Jürgen Stark: Enhancing the ECB's monetary analysis – what have we learnt?

Speech by Mr Jürgen Stark, Member of the Executive Board of the European Central Bank, at the conference "The ECB and Its Watchers" XII, Frankfurt am Main, 9 July 2010.

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Ladies and gentlemen,

The title of this session asks: "should money and credit play a greater role in central bank strategies?"

Money has always played a distinctive role in the ECB's monetary policy strategy. From our perspective, it would be more natural, therefore, to ask: "how should monetary developments be analysed in practice" and "how can monetary analysis reflect the role it has been assigned in our strategy?".

The distinctive role of money

First, let me briefly recall the benefits of assigning a distinctive role to money when formulating monetary policy decisions.

There is overwhelming consensus regarding the empirical long-run relationship between money and prices. As such, money provides a reliable nominal anchor for monetary policy. What is more, monetary developments can signal risks to price stability beyond the business cycle. In turn, such signals support the medium-term orientation of monetary policy, guarding against an excessive focus on short-term developments in inflation forecasts, as well as misguided attempts to fine-tune economic developments.

This commitment to conducting a monetary analysis provides us with an insurance device.

It disciplines decision-making.

It ensures that risks to price stability are assessed on the basis of a comprehensive set of information.

It compels policy-makers to consider trends in money and credit growth, which may exert an influence on price developments beyond that identified by a purely conjunctural or output-gap view of the world.

On the basis of these considerations, over the dozen years since the creation of the ECB, we have continued to employ and develop new tools for monetary analysis. We did this even in the face of vocal criticism from a significant camp of economists. They questioned whether money and financial frictions had a role to play in the inflation targeting frameworks that they had identified as "best practice" for central banking.

Money has been ignored. In the canonical New Keynesian macro-model on which the intellectual foundations of inflation targeting rests, money has been considered a redundant element in the monetary transmission mechanism. At best, money is seen as a useless appendix to the model, serving only to confuse and distract any policy-maker misguided enough to consider it.

Now that the financial crisis has exposed the fault lines underlying this model;

now that it has been recognised that the inflation targeting approach focused unduly on short-term cyclical developments in the real economy;

now that economists agree that insufficient attention has been paid to financial imbalances and vulnerabilities, critics of the ECB have acknowledged the benefits of monetary analysis.

Yet, they tell us that we have pursued such analysis for the wrong purpose!

The right purpose, they tell us, is to support a broader view of our mandate, paying more attention to risks to financial stability in formulating our policy decisions. It is a little bit as if they are telling us to forget about monetary policy in principle.

Of course, the tools of monetary analysis can support an assessment of risks to financial stability. However, we cannot deny their intrinsic value for monetary policy by limiting their role to episodic and extreme events.

Of course, owing to their influence on financial stability risks, monetary trends impinge on the outlook for price stability, although not exclusively. The interaction between monetary trends and the macroeconomy is multifaceted.

Not all historical episodes of private sector money and credit balances going off track have been followed by threats to financial stability. But, every major economic crisis in the 20th century was preceded by the emergence of monetary imbalances.

There is no need to dwell on the obvious case of hyperinflation. However, the Great Inflation of the 1970s was also fundamentally of a monetary nature. It is widely documented that it was caused by confusion, not only about what drove inflation, but also by denial that central banks bear ultimate responsibility for price developments. The inability to assess the monetary policy stance in the light of monetary trends was highly damaging.

The Great Depression is another case in point. It is certainly true that the banking crisis brought about by the failure of central banks to understand their role as a lender of last resort under the gold standard was detrimental. But equally detrimental was the sheer unavailability of monetary data that could have signalled the need, given the collapse in money and credit, for monetary policy to be accommodative much earlier on, to a higher degree and for much longer.

Although various scenarios exemplify how monetary trends are transmitted, not all of them involve risks to financial stability.

Benign scenarios for transmitting shifts in monetary trends tend to mostly reflect structural changes in liquidity preference. In this case, shifts in monetary trends may be re-absorbed without posing any risks to price stability.

Another scenario sees such trends as harbingers of changes in spending on goods and services, thereby affecting price developments.

Yet another scenario could be that increased money holdings may be associated with increased purchases of assets and higher asset prices. If sustained, wealth effects would ultimately exert upward pressure on consumer prices. If this is not sustainable, a subsequent bust is likely to create downside risks to price stability.

Only in this latter sub-case would we be confronted with financial stability issues too. But in *all* cases, the long-run relationship between money and prices is preserved.

Enhancing monetary analysis

Let me turn to the more central questions. Recognising the distinctive role that money plays in the economy does not tell us how we should conduct monetary analysis. In the light of our analysis, how does the transmission from money to prices work and how precisely is it supposed to inform the policy-maker?

I cannot provide you with a static toolkit to answer these questions. As in any other field in economics, we have continuously refined and updated the tools in the face of constant structural change.

In spring 2007 the Governing Council endorsed the pursuit of an agenda to enhance the ECB's monetary analysis. Why did we start this? How did we come to organise it? Finally, what have we achieved over the past three years?

1. Reasons for enhancing monetary analysis

Looking back, I must say that the timing was most opportune. M3 had persistently been growing, far in excess of the reference value, and had actually started to increase by double-digit rates compared with a year earlier.

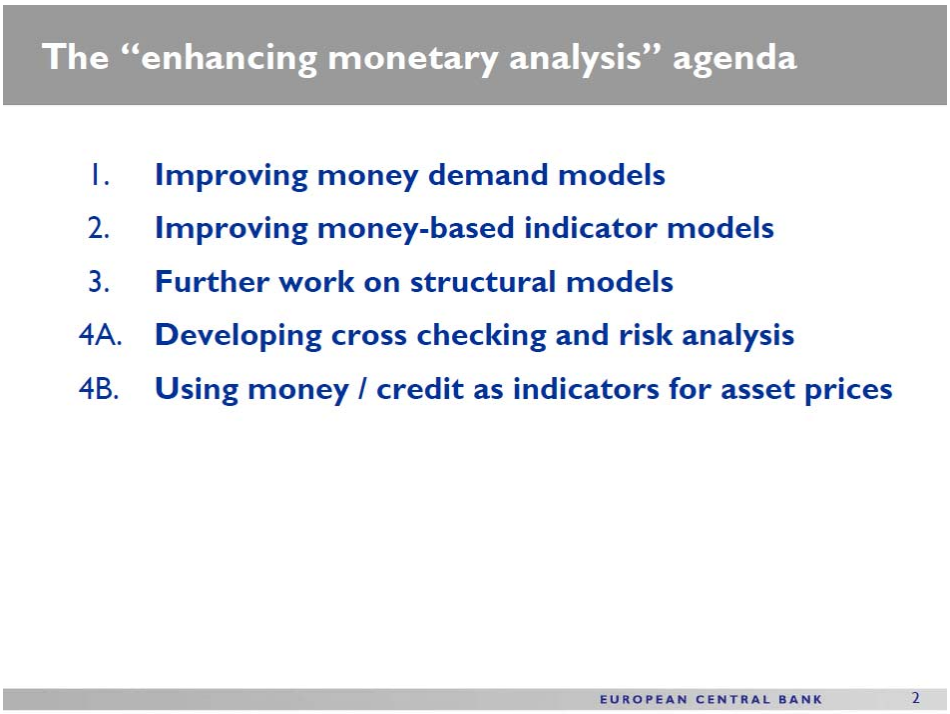
What was going on? Did this reflect an underlying trend? How would this end? These developments seemed to expose a number of shortcomings in our analysis.

The expert's judgement was that between 2001 and 2003 portfolio shifts into M3 owing to heightened economic and financial uncertainty had pushed M3 headline growth above its underlying trend. But this was not fully reflected in our modelling tools.

Over the past decade as a whole we have experienced a continual process of financial innovation and structural change. We have constantly needed to adapt, refine and update our tools.

In addition, these tools could not describe the multifaceted way in which monetary trends may transmit to the economy. Until then, we had relied mostly on partial equilibrium, reduced-form models. They served us well in forecasting, but failed to capture structural or behavioural interpretations of monetary trends. This would have helped us to understand how the observed shift might, or might not, unwind.

2. Avenues



Given the challenges we faced in understanding how monetary trends impinge on risks to price stability, we drew up an agenda to enhance monetary analysis and structured it along the following four broad avenues:

(1) improving money demand models;

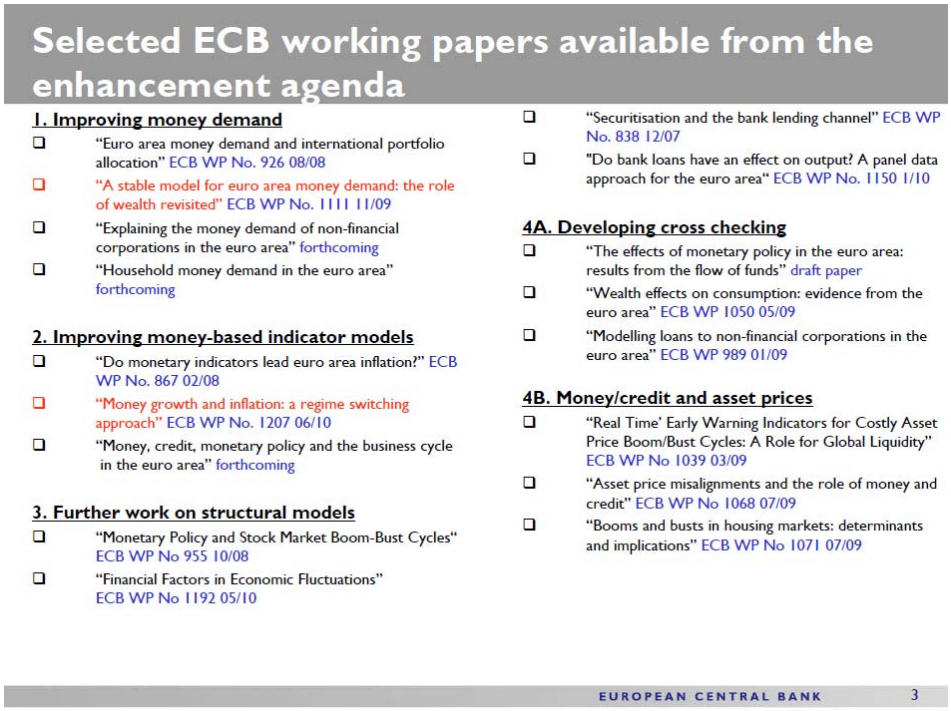
(2) developing money-based indicators of risks to price stability;

(3) incorporating money and credit into structural general equilibrium models; and

(4) further exploring the link between monetary variables, financial imbalances and asset prices, to support cross-checking between the ECB's economic and monetary analyses.

3. Achievements

In mapping out these avenues our intention was not to imply that specific tools would fall exclusively into any of these categories. In fact, in many respects we have experienced convergence across avenues. We have been increasingly analysing money and credit in the context of macroeconomic systems. To this end, to complement the partial equilibrium money demand specifications, we have developed models with a more coherent causal structure. We have started to use a structural general equilibrium model with a fully articulated banking sector, incorporating an active role for money and credit. This work is not limited to a single avenue, but has a bearing on the agenda to enhance monetary analysis as a whole.



The sum of papers that have so far been published under the enhancement agenda provide us with a variety of tools for different purposes. Unfortunately, time will not allow me to go through this list in detail.

Given our constant striving for comprehensiveness, we have not sought to condense the information stemming from monetary analysis into one, easily tractable indicator, comparable perhaps to a fan chart for inflation.

Of all the available tools, I will focus on two specific examples. First, the reconfirmation of a stable relationship between money and key macroeconomic variables. Second, the identification of underlying trends in money used to assess risks to price stability.

Example – Stability of money demand

- Stability *has* been re-established *(De Santis et al; Beyer; Hall et al; Greiber and Setzer; etc)*
- Achieved through explicit modelling of "portfolio shifts" in the MD framework *(representing continuity with real time analysis)*
  - Inclusion of wealth variables
  - Broader set of opportunity cost variables / asset prices *(incl. foreign yields / returns)*
  - Adoption of a system (rather than "single equation") approach

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Money demand models, for example, have been improved to restore our ability to explain monetary developments in a coherent, statistically stable money demand framework – and therefore to have a better understanding of the causes of monetary growth. This has been made possible through the modelling of money demand in the context of a broader portfolio choice framework. It entails systems comprising a richer set of explanatory variables, notably wealth and a broader set of opportunity costs including yields on foreign assets. Likewise, modelling money demand across sectors with different motives and persistence in portfolio behaviour has strengthened our ability to detect underlying trends in money.

Technical refinement of tools to define historical regularities in the monetary data

- Comprehensive set of models using new techniques and exploring much richer data sets *(e.g. interactions with more real variables, richer representation of MFI balance sheet, interaction with broader set of financial spreads and yields)* used to define empirical benchmarks …

  e.g. B-VAR (Giannone et al.); augmented money demand (Beyer, De Santis et al.); DSGE (CMR)

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To define "historical regularities" in the monetary data we now rely on a comprehensive set of state-of-the-art tools, exploring a wider set of variables, including financial spreads and yields and providing a richer representation of MFI balance sheets.

Technical refinement of tools: inflation risk indicators

- Application of 'state-of-the-art' tools to construct money-based inflation risk indicators.
- *In past*: Reliance on set of simple bivariate models (with results that proved relatively robust, but hard to interpret and communicate) …
- *Now*: New models based on methodologies already widely exploited in the economic analysis …

  e.g. regime-switching model (Amisano and Fagan)

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To further support the identification of underlying monetary trends, we have developed a whole range of indicators signalling risks to price stability. In the past we have relied mostly on bivariate models, which proved relatively robust, but were hard to interpret. We have complemented these tools by non-linear models, providing an estimate, based on money growth, of the probability of staying in an inflation regime that is consistent with price stability. Here, the identification of underlying trends in money is supported by the persistence of these regimes.

Achievements: Progress, not perfection

- We have better tools – "enhancement" has been achieved.
- Identifying the relationship between trends in monetary variables and prices in real time remains challenging:
  - Transmission channels are complex and evolving;
  - Such analysis is technically challenging *(cf. potential output)*.
  - Structural equilibrium models describe deviation from trend rather than in levels
  - Structural equilibrium models bridge the real and nominal sphere, but cannot be construed as creating a single fat pillar.

⇒ *Implications*: (1) Progress has been achieved in improving the analytical toolbox for monetary analysis; but (2) experience in pursuing the agenda has demonstrated that no single model can integrate all elements of the monetary analysis simultaneously

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Looking at the toolkit as a whole, we have made progress on three levels:

- first, bringing institutional knowledge to bear formally on money demand specifications;
- second, technically refining existing tools;
- and third, interpreting monetary developments in a more structural manner.

Expanding our set of models and indicators has helped to formalise the multifaceted ways in which monetary trends are transmitted to the economy. But challenges remain. Structural equilibrium models, for example, capture economic developments in terms of unobserved deviations from trend rather than in terms of how they are measured.

While the structural models provide a coherent view across various sectors of the economy, they do not offer a definitive view of how money affects the economy. Although they have the capacity to bridge the real and the nominal sphere, they should not be construed as creating a single fat pillar, in the sense of economic and monetary analyses being merged into one analytical framework.

Our experience has shown that while progress has been achieved in improving the analytical toolbox for monetary analysis, no single model can integrate all elements of the monetary analysis simultaneously. We will therefore maintaining a plurality of tools in monetary analysis.

Concluding remarks

The timing of this work in 2007 to enhance monetary analysis was most opportune. Having faced excessive money growth for years, we were indeed perceiving severe challenges. The calls we received at the time were to simply ignore them. We did not find reassurance in these calls. We remained uneasy, but we had no idea ex ante how the excesses in money and credit would eventually unwind.

At the time, we issued warnings about upside risks to inflation. Eventually the imbalances manifested themselves in successive asset price collapses, a systemic banking crisis, a sharp deceleration in money and credit growth, and a precipitous fall in output.

Despite our humble performance as economists in forecasting this specific sequence of events, no one can credibly claim that what actually materialised was the most likely among a range of possible scenarios. I think it is fair to say that in order to contain risks to price stability – whether to the up or the downside – there was a pressing need to head off these excesses, instead of dealing with them after the fact.

Irrespective of the conjunctural assessment, of how these excesses might eventually unwind and of whether or not this process might affect the financial system, such a response was clearly needed. Being agnostic about monetary developments would not have been appropriate.

Conclusions

1. Improvement of tools has been evolutionary, not revolutionary
2. A high degree of continuity has been maintained:
   - Results of agenda support monetary policy strategy;
   - Agenda provides better tools to implement the strategy.
3. Progress has been achieved through pursuit of the research agenda, but open questions remain …
4. While it may support (and be supported by) other activities, focus of monetary analysis must remain price stability over the medium term.

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To conclude: the improvement in our tools has been evolutionary, rather than revolutionary. A high degree of continuity has been maintained, as our results support the monetary policy strategy. Progress has been achieved through the pursuit of our enhancement agenda, but open questions remain.

Because of the current financial stability issues, we have been applauded for the monetary analysis, but we are again called to limit its scope. Previously we were asked to plug monetary information into an inflation forecast. Now we are being asked to plug it into the emerging framework for macro-prudential analysis. As a by-product, monetary analysis may both help and be helped by the analysis of bank balance sheets for macro-prudential purposes. However, we do not want to limit monetary analysis to this end. We need to maintain a comprehensive view of the transmission of money to the economy and to focus on pursuing price stability, in line with our mandate.