a period that might, in retrospect, be seen as the golden age of monetary policy. Worldwide inflation rates, which had come down from the high levels reached in the 1970s, were at the lowest level seen in a long time. In the real economy, low and stable inflation went along with growth – at first, reasonable, and later, remarkable – and with reduced volatility. The term Goldilocks is sometimes used to describe this solid, sustainable situation – meaning that, like the porridge in the fairy tale, it was neither too hot nor too cold but just right. A number of fortunate circumstances contributed to the Goldilocks economy. Deregulation and globalisation, with their impact on competition and pricing power in goods and labour markets, are sometimes seen as major factors supporting the achievement and maintenance of low inflation (Rogoff (2003)).

With the weakening of deregulation and globalisation, will we see the end of the golden age, which then will turn out to have been only a short episode? On the one hand, an end to the golden age would be no surprise for those who have stressed from the outset that its highly positive macroeconomic outcomes were the result, if not of luck, then of benign circumstances whose combination could not be expected to last forever (Sims and Zha (2006)). And do not recent developments already confirm this sceptical assessment of the role of central banks and monetary policy during this period? Isn't inflation rising? Doesn't the ongoing turbulence in financial markets indicate that central banks did not – or, rather, could not – prevent such developments?

On the other hand, have we not seen the emergence of a policy regime that should be robust enough to continue the period of monetary stability? And would not a regime of monetary stability contribute to the stability of the real economy? We might only ex post be able to give a definite answer to these questions. For the time being, we can just study the emergence of the current policy regime and its elements via the practice of central banking and the results of research.

I would like to start with a personal note. It would be, to say the least, overambitious to survey in just a few pages roughly three decades of research on monetary policy. The same is true for the analysis of monetary policymaking during this period. What I have tried to do is simply provide the reflections of someone who, coming from academia, played a special role in two central banks – the Bundesbank (from 1990 to 1998) and the European Central Bank (from 1998 to 2006) – under extremely difficult circumstances, namely the aftermath of German reunification in 1990 and the launch of the European Union two years later. It was a

[1] Klaus Adam has provided a number of valuable suggestions. For useful comments on a first draft, I thank Claudio Borio, Vitor Gaspar, Marvin Goodfriend, Julian von Landesberger, Klaus Masuch, Wolfgang Modery and Volker Wieland.

challenge and a privilege to build the bridge between monetary policy research and monetary policymaking in those two central banks. What were the most relevant aspects of theory to be considered when deciding on monetary policy? How did it work in practice?

I will start with some results of monetary policy and the advances in research that, to a large degree, were triggered by those results. The later sections analyse the principles guiding the conduct of monetary policy by the Bundesbank and the ECB and some specific aspects of monetary policy. One of the main lessons I got during my 16 years of central banking practice is that it is critical to raise questions and not ignore important insights – even if the dominant approaches in research seem to suggest otherwise. It should therefore not come as a surprise that the paper ends with open questions.

2. The lessons of the 1970s

Conferences on monetary policy in the 1970s provided a forum for heated debates. Academics were divided into monetarists and Keynesians, with many factions within each of those groups. For their part, central bankers represented institutions with very heterogeneous views on how to conduct monetary policy. Given the intellectual and institutional disparities, not to say chaos, the woeful macroeconomic performance of the 1970s is not surprising: The "great inflation", which ended in stagflation, was the dominant feature of the decade.

True, the first oil price shock had been a big challenge, but it cannot be accepted as an excuse for the macroeconomic failures of those years. Whole libraries are devoted to the explanation of monetary policy in that period, but the analysis of Federal Reserve policy by Meltzer (2005) contains all the relevant elements.[2]

First, no single element can explain the unsatisfactory outcomes of US policy; rather, a number of elements combined to create an incoherent policy framework that, said Meltzer, "proved costly" (p 166). In turn, the incoherent framework resulted in bad monetary policy decisions. The major elements of the dysfunctional framework identified by Meltzer are as follows:

- A lack of leadership at the Federal Reserve (even worse: misguided views of its chairman);
- A flawed theory of the causes of inflation;
- Misguided coordination with fiscal policy.

These three problems relate to the essential elements of any monetary policy framework; restated in neutral terms, they are the personal factor in the central bank, the economic analysis underpinning monetary policy decisions and the central bank's relations with the government.[3]

The positive side of the 1970s experience was the gradual emergence of a consensus that the mistakes of that period should not be repeated. Research has responded to that injunction by painstakingly studying questions of optimal monetary policy. But the two other

[2] Fiscal policies, which are not discussed here, played an important role, too, as did wage developments in many countries. But insofar as wage demands reflected inflation expectations and inflationary uncertainty, they were a kind of endogenous factor.

[3] For a broad survey of the 1970s experiences, see Mishkin (2007).

elements (the personal and the institutional), which contributed to the policy mistakes of the 1970s, are also indispensable pillars of a satisfactory framework.

The core cause for bad monetary policy lies in flawed theory and lack of a consistent framework. It is not a contradiction to say that, in such an environment, a central bank might become extremely ambitious being inclined towards fine tuning the economy and trying to achieve varying goals (Goodfriend (2007)). As a consequence, financial markets and the public at large will be unable to predict the actions of the central bank and thus be unable to adjust their own plans accordingly. That handicap might contribute to higher volatility in the real economy because private agents have only a limited capacity to process divergent data (Adam (2007)).

The rational expectations theory concentrates on the interaction between policymakers and private agents (Lucas and Sargent 1978). Today there is a consensus that the central bank must act in a systematic way. Its policy decisions and the process that leads to them must be transparent so that the private sector can understand and anticipate the policy (Woodford (2003)). As a result, controlling – I prefer the term anchoring – inflation expectations at a level consistent with an explicit goal has become the key principle of central banking.

But what seems obvious today is the result of some 25 years of research and innumerable publications encompassing many strands and steps. Excellent surveys of these developments are available in Blinder (1998), Mishkin (2007), Walsh (2007) and elsewhere. The following treatment, a kind of shortcut, is meant only to highlight those strands of research that have led to a coherent framework for monetary policy.

A first, decisive step stressed the importance of credibility (Barro and Gordon (1983)). Credibility is the cornerstone of a monetary policy that aspires to achieve optimal macroeconomic results (Cukierman (1992)). Only a credible central bank can guide the expectations of private agents in a consistent way. Credibility can be gained by a convincing track record. But to sustain its credibility, the central bank must commit itself to a policy that delivers on its goal, and doing so requires communicating its policy intentions in a transparent way.

The theory of dynamic inconsistency (Kydland and Prescott (1977)) provided important support for the concept of credible commitment. Theory and experience discarded the option of a purely discretionary monetary policy – Friedman initially even suggested eliminating discretion through an act of constitutional law. But the idea of excluding any central bank discretion in maintaining a credible commitment did not survive strong objections and was finally given up even by its most prominent proponent. The discussion on monetary policy rules has brought many insights – and may continue endlessly (see eg Taylor (1999)).

Pure discretion gives the widest latitude for the personal preferences of decision-makers. In the tradition of the “rules versus authority” debate (Simons (1936), Woodford (2003)), monetarists heavily criticised the incompetence of central bankers (Brunner (1981)). But, as their quest for strict rules did not succeed, there remains at least some room for discretion and personal preferences in any rule-based approach.[4] The investigation of those topics in the public choice literature (Acheson and Chant (1972)) was not continued. Yet, implicitly, the “personality issue” remains relevant in the theory (and practice) of monetary policy. The figure of the “conservative central banker” (Rogoff (1985)) suggests how appointments might give a strong signal of future monetary policy and thereby influence the forming of expectations by the public. The issue of optimal contracts for central bankers (Walsh (1995))

[4] It is interesting to note that the discussion of "persons" has more or less disappeared from the research agenda. This might to some extent reflect the fact that stronger input from research in monetary policy and more rule-based behaviour has increased the stakes for appointments of people for political reasons to the leadership of the central bank.

produces interesting insights for specifying the better statutes of the central bank (eg the case of New Zealand).

A fundamental aspect of a central bank's statutes, namely its degree of independence from government, was for a long time hardly discussed. An early finding of a correlation between independence and the degree of price stability was ignored (Bade and Parkin (1980)). However, since the paper by Alesina and Summers (1993), the literature has grown so much that it is hard even to survey it. The political economy argument for giving independence to the central bank is best summarised by a 1997 statement by then Chancellor of the Exchequer Gordon Brown: "The previous arrangements for monetary policy were too short-termist, encouraging short but unsustainable booms and higher inflation, followed inevitably by recession. This is why we promised in our election manifesto to ' . . . reform the Bank of England to ensure that decision-making on monetary policy is more effective, open, accountable and free from short-term political manipulation.' "[5]

A central bank, especially one endowed with independence in its monetary policy decisions, must be given a clear mandate. There is a consensus that the mandate must include price stability in the form of low inflation. However, the discussion of a "single versus dual mandate" goes on – and might never end.[6] Monetary policy can have an impact on the real economy in the short to medium term, and no central bank will ignore that influence in its pursuit of price stability. How this is achieved depends on the monetary policy strategy, the time horizon of policy considerations etc. But if a central bank is legally obliged to conduct a monetary policy to support employment, it might have great difficulty explaining the limits of what it can do in the long run or in the case of structural unemployment. And how will it anchor inflation expectations in a situation of high inflation and high unemployment? Ultimately, however, credibility and a convincing commitment to the goal of stable, low inflation are the fundamentals of sound monetary policy. If a credible commitment is achieved, one might ask whether there is, in the end, any difference between a monetary policy acting under a "single" (price stability) mandate and one operating under a "dual" mandate.[7]

3. Experience with monetary policy – the Bundesbank and the ECB

The statutes of the European Central Bank (ECB) – codified in June 1998 – were first enunciated in the Treaty on European Union, or Maastricht treaty, which was signed on 7 February 1992. The key elements of the ECB mandate are the maintenance of price stability, independence from political interference and the prohibition of monetary financing.

The statutes were the subject of long discussions and negotiations, and the outcome was formed by two strands. One strand was political. Recognition of the political element certainly was crucial if the European governments were to agree on the statutes of the ECB. That is, insisting on a "Bundesbank type model" for the ECB (and on bringing the new central bank to Frankfurt) was the only way for chancellor Kohl to get support at home for giving up the Deutsche mark (DM) and to overcome German scepticism towards the new currency. Politicians from other countries wishing a common currency had to accept these principles, as a monetary union in Europe without Germany would have had no chance of success.

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[5] G Brown, "Statement by the chancellor to the House of Commons on the Bank of England", 20 May 1997, www.hm-treasury.gov.uk/3256.htm.

[6] The discussion on the Fed's mandate ignores the inconsistencies of the legal text. "Dual" is reduced to price stability and employment.

[7] For a discussion, see eg M Friedman (1977) and B Friedman (2004)

The other strand consisted of current theory and the empirical evidence of its validity. That is, it derived from the theory of central banking as briefly described in the previous section and from the strong record achieved by the monetary policy of the Bundesbank.[8]

The treaty implied that, before entering the monetary union, countries had to make their national central banks independent. Against that background, it happened that countries that so far had not considered giving independence to their own central bank agreed on independence for the supranational ECB to be established years later.

Research had identified two principles as the key elements for the optimal institutional design of a central bank – a clear mandate specifying the goal of price stability (or low inflation) and the independence necessary to pursue that goal. Therefore, the decision to endow the future European central bank with independence reflected "state of the art" thinking.

The example of the Bundesbank was brought forward not just in the context of German politics but also as demonstrating the validity of the principles identified in theory. The Bundesbank, whose success was based on its independence and its mandate to pursue price stability, was widely seen as a benchmark for sound monetary policy and so, in its own right, influenced the institutional design and policy mandate of the future ECB.

The independence of the German central bank dates back to 1948 (before the existence of West Germany as a country), when the Allies introduced the law governing the Bank deutscher Länder, the predecessor of the Bundesbank. When the 1957 law for the Bundesbank was discussed, chancellor Konrad Adenauer was anything but a supporter of its independence. But two factors prevailed over his preference. The first was the strong influence of Ludwig Ehrhard, the father of the so-called "economic miracle". The second was the high public reputation that the central bank already enjoyed in postwar West Germany. That reputation has to be seen against the background of two currency reforms in one generation (1923/4 and 1948), which ended periods of extreme inflation and in each of which savers lost their (nominal) wealth. The DM fulfilled the strong desire of the German people for a stable currency, and part of the high reputation of the central bank was the public perception that it would protect that stability against all political attacks – the potential for which were in any case limited because politicians were aware that they could only lose when starting such a battle. This background also explains why the statutes of the Bundesbank were never at risk despite the fact that it was based on a law that could have been changed any time by simple majority. Hence, the independence of the central bank in Germany was sustained. The Bundesbank came to be regarded worldwide as an example of a sound institutional framework for conducting a monetary policy based on price stability.

However, the Bundesbank had to go through an experience that is of general importance. Under the Bretton Woods regime, the exchange rate of the DM was fixed against the US dollar (with small margins). In the late 1960s and early 1970s, the Bundesbank was increasingly forced to intervene in the foreign exchange market to defend the exchange rate of the DM against the dollar. In such a regime, money growth becomes endogenous. For a while, the external component of central bank money creation was even higher than growth of the monetary base, implying that the domestic contribution to money creation was negative.

The consequences of a fixed exchange rate for the institutional arrangement for monetary policy are far reaching. Notwithstanding its legal independence from political interference and its having all the necessary policy instruments, the central bank in a regime of a fixed exchange rate (and convertibility to gold) becomes powerless to pursue the domestic goal of

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[8] The rules on the appointment of members of the Executive Board of the ECB also reflect these influences. The term of eight years might lie at the lower end of considerations for personal independence. The fact that the term is not renewable clearly supports personal independence.

price stability. Such are the rules of the gold standard. However, without the “golden anchor”, the national inflation rate is determined by the monetary policy of the dominant world currency (which was the US dollar).

The situation changed fundamentally when the German government in March 1973 decided to let the DM float against the dollar. This abolition of the external constraint allowed the Bundesbank to again effectively pursue price stability. In 1974, the Bundesbank adopted a monetary target for the following year and continued that practise until the end of its existence as a central bank responsible for a national currency. Initially, the Bundesbank declared the targeting strategy an “experiment”. Overall, its approach was interpreted as a kind of “pragmatic monetarism” that triggered attacks from opposite sides. For academic monetarists, the policy of the Bundesbank was not focused enough on controlling the money supply, as the Bundesbank was meeting its monetary target only roughly half the time. The other side, mostly Keynesians, criticised the Bundesbank’s policy as being overly concerned with money growth.

The Bundesbank can point to a track record on price stability which, overall, is superior to that of most other central banks. The distinctiveness of the Bundesbank became especially visible in the 1970s, when Germany avoided the “Great Inflation” (Issing (2005a), Beyer et al (forthcoming)). In the context of the macroeconomic challenge posed by German unification, the strategy of monetary targeting also played a decisive role, first, by containing inflationary pressures and, finally, by restoring price stability.

As the positive result of the Bundesbank’s monetary policy can hardly be denied, prominent critics of the strategy are trying to explain that the Bundesbank only pretended to follow a strategy of monetary targeting but in reality practised a policy of “inflation targeting in disguise” (Svensson (1999)) or followed a Taylor rule (Clarida, Galí and Gertler (1998)). The Bundesbank derived the annual monetary target from potential output and trend velocity (together with the normative rate of inflation). Given the pragmatic attitude used in pursuing the target, it is not surprising that applying a model with variables for the output gap and inflation would come close to explaining the monetary policy decisions of the Bundesbank. However, one has to say that some “ingenious adjustment” is needed to derive a proper Taylor rule. As the Bundesbank was constantly aware of the long time lags of monetary policy and always applied a medium-term approach to maintaining price stability – never reacting mechanistically to short-term deviations of money growth from target – it is also not surprising that the label “inflation forecast in disguise” was invented to describe its policy.

But interesting as these speculations might be for academic contributions, everyone involved in the preparation of the Bundesbank’s policy and the decisions finally taken knows better: “money always mattered”, and the Bundesbank did what it communicated; it applied “pragmatic monetarism”, and deeds were consistent with words. Independent researchers with all the necessary information at their disposal have found convincing evidence for the consistent application of pragmatic monetary targeting at the Bundesbank (Baltensperger (1999); Neumann (1997)); and new research provides additional interesting results supporting this view (Scharnagl, Gerberding and Seitz (2007)).

The attempt to discredit the appropriateness of “money” as a major factor in the monetary policy of the Bundesbank has been hardly convincing, to say the least. The ECB, when confronted with the challenge of designing a proper monetary policy strategy, was not much impressed by that criticism. Quite the opposite: while the ECB rejected the option of monetary targeting, it gave money a prominent role.

As a new institution preparing monetary policy for a new currency, the ECB was in a special position. On the one hand, it had the unique opportunity to start from scratch and apply a new approach. On the other hand, considering the extreme uncertainty surrounding the creation of a new and heterogeneous monetary union and the introduction of a new currency, the potential damage that would be done by embarking on the wrong strategy was enormous. It might have taken only a short time before learning that the chosen strategy was

flawed, but being responsible for a strategic mistake would have almost fatally undermined the reputation of the new institution and its currency. The ECB might have needed years to recover from a major mistake at the beginning.[9]

The challenge for the ECB can be summarized in one sentence: Anchor inflation expectations at a level consistent with the mandate of maintaining price stability.

That challenge implied that long-term interest rates in all (future) euro area countries would have to come down to the level of the most stable currencies (the DM, French franc, Dutch guilder and Austrian shilling). Achieving that goal seemed very unlikely, if not impossible, so a kind of average level was widely expected.

But the ECB was successful, and it was by virtue of a strategic approach that took several steps:

- Gathering all relevant information on the new currency area;
- Taking stock of both the research on, and the execution of, best practices in central banking;
- Designing an appropriate strategy for the (future) conduct of monetary policy;
- Communicating to the public the results of the preparation in a timely fashion, ie before the start of EMU.

Without going into details, the data situation before the start of EMU (and for years to come) was anything but satisfactory. Discussions in the European Monetary Institute (EMI) had helped to prepare a common understanding of the way forward among members of EMU. But the final stage of "taking stock" and decision-making could be completed only after the establishment of the ECB. The process and the result are documented in Issing et al (2001). It culminated in an agreement on a number of principles that were highly influenced by the contributions discussed in the previous part of this paper:

- Credibility can be established and maintained only by a convincing commitment to the mandate;
- A strategy is needed, but neither pure discretion nor a simple rule embodies a solution;
- All available information has to be considered, and money (in a broad sense, including credit) has to be given a prominent role;
- For an independent central bank in a democratic society, transparency has to be achieved by effective communication and accountability to the relevant authorities and the public at large.

The ECB published the Governing Council's decision on the future monetary policy strategy on 13 October 1998, ie two and a half months before the start of EMU. The first element of the strategy was the announcement of a quantitative definition of the primary objective of the single monetary policy, namely an annual increase of the so-called harmonized index of consumer prices of below 2%. The commitment to "below 2%" was seen by outsiders as very ambitious. For the ECB it was the appropriate goal, safeguarding against deflation and taking a likely measurement bias of the index into account while also marking a ceiling for tolerable price increases. The ECB stressed from the beginning the medium-term orientation of its policy. As it turned out, inflation expectations became well anchored.

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[9] Faulty decisions on the monetary policy strategy and its implementation had to be considered as a kind of worst case. This is not to say that mistakes on other issues, such as the choice of instruments and their application, could not also have caused great damage.

The available options for the monetary policy strategy included monetary targeting, inflation targeting or a new approach (Issing (2008)). The strongest argument against adopting monetary targeting was the potential impact of the regime shift implied in the transition from 10 national currencies to the euro.

But why did the ECB not vote for the concept of inflation targeting, which seemed to emerge at that time as representing the state of the art of monetary policy? In short, the main reasons were the following:

Because of the then existing uncertainty (over data and structure), the ECB had every reason to exercise the greatest caution regarding forecasts of all kinds. Furthermore, inflation targeting would have required a commitment to a specific structural, economic model or suite of models, and such models for the euro were still in their infancy. Given these uncertainties, any linkage between a forecast and the monetary policy response becomes less clear: inflation targeting becomes extremely complex, the "charm" of its seeming simplicity is lost, and communication becomes correspondingly more difficult.

These considerations argued against an inflation targeting strategy for the ECB. Moreover, in the case of EMU, structural change would constitute a lasting challenge beyond what central banks are normally confronted with: the establishment of the single currency and the enlargement of EU membership are expected to impose changes and uncertainties over an extended period of time.

Beside these objections was the fundamental problem that inflation targeting completely ignores the relationship – borne out by overwhelming empirical evidence – between the growth of the money supply and inflation. The models commonly used for inflation targeting are essentially models of the real economy and thus do not assume any independent influence of monetary growth on price developments. More generally, the modelling of the financial system is in most cases stylized to the extreme. The number of financial variables are limited: developments in the yield curve, risk spreads across financial assets – to mention only a few – are hardly integrated. Hence, inflation forecasts produced by these econometric models cannot provide a full picture for monetary policy purposes. Moreover, in an inflation targeting framework, it is almost impossible to take adequate account of developments in asset prices. The question that remains, therefore, is, why would a central bank base its assessment of current conditions and future inflation solely on models that completely disregard the important relationship between money and prices?

The ECB's two-pillar strategy for policy analysis

In trying to give money a prominent but non-exclusive role in monetary policy, the ECB adopted a "two pillar" strategy for its assessment of current and future conditions – an economic pillar and a monetary pillar. The two-pillar strategy provides a comprehensive assessment of the risks to price stability; that assessment in turn leads to monetary policy decisions to bring price developments in line with the mandate (ECB (1999)).[10]

The economic pillar

The economic analysis, or pillar, draws on a wide range of indicators and models. In the short to medium term, prices are determined by non-monetary factors such as wages (unit labour costs), the exchange rate, energy and import prices, indirect taxes and the like. Indicators of developments in the real economy include data on employment and unemployment, data from surveys, incoming orders and so on. The economic analysis also

[10] After a thorough evaluation, the strategy was confirmed by the Governing Council in May 2003.

encompasses financial sector data such as the yield curve, stock prices and real estate prices. Asset price trends can yield information on, for example, how the wealth effect is expected to influence the growth of demand of private households. As part of its economic analysis, the ECB takes a broad look at developments in macroeconomic demand and its structure, in costs and in the labour market. That look includes taking account of the influence of fiscal policy (spending and revenue) and of external factors (the international economic environment, exports and imports). The analysis also addresses the shocks already confronting the euro area and the degree of probability with which other shocks are to be expected.

The staff's macroeconomic projections occupy a special position in the economic analysis. The ECB uses the term projections rather than forecasts to make clear that these exercises represent scenarios and not predictions. Essentially, projections involve estimating the future trend of prices and of GDP and its components on the basis of certain assumptions. For example, the exchange rate is assumed to remain unchanged over the projection horizon. Initially, the ECB also assumed a constant short-term interest rate, but in 2006 it switched to basing the projections on market rates.

In their projection exercises, the Eurosystem experts use various methodologies and models, including a euro area-wide model and a multicountry model.[11] Projections are produced with a two-year horizon four times a year: in June and December they are made by the ECB experts jointly with their counterparts at the national central banks; in March and September, by the ECB experts alone.

The ECB first needed to gain experience with its projections. Organising cooperation between the ECB and the national central banks was far from easy. Before long, however, the resources available and the possibility of discussion between the experts were coming together to yield a good overall result. In December 2000, after the procedures had been set up and the result had been tested over a certain period of time, the ECB Governing Council decided to publish the projections. Initially, only the projections of the Eurosystem staff were published, but later releases included those of the ECB staff as well. The uncertainty associated with the projections is illustrated by the fact that the results are published in the form of ranges. The ranges are determined by the difference between previous projections and actual outcomes. The ECB decided not to use the "fan chart" method so as to avoid giving the impression that it had specific knowledge of the profile and distribution of forecast uncertainty.

The ECB's projections are produced in time for the Governing Council's last monetary policy meeting in each quarter. The council receives the projection results together with a detailed report that sets out the underlying technical assumptions, describes the risks to the projections and discusses alternative scenarios. The council itself, however, does not exert any influence on the construction of the projections. The very size of the council means that it would not be suited to producing projections. It is, however, the task of its members to assess the projections – and the members may well differ among themselves – in terms of the monetary policy decision to be made (Issing (2004b)).

The results of projections have major, inherent limitations: they depend in large measure on the chosen methodologies; they are subject to rapid and large changes if the assumptions, for example about oil prices or exchange rates, do not (or no longer) reflect reality; and their already limited reliability decreases as the projection horizon lengthens. Finally, projections cannot incorporate all relevant considerations, and they are not at all well suited to the

[11] Fagan, Henry and Mestre (2001) and Fagan and Morgan (2005). The new micro-founded New Area Wide Model (NAWM) is developed by Coenen, McAdam and Straub (2007). The production of the projections is described in detail in ECB (2001).

assessment of monetary and financial factors. Given these limitations, the ECB considers the projections to be an important input into analysis and decision-making but neither the only input nor even the central one.

The monetary pillar

I have already explained why the ECB rejected a monetary target. The decision did not mean, however, that it could downplay the importance of monetary factors in the evolution of prices. The close relationship between the money supply and prices has been proven in countless studies covering widely disparate times and places. It is one of the most certain facts in economics – insofar as anything is ever certain in economics. True, the relationship holds only over the long run, but it can be regarded as robust across virtually all models of monetary economics (Lucas (1980)). That is the background against which the Governing Council decided to give money a prominent role in the form of a monetary pillar or analysis.

How could the intention of "assigning a prominent role to money" be put into practice? Two aspects of the question were difficult to reconcile. On the one hand, the same reasons that led the ECB to reject a money supply strategy argued against fixing on a single monetary variable or on a single relationship between money and prices. On the other hand, a concrete means had to be found to present the monetary risks to price stability in operational form.

These considerations led to the concept of a *reference value* for growth of the broad aggregate, M3. The value was to serve as a guide to the rate of growth that is consistent with maintaining price stability.

Money provides a "natural" anchor for a monetary policy committed to price stability. A reference value for monetary growth underlines the central bank's responsibility for monetary impulses to inflation. As its rejection of a monetary objective showed, however, the ECB was aware of the difficulties that were to be expected in the practical implementation of monetary policy, as already reflected in its use of the phrase "under normal circumstances" in its press release on the issue.[12]

In an article on its strategy, the ECB (1999) explicitly highlighted two extenuating aspects of the monetary pillar. First, "the concept of a reference value does not entail a commitment on the part of the Eurosystem to correct deviations of monetary growth from the reference value over the short term. Interest rates will not be changed 'mechanistically' in response to such deviations in an attempt to return monetary growth to the reference value" (p 48).

Second, the monetary analysis does not consist solely of the reference value and M3: "developments in other monetary aggregates, in the various components of M3, and in the counterparts to all these aggregates in the consolidated MFI [monetary financial institutions] balance sheet" (p 49) would also play an important role in the ongoing assessment of the monetary risks to price stability. After just a few years, the ECB was able to report that its monetary analysis had been considerably broadened and deepened (ECB (2004a, 2004b), Issing (2005b)). In its quarterly Bank Lending Survey, conducted in close collaboration with the national central banks, the ECB has developed an instrument that provides an important overview of current developments in lending, that is, the "counterpart" to M3.

The strategy and monetary policy of the ECB contain a number of elements that reflect the results of research and experience on issues such as communication, transparency and accountability (Issing (2004a)). The next two sections will concentrate on some issues related to these considerations.

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[12] ECB press release:" A stability-oriented monetary policy strategy for the ESCB", 13 October 1998.

4. Further considerations regarding the role of money

The ECB's monetary policy strategy has several crucial aspects in common with inflation targeting: a quantitative definition for the final goal of price stability (or low and stable inflation), transparency on the monetary policy process and decision, and corresponding communication being crucial (Issing (2004a)). As already explained, an important difference between the ECB strategy and inflation targeting is the role given by the ECB to the model-based inflation forecast. But the element that provides the essential difference from targeting – and for which the ECB is heavily criticised, especially by the proponents of targeting – is the role that the ECB gives to money.[13] What is now widely seen in research as the state of the art in monetary policymaking gives money no role (Woodford (2003); Svensson (2005)). According to this view, looking at money provides, at best, no added value.

However, as one might have expected, the neglect of money could not last for long. Interest in the role of money for the conduct of monetary policy is increasing.[14] For the time horizon of monetary policy, money plays an indispensable role.

Ongoing research at the ECB offers important insights. Christiano et al (2007) show that a central bank whose monetary policy actions are based on a standard interest rate is well advised to also carefully monitor monetary developments. The authors explore two cases. In the first case, involving frictions associated with business financing, they show how money may help anchor price expectations. In the second case, building on wage setting frictions, they show that taking credit growth into account eases the volatility of asset prices.[15] De Fiore and Tristani (2008), in turn, explore monetary policymaking in a model in which financial market imperfections generate a credit channel in the transmission of monetary policy. In their model, money, credit and financing margins co-move over the business cycle and are relevant for the conduct of monetary policy. Both Christiano et al (2007) and de Fiore and Tristani (2008) start from the standard New Keynesian model and depart from it in deliberately minimal ways. Hence, they suggest that even such small departures from the standard framework are enough to establish a role for money and credit.

A complex approach to the transmission mechanism is part of the ECB's view on how monetary policy has an impact on the economy. Gaspar and Kashyap (2007) argue that, even in their very stylised and ad hoc setting, the financial system for the transmission of monetary policy warrants careful attention. The importance of these considerations is demonstrated by the fact that the first Eurosystem Research Network – a co-operative venture involving the ECB and the national central banks – was devoted to the study of the monetary transmission mechanism from a variety of perspectives.[16]

The role for the monetary transmission mechanism starts where the information from the analysis of economic factors and the usual forecasts end. The central bank, bombarded with a myriad of economic developments, is always at risk of becoming hypnotized by the latest indicators, by the markets' anticipation of the central banks' response to the latest indicators, and so on into infinity. That interaction can gradually lead monetary policy to stray from its role of providing a firm medium- to long-term nominal anchor for the economy.

That is not to say that a central bank should ignore the latest data on all relevant developments. Not at all! But the information coming from these indicators has to be put into

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[13] The Bank of Japan has adopted a strategy with strong similarities to that of the ECB. For a comparison, see Gerdesmeier, Mongelli and Roffia (2007).

[14] See eg Goodhart (2007), King (2007).

[15] For a critical comment on the role of the financial sector in these models, see Borio (2007).

[16] See Angeloni, Kashyap and Mojon (2003).

a context in which monetary policy develops its impact on the economy only with long time lags. Short- to medium-term analysis has to be made consistent with a medium- to long-term orientation.

At the risk of oversimplifying the requirements of prudent monetary policy, I offer two principles with which the central bank must reconcile the need for prompt action with its long-term orientation (Issing (2003b)):

(1) A central bank must always tailor its actions to the origin, magnitude and nature of the shocks that hit the economy from time to time. That is a highly demanding discipline because shocks do not come with labels. They have to be identified first, in real time. And there are no shortcuts: no simple rules claiming to link policy to one or two privileged indicators can substitute for an accurate examination of shocks and a careful analysis of their potential for transmission into prices over a sufficiently extended period. A corollary to this principle is that the horizon for policy action cannot be set in advance (see eg Adam (2007)).

(2) A central bank can benefit from keeping an eye on the single long-term compatibility condition, free of model-specificities and restrictive assumptions, that monetary economics has to offer: namely, that over a sufficiently extended period of time, money should grow at a rate consistent with trend growth in real output. This principle embodies the now centuries old wisdom of the quantity theory of money – that the growth rate of money and inflation go together in the long run.

The lesson suggested by the first principle is that disturbances have to be evaluated as they come about according to their potential for propagation, for infecting expectations and for degenerating into price spirals. And in case the anchoring of inflation expectations is at stake, preventive action should not be delayed. Shocks – whatever their origin – may take hold in the economy and evolve into inflationary or deflationary pressures over the medium term. The time dimension of these possible developments varies with the type of shock, the initial macroeconomic conditions, the prevailing financial sentiment, the international environment and many other variables. Therefore, the horizon for monetary policy cannot be set in advance. Sometimes it pays to look far ahead, beyond the average lag of monetary transmission; and sometimes the economy can be expected to return to price stability within a much shorter period. In all events, a central bank has to ensure that expectations quickly revert to its declared policy objective.

The policy recommendation implicit in the second principle is simple: Do not ignore the information that monetary developments contain for medium-term price developments, even if the relationship between money and prices does not come through strongly at short horizons. In the end, monetary policy needs to ensure a path of money supply that is consistent with maintaining price stability over the medium term. This principle also provides an antidote to the pitfalls of exceedingly forward-looking rules. Looking into the future with a vigilant eye, as the first principle suggests, is a fundamental element of good policy. But by constantly looking ahead, one should not lose sight of the intended trajectory of policy and the need to act consistently over time. One should always be aware of inadvertent slippages from the intended long-term direction. Trends in money velocity can be incorporated in such a longer-term perspective to account for the evolving structure of monetary exchange. But there can be no sustained inflation without systematic accommodation in the monetary aggregates.

The key point that I want to bring out here is that neither of the two principles just enunciated can stand alone. Each needs the other lest policy veer off course because of the failure to deal with shocks or because of the inadvertent departure from the long-term relationship of

money and prices.[17] The first principle suggests that the central bank must move its policy instrument in reaction to the disturbances that are considered to have implications for price stability in the medium term. But these actions – taken at successive points in time – may not prove to be consistent over time and could thus cumulatively result in systematic divergence from the desired objective. Therefore, the course of policy followed in the attempt to counter shocks needs to be checked against the straight line provided by the quantity theory of the second principle. If policy turns out to have departed from that line for an extended period of time, then policy, sooner or later, has to be brought back onto the right course.

As already mentioned, the ECB has, over time, deepened and broadened its monetary analysis, notably by including a major role for credit. Looking at money and credit together helps analysts better assess the inflationary potential of monetary developments. If strong money growth is accompanied by strong, broadly based credit growth, the identification of inflationary risks is on rather safe ground, whereas strong money growth combined with weak or declining credit conditions might indicate – as it did in the period after 2001 – that the growth of broad money is being driven by higher uncertainty and an increased preference for liquidity. Therefore, the ECB has always stressed that developments regarding money have to be carefully and properly assessed (Roffia and Zaghini (2007)).

However, the role of credit goes far beyond the analysis of the balance sheet of the banking sector. To take just one example of financing that bypasses banks, corporate bonds played an increasing role in investment after the start of EMU. Securitisation and other financial innovations have opened new financing options for the non-financial sector, and the prices and risk spreads across all types of financial instruments may contain important information for the conduct of monetary policy. The enlargement of the financial landscape in recent decades is anything but a reason to neglect money. It is, rather, a strong argument for extending monetary analysis beyond the interpretation of the balance sheet of the banking sector as part of an encompassing approach. In this context, it is not surprising that the concept of “liquidity” in all forms is used to identify risks to price stability (and the stability of the financial system) on a global scale.[18]

One might also ask whether we do not need a new discussion of the definition of the monetary aggregates. The ECB’s M3 is a very broad aggregate comprising marketable assets, such as money market funds, that had earlier been called “near money”. However, the present crisis also reveals fundamental differences in the liquidity of different types of assets. Assets that are highly liquid under “fair weather” conditions can rapidly become illiquid in “bad weather”. In a crisis, only one source of liquidity may ultimately be recognized, namely central bank money. It is not surprising that in times of rapid financial innovation, the question “What is money?” has to be newly discussed – as it was in the currency-banking controversy in the 19th century.

Critics of an important role for money in monetary policy point to the problems in defining money and the monetary aggregates. But an understanding of the vastly increased importance of the financial industry cannot be expected from models that lack a realistic financial sector and a meaningful interdependence between finance and the real sector. Indeed, how could one pretend to understand modern economies by ignoring these interactions?

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[17] For a formal approach, see Coenen, Levin and Wieland (2005) and Beck and Wieland (2007).

[18] The BIS is playing a leading role in this field. See Borio and Lowe (2002) for just one example.

5. Monetary policy and asset prices

The role of money and credit has gained new interest via their relation with the development of asset prices. An impressive number of empirical studies by researchers at the BIS (eg Borio and Lowe (2002, 2004)) and the ECB (Detken and Smets (2004)) have demonstrated that hardly any asset price "bubble" has not been accompanied, if not preceded, by strong growth of credit and/or money. What does this imply for the conduct of monetary policy?

On the role of asset prices there is wide consensus on the following principles:

(1) Central Banks should not target asset prices;

(2) Central banks should not try to prick a bubble;

(3) Central banks should follow a "mop up strategy" after the burst of a bubble which means injecting enough liquidity to avoid a macroeconomic meltdown.

(1) and (2) are uncontroversial. A central bank has no instruments to target successfully asset prices and creating a macroeconomic disaster by pricking a bubble would ruin the standing of a central bank. (The role of a central bank as a regulator and supervisor is a separate issue.) On (3) there is also broad agreement – once a bubble has burst the central bank has to take all necessary steps to avoid the propagation of the consequences of a collapse of asset prices.

However, restricting the role of the central bank to a totally passive role in the period of the built-up of a bubble and practically pre-announcing its role as the "saviour" once the bubble bursts represents an asymmetric approach which might imply the risk of creating moral hazard with actors driving the development of asset prices.

What can be called the "Jackson Hole Consensus" (Greenspan (2002); Blinder (2005); Mishkin (2007)) is exactly that. Efficient markets incorporate all relevant information and reflect the markets best assessment. How could a central bank pretend to know better? " The `mop up after` strategy received a severe real world stress test in 2000-2002, when the biggest bubble in history imploded, vaporizing some $8 *trillion* in wealth in the process. It is noteworthy, but insufficiently noted, that the ensuing recession was tiny and that not a single sizable bank failed. In fact, and even more amazingly, not a single sizable brokerage or investment bank failed either. Thus the fears that the `mop up after` strategy might be overwhelmed by the speed and magnitude of the bursting of a giant bubble proved to be unfounded. Regarding Greenspan's legacy, then, we pose a simple rhetorical question. If the mopping up strategy worked this well after the mega-bubble burst in 2000, shouldn't we assume that it will also work well after other, presumably smaller, bubbles burst in the future? Our suggested answer is apparent" (Blinder (2005), pp 68–9).

However, this strand of argumentation may be misleading. A central bank is not a trader, nor an actor in financial markets which might for business reasons be forced to follow a market trend which to their own judgement is not sustainable. A central bank has a different position and responsibility. The central bank must not pretend that it has better knowledge on the "true valuation" of specific assets. But this does not hinder it to communicate concerns on the sustainability of strong increases in asset prices over an extended period of time in an appropriate form thereby trying to contribute to a more sober assessment of such developments. As the central bank is not subject to business incentives its position should get special attention.

But, beyond proper communication we did not need the present financial crisis to understand that simply committing to principle 3) ie announcing to provide enough liquidity in case of a crisis might not be the panacea to the problem of asset prices from the perspective of a central bank. In some financial crises this policy might seem to work, but because not least of the moral hazard problem this "success" may lay the ground for future, even bigger problems.

At a closer look the “Jackson Hole Consensus” raises further questions. Even if the mop up strategy might work initially, by exactly doing “its job” in a financial crisis of limited dimension, because of its asymmetric character it may lay the ground for the next bubble and crisis (and so on).[19]

The asymmetry in this monetary policy proposal is strengthened by the practice of what has been called “risk management” paradigm. This can be seen as an approach to deal with low probability events and severe outcomes against which a kind of “insurance” (eg via interest rate cuts) has to be applied (Greenspan (2004)). It seems that this approach so far has only been referred to or applied in dealing with risks of recession or deflation, that is, in a rather asymmetric way.

The greatest macroeconomic risk is apparently a broad collapse of asset prices (including real estate) after a big bubble, destroying balance sheets of banks and other financial institutions, non-financial companies and households. If such a disaster emerges mop up is without alternative but is anything than a fast working and satisfying solution.

Should not risk management also be applied by looking forward and trying to if not avoid at least mitigating the risk of the built- up of a bubble that sooner or later might burst?

This leads to the argument of the central bank leaning against the wind.[20] This is anything but a simple device and it is not even certain that it might always work sufficiently well. But, this is no argument to let things just go, keep central bank interests low even if the economy is doing well. Can central banks under such circumstances just ignore the impact of low central bank interest rates on the financial industry, on innovations, decline in spreads across different types of risk etc. and on asset prices especially for housing? There is evidence that (too) low interest rates eg encourage too much risk taking by banks with the consequence of threatening financial stability (ECB (2007)).[21]

6. In search of a monetary policy strategy?

Inflation targeting, that is, inflation forecast targeting, is widely seen as the royal road to monetary policy (and the announcement of the path for central bank interest rates as a kind of coronation).

No doubt, inflation targeting has played an important role in the achievement of worldwide low inflation. This is especially true for central banks that were confronted with the challenge of disinflating their highly inflationary economies.

However, over time, the limits of the initially simple approach have become increasingly obvious. It started with the acknowledgement that the usual horizon of the forecast – around two years – had to be extended. But as is easily seen, the uncertainty of projected variables increases the more the forecast horizon is extended; therefore, it seems doubtful that the limitations of the inflation targeting approach can be overcome in that manner. And, even more important, factors – especially money – that have to be taken into account have nonetheless not yet been integrated in the traditional forecast models and in fact, at least so

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[19] For a ”counterfactual exercise“, see Taylor (2007). See also Cecchetti et al (2000), and Bordo and Jeanne (2002).

[20] Kohn (2007) is very critical of what he calls the “extra action” involved in leaning against the wind, arguing that high (and certain) costs would outweigh potential benefits.

[21] On the relation between the level of interest rates and the riskiness of bank loans in Spain, see Jimenez et al (2007).

far, cannot be so integrated. Therefore, some central banks have started to monitor a number of additional variables outside the model forecast. But how can the information coming from outside the model be consistently integrated for purposes of monetary policy decision-making?

The problem is best recognised by comparing the standard presentation of inflation targeting then and now (Svensson (1999, 2005)). The development of Inflation targeting "with judgment" shows progress in achieving a broader approach, but the very phrase "with judgment" expresses the shortcomings of the underlying concept. And by continuing to neglect the role of money, the approach remains unsuited to dealing with the problem of asset prices. In fact, because of its limited time horizon and neglect of monetary factors, inflation targeting might even imply a tendency to produce boom and bust cycles (Christiano, Motto and Rostagno (2007)).

The question, "Is price stability enough?" (White 2006), goes to the core of the problem. Central banks must not lose sight of their main objective, which is the stability of (goods) prices, and the greatest care must be taken to ensure that the great achievement of low and stable inflation is not endangered. Fortunately, there is no lasting trade-off between price stability and financial stability (Issing (2003a)) if the central bank applies a medium-term horizon to the definition of price stability and adopts an encompassing approach that integrates money and credit in an appropriate way. In those circumstances, financial imbalances will implicitly receive attention even if financial stability is not considered an objective of the central bank. In short, price stability would foster financial stability. That complementarity does not rule out the possibility of a short-term conflict, however. By short-term conflict, I mean a situation in which it may be optimal to deviate from the desired rate of inflation in the short run to maintain price stability over the medium run. But in the context of an appropriate definition of price stability and financial stability – and, in particular, an appropriate horizon to which the policy objective should apply – the conflict disappears.

Closely monitoring monetary and credit developments as potential drivers of consumer price inflation in the medium to long run has an important positive side effect: it may contribute at the same time to limiting the emergence of unsustainable increases in asset valuations. As long as money and credit remain broadly controlled, the scope for financing unsustainable runs in asset prices should also remain limited. Correspondingly, changes in asset prices help to support the analysis of developments in money and credit.[22]

The obvious advantage of the ECB strategy is that taking account of the monetary analysis avoids the need to be specific about the mispricing of assets. The extension of the policy horizon to the medium to long term provides a kind of "integrated risk management". And it works symmetrically by leaning against both "headwinds" (declines in asset prices) and "tailwinds" (increases). The symmetry contrasts with the risk management approach that is deployed more or less arbitrarily and only in cases of supposed risks of deflation or a general downturn of the economy.

A monetary policymaking strategy that monitors money and credit continuously and cross-checks the results against other analyses guarantees the symmetry of policy in expansions and contractions. "Ultimately, this cross-check leads to a better assessment of the correctness of the policy stance. Early indications that a process of surging equity or house prices in the euro area might be interacting with conditions of abundant liquidity would lead to heightened vigilance" (ECB (2005, p 60)). There are many examples of the application of "vigilance". "Monetary developments, therefore, require careful monitoring, especially in the light of the strengthening of economic activity and, in particular, of strong asset price dynamics, especially in housing markets" (ECB, Introductory Statement of 6 June 2006).

[22] For an approach including house prices in the money demand function, see Greiber and Setzer (2007).

The ECB has never claimed that it has found the ultimate solution to this challenge. But it has acknowledged that it is a problem that a central bank should not ignore.

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Remarks on "In search of monetary stability" by Otmar Issing

By Allan H Meltzer[1]

Otmar Issing has given us another of his fine, non-dogmatic statements of monetary policymaking as seen by a former academic and successful policymaker. I regard as the heart of his statement the need to balance models and judgment. Policymakers should use a model or rule but must recognise as best as one can the information contained in incoming data. The rule is meant to guide action, not to bind the policymakers.

Part of Issing's paper describes and defends the evolution of procedures at the European Central Bank. He highlights the uncertainty about data at the start. Would the consolidation of quasi-independent policies of the new members introduce structural adjustments as described in Robert Lucas's famous paper? No one could know, so at the start judgment was critical.

With early success, the Bank became more willing to accept that the models were not misleading. But Issing and his staff looked for reassurance in monetary variables like growth of M_3 and other Ms that are known to be causes of inflation. Judgment again.

To the academics the obvious question is: Why is money growth not part of the model? Issing's answer seems to be that there is more than one model, the money data is used to check on the implications of econometric models, and there are several Ms. My answer is not inconsistent. The response to money is more a response to the sustained growth rate rather than to quarterly changes. And as Milton Friedman pointed out, the lag in response is variable.

For me the most striking difference between euro policy and dollar policy comes in the role of politics. The Maastricht treaty gave much greater independence to the central bank than the Federal Reserve experiences. I know from previous discussion with Otmar Issing that politicians try to influence central bank policy frequently. The Bank is charged with maintaining price stability. It does not ignore economic conditions, but it focuses on achieving low inflation more consistently than the Federal Reserve. Repeatedly, Issing emphasises that the ECB aims at the medium-term.

Through most of its postwar history, the Federal Reserve accommodated Congressional and administration concerns to a much greater extent than the European Central Bank. It kept the long-term interest rate fixed until March 1951 despite rising concerns about inflation. In the 1960s, it "coordinated" policy with the administration. Chairman Martin often explained that the Federal Reserve was "independent within the government." He explained that he would not challenge Congressional budget decisions. He would help to finance them. He financed the rising deficits of the Johnson administration and the start of the Great Inflation. His successor Arthur Burns supported the Nixon administration's policy that was most concerned about an unemployment rate above 4 percent. Typically, Burns blamed inflation on labour unions, the welfare state and other non-monetary causes. He did not want to permit small recessions. Shortly after he left, the United States endured a deep recession to reduce inflation. This is the cost paid for Federal Reserve errors. It should have taught us that avoiding small recessions later required acceptance of a larger recession to end inflation.

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Paul Volcker and his successor Alan Greenspan were the most independent chairmen in modern Federal Reserve history. Once inflation fell to 4 percent or less these chairmen directed policy action to maintain both economic stability and low inflation. The economy experienced low inflation and three of the longest expansions in US economic history punctuated by mild recessions.

The current Federal Reserve seems spineless. Under pressure from Congress and the financial markets, it abandoned its balanced medium-term strategy to give priority to avoiding possible recession. Its short-term forecast was wrong. Growth is slow, but the often predicted deep recession has not come. Instead we have a return of inflation and a loss of credibility and independence. In March, the Fed began to lend on relatively illiquid mortgages in exchange for Treasury bills. It abandoned its long-standing policy of avoiding lending on relatively illiquid assets. Previous exceptions had always been for small amounts. Two days after the Chairman of the Banking Committee and some other Senators proposed that the Fed lend on student loans, Chairman Bernanke announced that it would.

These are worrisome precedents especially when the same Senate chairman refuses to confirm three appointments to the Board of Governors. He wants to change the Federal Reserve's focus in a way that would further reduce independence.

Issing points to one major difference between the two banks. The ECB monitors money growth. The Federal Reserve ignores it. One reason for the difference is that the ECB has a medium-term strategy. In the 1970s and again now, the Federal Reserve gives much more attention to current developments and forecasts of near-term events. Its forecasts are often subject to relatively large errors.

Contrast the recent behaviour of the two banks. The Federal Reserve panicked in January 2008 responding to the risk of a possible recession and ignoring inflation. It underestimated inflation and overestimated recession. Both forecasts were wrong. The ECB maintained its medium-term policy to achieve price stability. The Federal Reserve now faces the problem of reversing its activism in a slow growing economy during an election year. If it had monitored money growth, it might have acted differently. After years of "fine tuning," the Bank of England also adapted a medium-term strategy.

One reason why the Federal Reserve ignores money growth is that it gives excessive attention to near-term events and models of quarterly response. Long ago monetarists accepted that money growth has no useful information about near-term response to money growth. As Issing emphasises, this is not a reason for ignoring the medium- and longer-term effects on inflation that research has documented for decades. He predicts that central bankers will again find a place for money growth in their analysis.

Two issues require more discussion. One is the measure of inflation, the other is the response to asset price changes.

Economists have not agreed on the definition of inflation. Monetarists define inflation as the maintained rate of change in a broad-based price index. Others include all changes in the index. Monetarists describe an energy shock or a harvest failure as a change in a relative price. Others include these relative price changes in inflation.

Should central banks respond to relative price changes and excess demand changes in the same way? A central bank is in the money business. It can directly produce less money growth but not more energy output. To reverse the price level response to an energy price change, it must force other relative prices to fall. This is costly as it reduces output growth. It seems more consistent with maintaining price level stability than preventing inflation. A monetarist policy of inflation control would accept the temporary increase in reported inflation and explain why it does. The central bank cannot do much directly about oil price increases. It is not good social policy to add recession to the wealth loss from the energy shock. A better policy would reduce domestic tax rates to offset the effect of the oil tax increase.

Surely it is late to begin discussion of the proper monetary response to non-monetary events, but I believe the problem has been ignored for too long.

Issing dissents from the "Jackson Hole strategy" of not interfering with asset price increases until the crisis comes. Then the central bank cleans up the debris as best it can. Issing asks whether having the full crisis is the best policy. But he leaves open what the central bank is capable of doing that is effective and less damaging.

For years, Karl Brunner and I struggled with models in which asset prices and credit markets have a large role. Credit market behaviour and asset price changes are parts of monetary analysis that most models ignore. (I should except the BIS from that statement.) I agree with Issing that this is a failure of the models that becomes most important at times of rapidly rising asset prices. What to do?

The first problem is to decide whether asset price changes are a response to real forces or expected inflation. This is not an easy calculation to make, but once it is made the central bank's response seems obvious. The calculation is difficult because so called bubbles can best be labelled as such after they end. Much of the theory of bubbles developed in models where there are no transactions. Prices rise because everyone expects them to rise.

The rise in stock prices in the late 1990s differed. Some sold the securities that eager buyers bought. The sellers must have had different expectations. Furthermore not all security prices did rise rapidly. Much of the rise occurred in assets believed to benefit from new technology, an expected technological change that the central bank can only prevent by imposing its judgment. This does not seem defensible to me. However, if the analysis of a model with asset prices implies that inflation will follow, the central bank should act on that knowledge.

The second recent surge in asset prices came from the housing sector. The Federal Reserve erred. It predicted deflation and overstated the effects of a small deflation. It remains a puzzle for me why one would expect deflation in an economy with a depreciating currency and a relatively large budget deficit. My work on the Federal Reserve history suggests that there were seven deflations in Federal Reserve history, some as large as a 20 percent decline. Only one, the Great Depression, was a disaster. It differed from the others mainly because money growth fell more than the price level and continued to fall until 1933. Expectation of continued deflation was correct in 1929-32.

The Federal Reserve's error did not require markets to invest in low quality assets. That was their error abetted by two other errors. One is the Basel Accord that requires increases in reserves if banks increase risky assets. The banks followed the first law of regulation: Lawyers write regulations but bankers circumvent costly regulations. Lawyers ignore the incentives implied in new regulation. The second error is the incentives faced by market participants. Why did the MBA alumni of the world's leading business schools buy and sell first dot-com securities and later low quality mortgages? The compensation system rewards them and their supervisors for doing just that. Failure to participate may bring satisfaction later but most likely from the unemployment queue.

One must always recall that financial markets lend long and borrow short. Crises will occur, but a better compensation scheme and greater concern for the incentives induced by regulations can reduce the risk inherent in financial markets.

Otmar Issing has given us a very clear statement of what he learned and taught in his central role at the Bundesbank and the European Central Bank. He is clear about what we know but not dogmatic. He is clear also about much that we do not know. However, he does not explain why the ECB permits inflation to remain above its 2 percent target.

Having completed a lengthy history of the Federal Reserve's achievements and errors during almost 75 years, I feel compelled to add a bit about error. The Federal Reserve and others made many errors. It pains me to recognise that most of them were widely believed and advocated by academic economists. Examples are the real bills doctrine, fiscal and monetary

policy coordination, cost-push inflation, the reliability of the Phillips curve, and the dismissal of excess monetary growth as a cause of inflation.

Issing's paper suggests that we should be cautious in abandoning old truths and accepting new ones or overstating the certainty of our knowledge. I agree.