EUROPEAN CENTRAL BANK

Communication, money and monetary policy

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** The views expressed in this presentation are those of the author and do not necessarily represent the views of the ECB or the Eurosystem.*

Overview

1. Why communicate?
2. Communicating about:
    - Objectives
    - Instruments
    - Indicators

   Case study – monetary analysis
3. Concluding remarks

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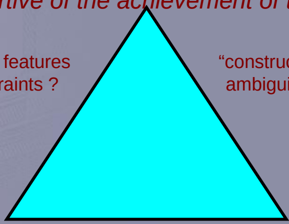
Why communicate?

- Improve the effectiveness and efficiency of monetary policy in its pursuit of its objectives
  - Primary objective of ECB is the maintenance of price stability
  - Other statutory tasks and responsibilities
- Ensure transparency and accountability *(which are central to the legitimacy of an independent public institution in a democratic context)*
- Foster public understanding and acceptance *(of Economic and Monetary Union and ECB)*

Recognising trade-offs: Winkler's triangle

EFFICIENCY

Do policymakers obtain information in a form that facilitates appropriate policy decisions?
Does the private sector obtain information in a form that leads to behaviour and expectations that are supportive of the achievement of the central bank's objectives?



HONESTY

To what extent does communication reflect the significant complexities and uncertainties faced by policy makers?

CLARITY

Is the information presented in a manner that facilitates understanding by policy makers and the public ?

Source: Winkler (2002).

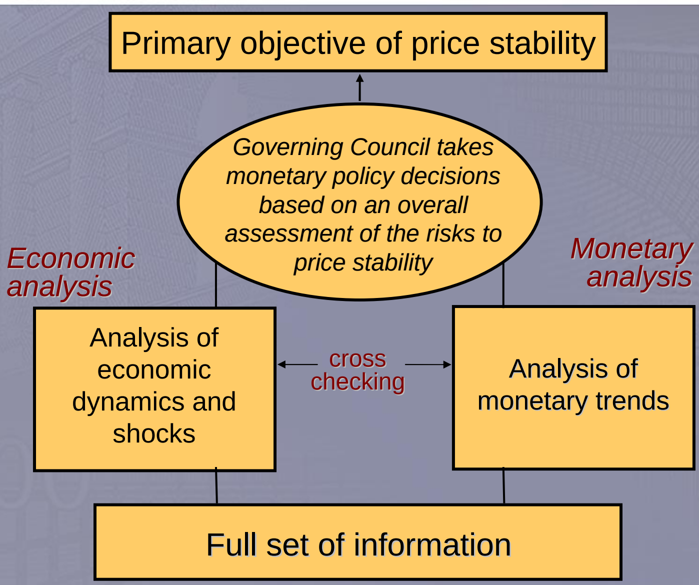
Developing effective communication

- As a result, there is no unique "optimal" approach to central bank communication
- The institutional and historical context matters:
  - 12 countries have adopted the euro;
  - single monetary policy, but responsibility for fiscal and structural policies remains with Member States;
  - ECB works with 12 national central banks (NCBs) in the Eurosystem;
  - Governing Council consists of six Executive Board members and 12 governors of NCBs …

Developing effective communication

- Above all, the ECB was (and remains) a new central bank responsible for a new currency …
- Need to develop a "language" for monetary policy communication *(which may be especially difficult in a context where there are already 20 official languages and no unified media)*
- Process can be seen as a "co-ordination game"
  - Period of learning inevitable and necessary;
  - Both the talker and the listener have to learn – communication is two-sided;
  - Should there be a leader / follower relationship? bargaining? dictator?
  - Need to keep some elements fixed – very difficult to learn a language which is itself rapidly evolving / changing …

The ECB's monetary policy strategy



Source: ECB Monthly Bulletin June 2003.

Key strategic principles

- Focus on primary objective of price stability
- Area-wide perspective
- Medium-term orientation
- Forward-looking
- Use of all relevant information
- Emphasis on robustness
- Two-pillar approach – *not reliant on single model or paradigm*
- No "mechanical responses" to specific indicators

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Quantitative definition of price stability

- Announced October 1998

  Price stability shall be defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%

  Price stability is to be maintained over the medium term.

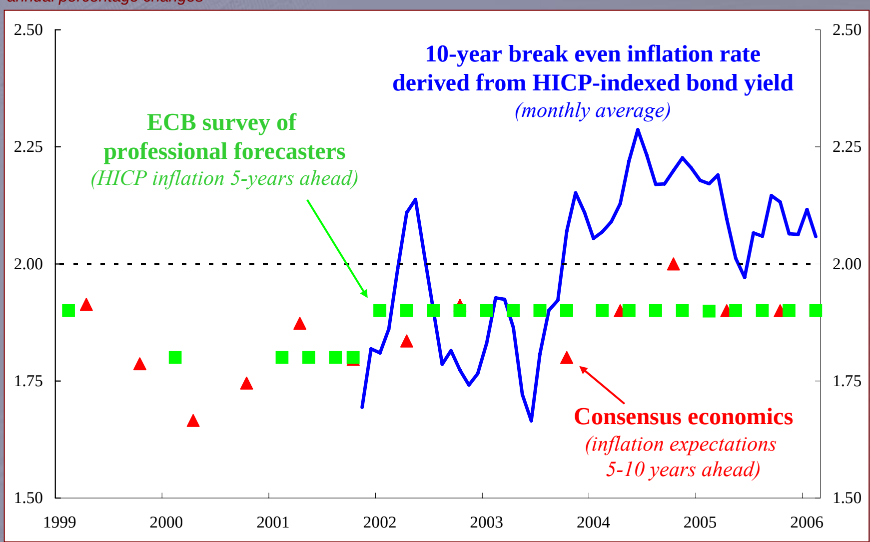
- Confirmed May 2003, with clarification

  Governing Council agreed that, in the pursuit of price stability, it will aim to maintain inflation rates close to 2% over the medium term

- Anchoring of private sector inflation expectations

Inflation expectations in the euro area

annual percentage changes



Sources: Eurostat, Consensus Economics, ECB.

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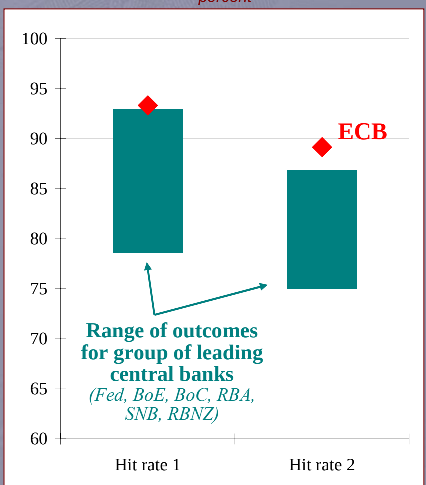
Short-term predictability of monetary policy

Hit rate for 1-month rate

percent



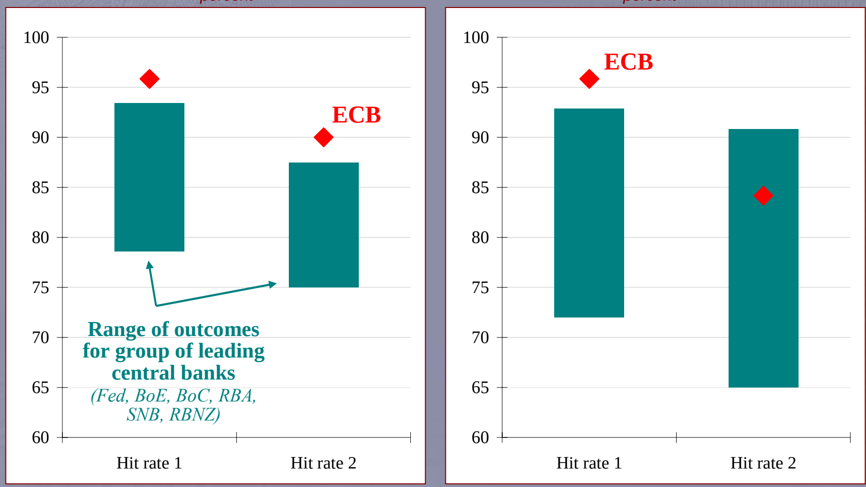
Source: ECB calculations updating Wilhelmsen and Zaghini (2005).
Sample: Jan. 1999 to Dec. 2005.

- Hit rate = proportion of days on which a monetary policy meeting is held where the jump in money market rates is below a certain threshold:
  - *for Hit rate 1*: threshold equals 2 × standard deviation of all daily changes in interest rate
  - *for Hit rate 2*: threshold equals 12.5 bp *(i.e. half of the "normal" magnitude of an interest rate change)*

Short-term predictability of monetary policy

Hit rate for 3-month rate — *percent*

Hit rate for 12-month rate — *percent*



Source: ECB calculations updating Wilhelmsen and Zaghini (2005).
Sample: Jan. 1999 to Dec. 2005.

Decomposition of changes in money market rates

- A key issue in interpreting these results is whether the central bank is following or steering the money market …
- One approach to steering the market is to communicate (explicitly or implicitly) on the path of short-term interest rates
- Brand et al. use linear regression to decompose interest rate changes into three components

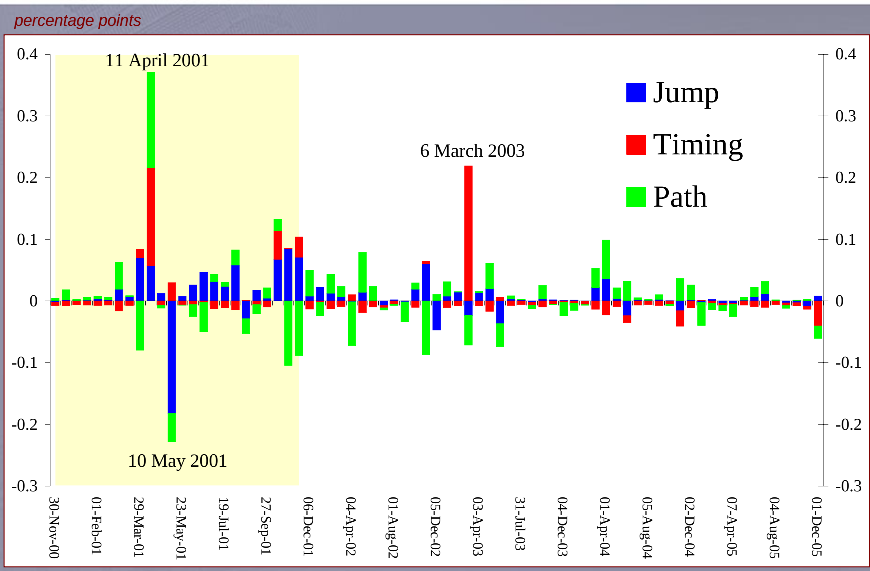
$$f_t^{\tau} \quad = \quad \text{implied 10} - \text{day forward rate } \tau \text{ days ahead}$$

$$\Delta f_t^{30} \quad = \quad \text{"jump"} \qquad (1)$$

$$\Delta f_t^{10} \quad = \quad \alpha_0 \; + \; \alpha_1 \text{"jump"} \; + \; \text{"timing"} \qquad (2)$$

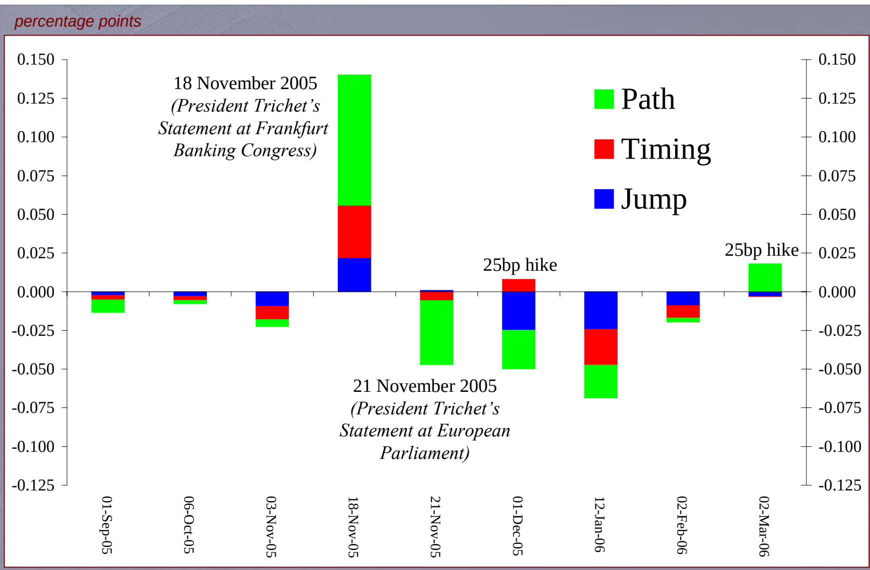
$$\Delta f_t^{150} \quad = \quad \gamma_0 \; + \; \gamma_1 \text{"jump"} \; + \; \gamma_2 \text{"timing"} \; + \; \text{"path"} \qquad (3)$$

News in monetary policy announcements



Source: Brand, Buncic and Turunen (2006).

News in monetary policy announcements



Source: ECB calculations, based on Brand, Buncic and Turunen (2006).

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Long-term predictability of monetary policy

Predictability of monetary policy

Short-term predictability

Anticipation of next monetary policy decision

Long-term predictability

Genuine understanding of the objective of price stability and the systematic behaviour of monetary policy

Consistency between short term and longer term

Source: ECB Monthly Bulletin Jan. 2006.

Facilitating understanding of policy decisions

- Develop understanding of the implicit “reaction function” for monetary policy (what are objectives, how data is analysed, …)
- ECB has attempted to promote such understanding by adopting a transparent approach to policy making, in the following sense:

Monetary policy strategy

Internal role of strategy

Organise data and analysis in a manner that facilitates appropriate policy decisions

Transparency
=
Correspondence between internal and external roles

External role of strategy

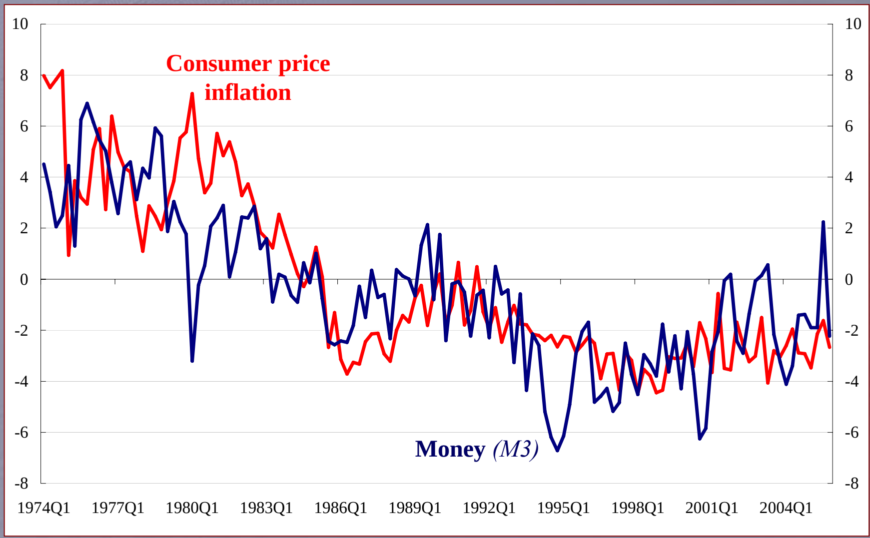
Create a framework for the presentation of policy decisions and their rationale to the public

Case study: The role of monetary analysis

- Conceptual framework
  - The robust “long-run” relationship between monetary growth and inflation *(supports medium-term orientation)*
- Empirical regularities
  - Frequency domain analysis of euro area data
- Practical implementation of analysis in real time
  - Operationalisation of results by confronting the practical challenges of identifying underlying trends in monetary dynamics in real time
- Resulting communication challenges

Relationship between money and prices

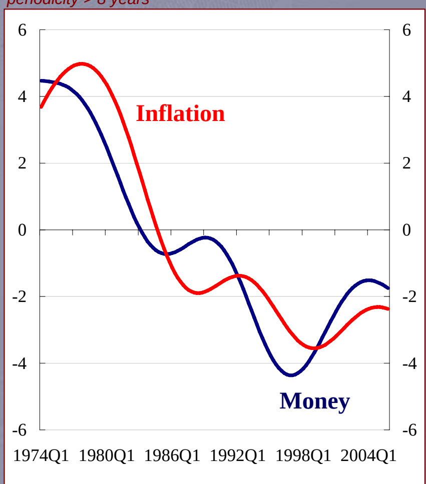
annualised quarter-on-quarter changes, deviations from mean



Source: ECB, Eurostat.

Low frequencies

annualised quarter-on-quarter changes, deviations from mean, periodicity > 8 years

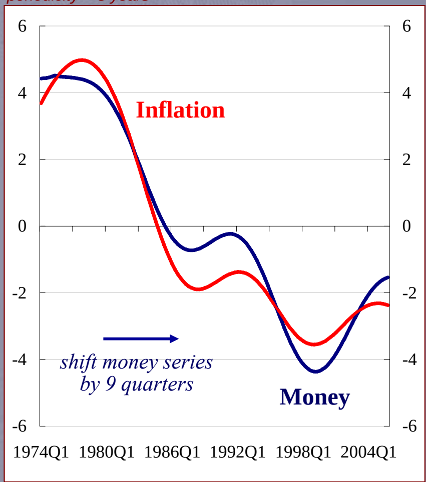


Source: ECB calculations, based on Bruggeman, et al (2005).

- The low frequency component of monetary growth is "correlated" with the low frequency movement of inflation.
- Monetary growth leads inflation …
- … and the lead time between these low frequency components is around 2 - 2½ years.

Low frequencies

annualised quarter-on-quarter changes, deviations from mean, periodicity > 8 years

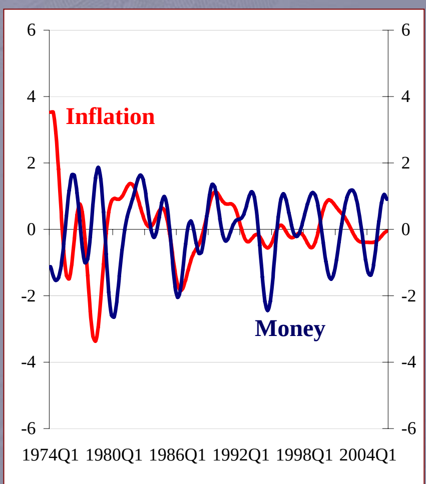


Source: ECB calculations, based on Bruggeman, et al (2005).

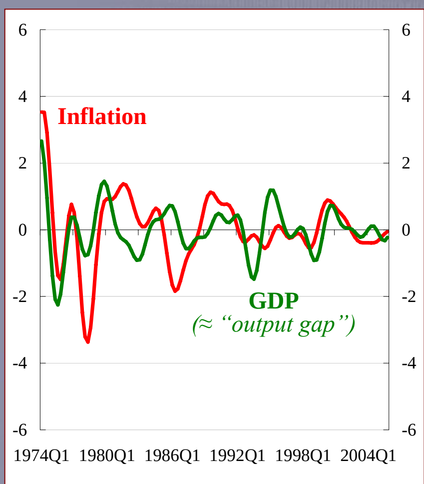
- The low frequency component of monetary growth is "correlated" with the low frequency movement of inflation.
- Monetary growth leads inflation …
- … and the lead time between these low frequency components is around 2 - 2½ years.

Business cycle frequencies

annualised quarter-on-quarter changes, deviations from mean, 2 years < periodicity < 8 years



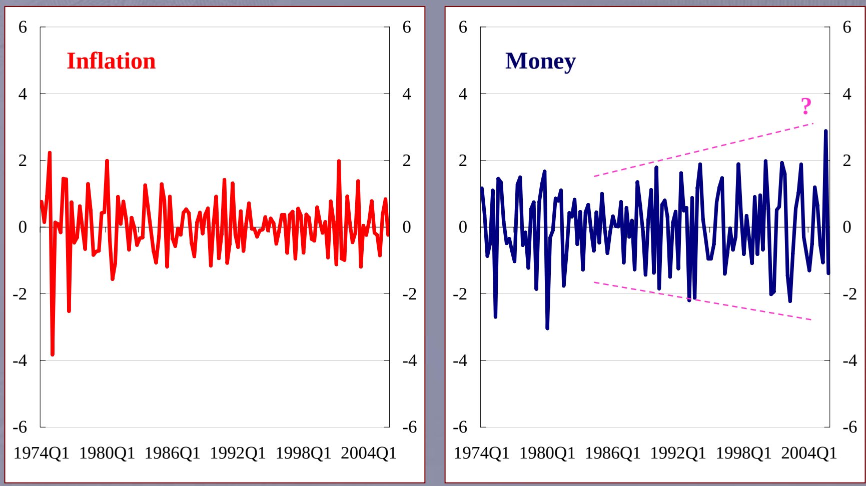
Source: ECB calculations, based on Bruggeman, et al (2005).



Source: ECB calculations.

High frequencies

annualised quarter-on-quarter changes, deviations from mean, periodicity < 2 years



Source: ECB calculations, based on Bruggeman, et al (2005).

Operationalisation

- Frequency domain analysis relies on a "two-sided filter", *i.e. in order to distinguish and recover the relevant "signal" in monetary dynamics from the "noise" you need to have information about the future as well as the past*
- This is obviously not very useful from the policy perspective
- The key challenge facing monetary analysis is therefore to extract the signal from the noise in real time, *i.e. using only the available information*
- In practice, this is data intensive (and thus complex) and inherently requires the exercise of educated judgment
- *Example:* Portfolio shifts into money between 2001 and 2003

Issue 1: Relevance of low frequency relationship

- *Critique: Because the money / price relationship is only relevant over the long-term, in practice monetary policy makers can and should ignore it …*
- Inflation at any moment can be thought of as having three components:

$$\begin{aligned}\pi_t &= \pi_t^{LF} + \pi_t^{BCF} + \varepsilon_t \\ &= f(\dot{M}_t^{LF}) + g(y_t - y_t^*) + \varepsilon_t\end{aligned}$$

- Low frequency developments are relevant at policy-relevant (indeed all) horizons;
- Since they are persistent, low frequency developments arguably are more important since they will take longer to correct

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Issue 2a: Relationship with interest rate changes

- *Critique: There is no close relationship between monetary growth and interest rate decisions; therefore monetary policy makers must be ignoring the monetary analysis (contrary to the ECB's strategy)*
- Part A: One should not look at "headline" M3 growth but rather the policy-relevant low frequency component as a guide to policy decisions
- Extracting the low frequency or "underlying" component of monetary dynamics relies on a comprehensive assessment of the components and counterparts of M3, the financial accounts and other financial and macroeconomic information
- Note that the ECB has always emphasised that interest rates would not respond "mechanically" to deviations of M3 growth from the reference value

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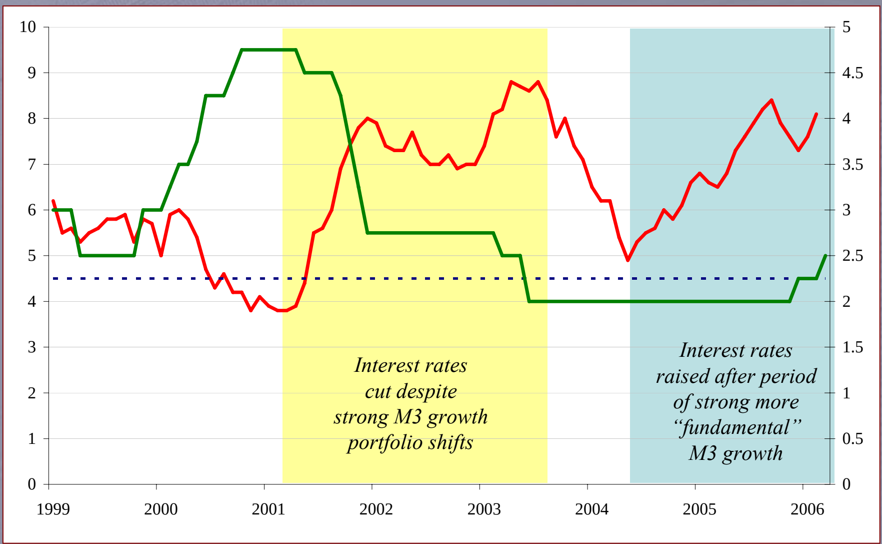
Issue 2b: Relationship with interest rate changes

- *Critique: There is no close relationship between monetary growth and interest rate decisions; therefore monetary policy makers must be ignoring the monetary analysis (contrary to the ECB's strategy)*
- Part B: By construction, the low frequency component of monetary dynamics is persistent and therefore does not change much from one month to another;
- There is thus relatively little marginal "news" in one month's monetary data and hence it is unlikely to be a specific "trigger" for an interest rate change
- Rather monetary data provides broader context for policy assessment (which of course also relies on the economic analysis …)

Monetary dynamics and interest rate decisions

annual percentage change, sa; percent per annum



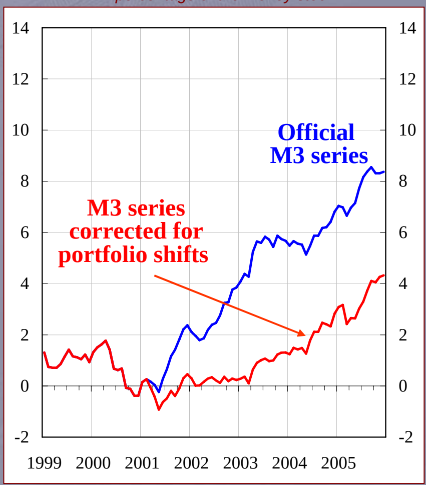
Source: ECB.

Issue 3: Presenting complexity

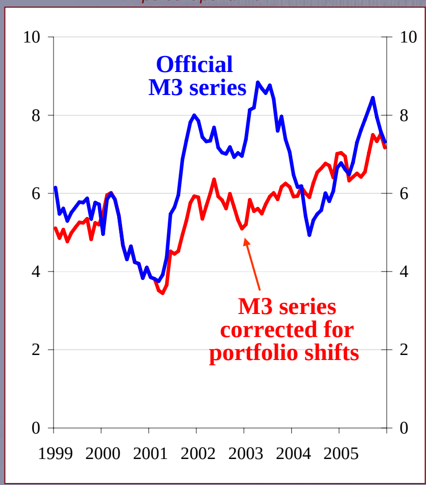
- *Critique: One of the supposed attractions of monetary analysis is that it is simple and transparent; however, in practice the need to correct for "noise" in the month-to-month data renders the analysis complex and intransparent*
- A trade-off exists between maintaining the transparency of focusing on "countable" monetary data in communicating the monetary analysis and going into the complexity of the details
- In practice, this has been managed by presenting "M3 series adjusted for the estimated impact of portfolio shifts" (published in ECB Monthly Bulletin since October 2004), while referring to other analyses in a more qualitative manner

M3 and M3 adjusted for portfolio shifts

Real money gap
percentage of the money stock



Annual growth rates
percent per annum



Source: ECB BSI data; ECB calculations.

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Concluding remarks

- Communication is a crucial aspect of monetary policy making
- There is no unique "optimal approach" to central bank communication
- The ECB has tailored its approach to the specific circumstances it faced
- The ECB's communication has been very successful in many crucial respects *(longer-term inflation expectations well anchored; policy decisions highly predictable)*
- Of course many challenges remain *(including – but not only – related to the monetary analysis)*

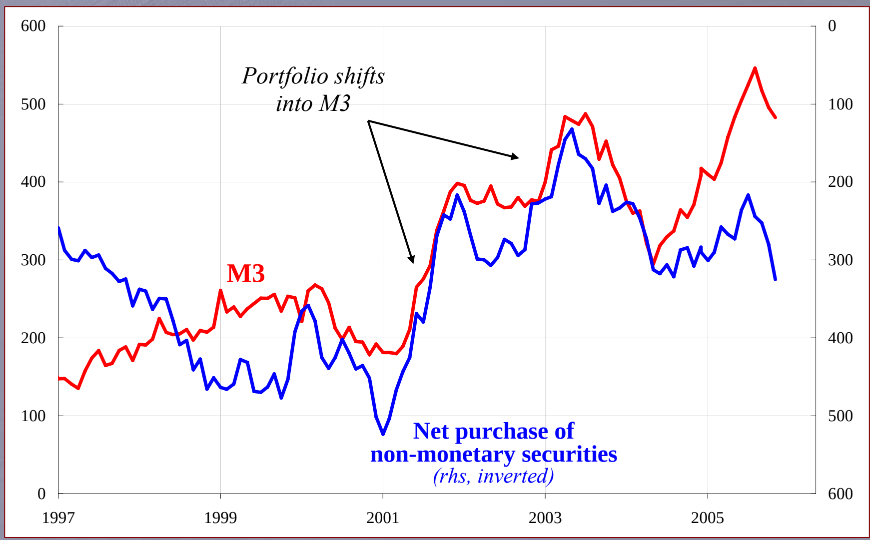
References

- C. Brand, D. Buncic and J. Turunen (2006). “The impact of the ECB’s monetary policy decisions and communication on the yield curve”, ECB.
- A. Bruggeman, G. Camba Mendez, B. Fischer and J. Sousa (2005). “Structural filters for monetary analysis: The inflationary movements of money in the euro area”, ECB WP no. 470.
- ECB (2003). “The outcome of the ECB’s evaluation of its monetary policy strategy”, ECB Monthly Bulletin *June*.
- ECB (2006). “The predictability of the ECB’s monetary policy”, ECB Monthly Bulletin *January*.
- B-R. Wilhelmsen and A. Zaghini (2005). “Monetary policy predictability in the euro area: an international comparison”, ECB WP no. 505.
- B. Winkler (2002). “Which kind of transparency? On the need for clarity in monetary policy-making”, *IFO Studien* 48(3).

Background slides

M3 and net purchases of non-monetary securities

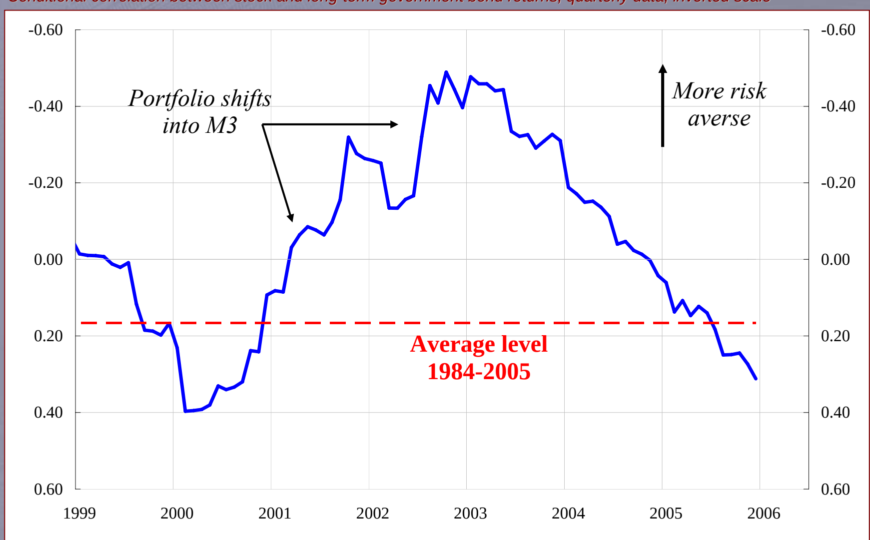
annual flows in EUR billions, sa



Source: ECB BSI statistics, MUFA statistics, ECB calculations.

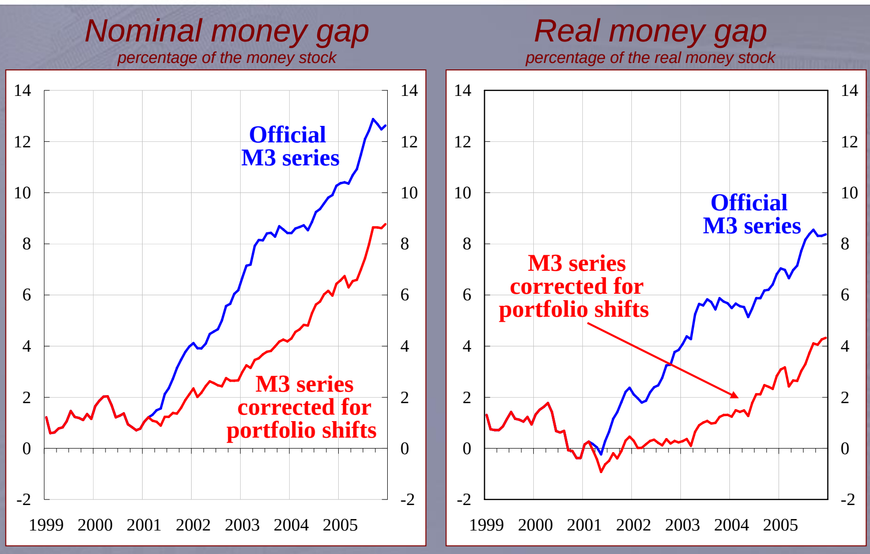
Measure of risk aversion

Conditional correlation between stock and long-term government bond returns, quarterly data, inverted scale



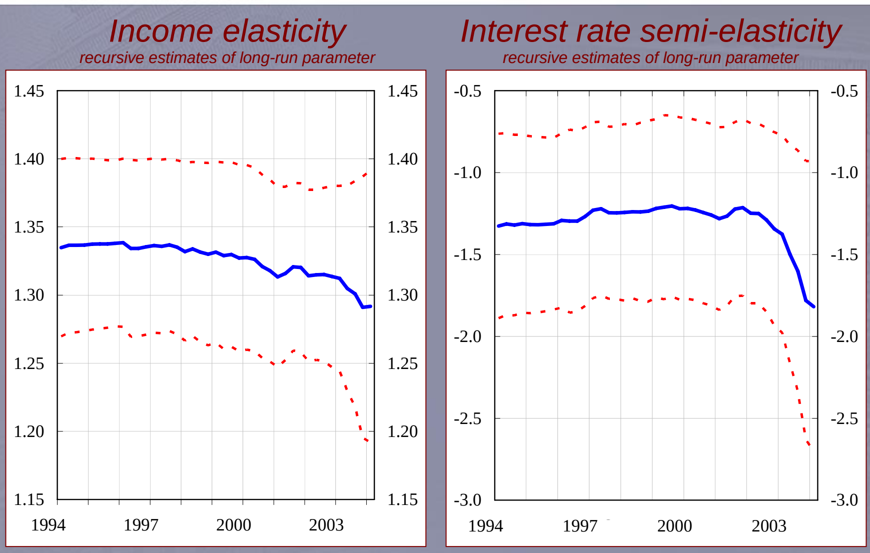
Source: ECB calculations

Assessment of the liquidity situation



Source: ECB BSI data; ECB calculations.

Money demand stability



Source: "Monetary analysis in real time." ECB Monthly Bulletin, October 2004.
Note: Underlying model is Calza, et al. (2001)

Money demand stability

Formal statistical test of stability
conditional on cointegration of time series

Nyblom parameter-constancy test

Type of test	Statistic	P-value
Supremum	0.53	0.62
Mean	0.16	0.55

Note: The p-value represents the probability that the null-hypothesis (in these tests, stability of the parameters of the money demand equation) cannot be rejected. P-values are bootstrapped using 1,000 iterations following Bruggeman, et al. (2003)

Source: "Monetary analysis in real time." ECB Monthly Bulletin, October 2004.

Note: Underlying model is Calza, et al. (2001)

- At best, uncertainty surrounds the stability of existing money demand equations for euro area M3
- This brings into question the reliability of the P-star approach
- But, in principle, the bivariate indicator model results are not at stake
- Breakdown of stability of specific MD equation may reveal other information …

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