



# Preparations and Prerequisites for the Introduction of Inflation Targeting in Romania

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Romania's Prospects"*  
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# 1. Recap: Context and Initial Specifications

- Inflation targeting mentioned in Romania's Medium-Term Strategy for Economic Development (2000), confirmed in PEPs (2002 and beyond)
- Initial specifications:
  - (i) target specified in terms of CPI;
  - (ii) mid-point with band (some tolerance for undershooting target);
  - (iii) annual targets w. multi-period perspective (initially two years);
  - (iv) flexible interpretation of inflation targeting (esp. coexistence w. managed float regime);
  - (v) existence of few *ex ante* defined "exceptions" conditional to attaining the target;
  - (vi) joint announcement of target with government





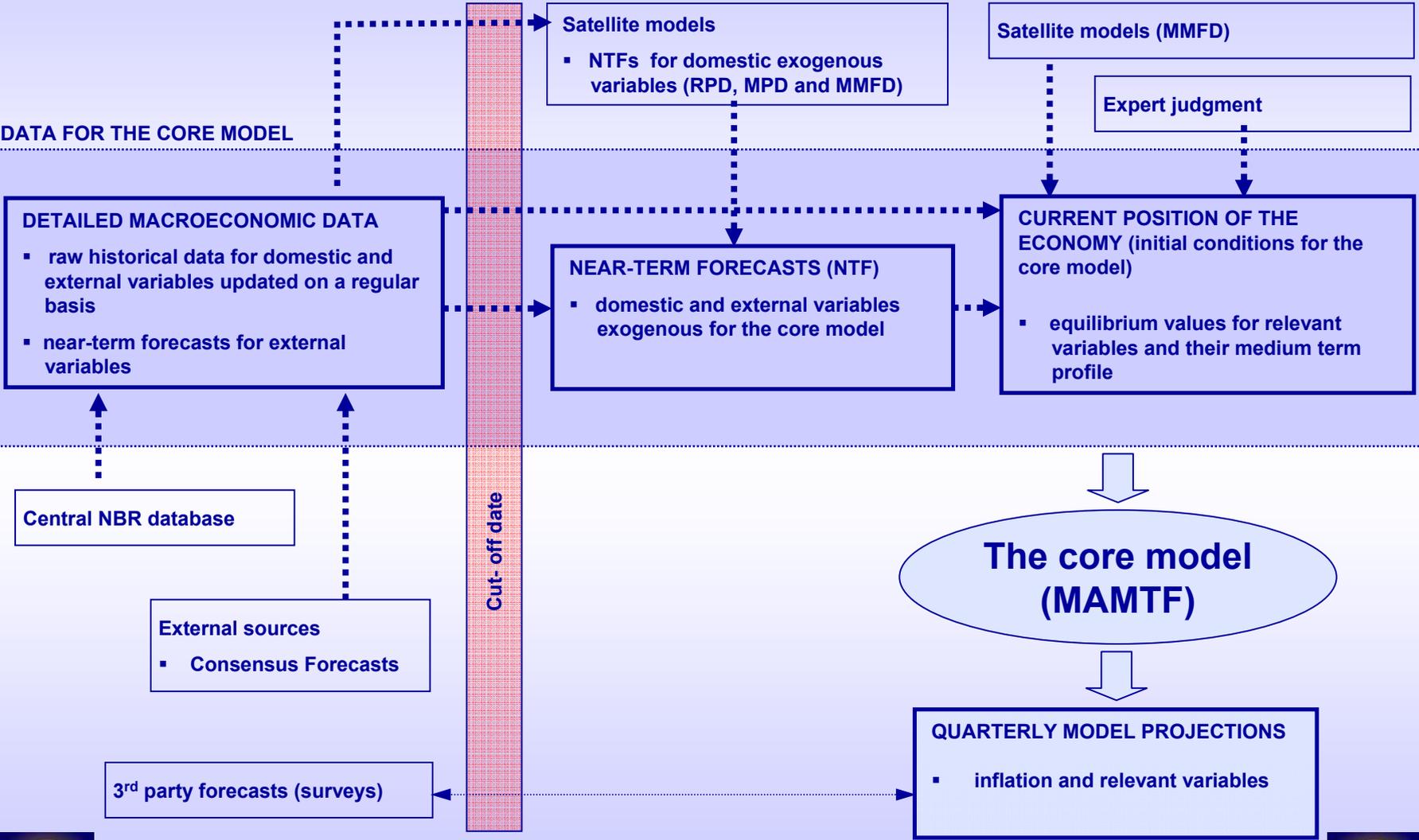
## 2.1 Organizational Issues

- Task force set up to implement the IT framework, led by coordinating DG
  - Monetary Policy Department
  - Research and Publications Department
  - Macroeconomic Modeling and Forecasting Department
- Development of a detailed quarterly macroeconomic forecasting framework
  - Centralized database
  - Data monitoring & reporting
  - Expectations survey
  - Near-term forecasting of key variables
  - Medium-term forecasting model, consistent with achieving multi-period inflation targets





# Data management





# 2.2 The Policy-Making Process

## Role of the NBR Board

- Exceptional initial involvement in model specification, starting conditions (in order to foster ownership/understanding: “successful dialogue with the model”)
- Final decision-making body
- Focuses on how to best employ forecasts in policy making
- In practical terms:
  - identifies alternative scenarios to consider or special issues to be examined from the viewpoint of strategy (‘big decisions’); these are then run through model again for consistency
  - judges how the path for the policy interest rate should be adjusted to account for uncertainties and risks





## Role of the Monetary Policy Committee (MPC)

- Institutionalized analytical forum at staff/executive management level
- Critical focus on ensuring that all relevant information is brought to bear on the forecasts
- In practical terms:
  - responsible for reviewing assumptions on initial conditions for the forecasts, including the outlook for exogenous variables
  - reviewing the projections and formulating policy recommendations for the Board, including analyses of their technical implications





# Quarterly Forecasting & Decision Schedule

Time	Event	Details
T-57	<b>Task Force</b> – First issues meeting	Model meeting
T-51	<b>Task Force</b> – Second issues meeting	Other projection details
	<b>MPC</b> regular monthly meeting	Policy review and recommendation
	<b>Board</b> regular monthly meeting	Policy review and decision
T-34	<b>Task Force</b> meeting	Near-Term Forecasts (NTF)
T-27	<b>Task Force</b> meeting	Initial conditions, equilibrium conditions and exogenous variables
T-23	<b>MPC</b> meeting	Initial conditions, equilibrium conditions, exogenous variables and NTF
<b>Start of Forecasting Cycle</b>		
T-18	<b>Task Force</b> meeting	Final projection meeting
T-15	<b>MPC</b> monthly meeting	Forecasts and risk scenarios
T-10	<b>Board</b> meeting	Monetary Policy Decision
<b>T</b>	<b>'Inflation Report'</b>	<b>Forecasts and 'Inflation Report' sent to MPC</b>
T+3	<b>MPC</b> meeting	Discussion of forecasting cycle and 'Inflation Report'
T+6	<b>Board</b> meeting	Discussion & Eventual Adoption of 'Inflation Report'





## 2.3 Forecasting

- Based on formalized models and expert judgment
- Two types of modeling approaches:
  - Estimation approach at the short-run horizon
  - Calibration approach at the medium-term horizon
- Final forecast integrates information from short-term models, medium-term model and expert judgment





## 2.3.1 Near-Term Forecasting Framework

- Two-quarter horizon at present
- A set of methods (one model approach is risky)
- Economic theory as a basis of analysis, but applied to statistical data (estimation vs. calibration)
- Tool for simulating the impact of changes in exogenous variables
- Used for analysis and for establishing the initial conditions for the QFM





## Near-term Inflation Forecasting

- Two methods:
  - Expert judgement forecast for CPI components
  - ARMAX model for the main CPI inflation components (yoy data, monthly frequency)
    - Food
    - Non-food excluding regulated and fuel prices
    - Services excluding regulated prices

Exogenous variables: EUR/ROL and EUR/USD exchange rates, net wages, regulated prices, fuel prices

- The forecast presented to the MPC = weighted average of the results provided by the two methods (with 0.65 weight given to the ARMAX model)





## Near-term GDP Forecasting

- Small semi-structural model (qoq)
- Behavioural equations for household consumption, gross fixed capital formation, exports, imports and core inflation
- Exogenous variables:
  - EUR/ROL and EUR/USD exchange rates, public consumption, net wages, regulated prices, fuel prices, 3M Euribor, euro area GDP, HICP
- OLS and 2SLS estimation with error correction mechanism





## 2.3.2 Medium-Term Forecasting

### History

- Assembling the Model for Analysis and Medium-Term Forecasting (MAMTF) started in mid-2004
- Significant progress achieved, with technical assistance support from two IMF missions and bilateral exchanges/expert visits with the Czech National Bank (MAMTF conceived in similar fashion to Czech QPM)
- Two forecasting dry runs to test MAMTF adequacy and the functional integration of short-term and expert information; currently in second dry run
- First-pass calibration of MAMTF based on priors discussed by the Bank's Board





## General characteristics of MAMTF

- Model open to continuous improvement, while maintaining the core structure
- Small semi-structural calibrated model with a New-Keynesian core (ST and MT non-neutrality)
- Economy assumed to converge to well-defined and stable long-run equilibrium
- Deviations from trends – the “gaps” - reflect cyclical behavior of the economy, while trends are analogous to steady-state values (primarily assessed on inflation neutrality)





## Core structure of MAMTF

- Core inflation determined by its structural persistence, agents' expectations, output gap, and import price inflation
- Output gap or "excess demand" factor determined by its own persistence and real monetary conditions, incl. "gaps" of real (bank) interest rates and real exchange rate
- Exchange rate determined according to uncovered interest parity relationship including a risk premium
- Monetary policy behavior (as implied by flexible inflation targeting) described by a forward-looking policy interest rate rule that reacts to deviations of inflation from target, the output gap and excessive interest rate volatility
- Agents' expectations modeled as hybrids of backward-looking (inertial) and forward-looking ("model-consistent") expectations





## Specifics of the MAMTF transmission mechanism

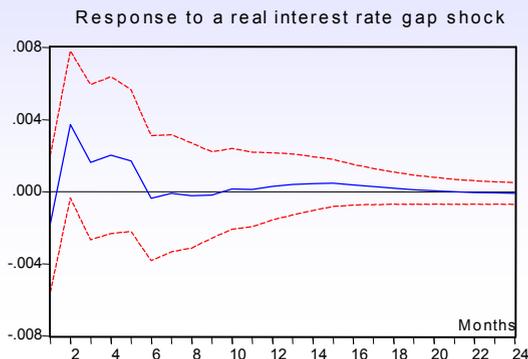
- Low sacrifice ratio (but may vary over time, according to progress of disinflation)
- Expectations channel quite significant for monetary policy direct influence on inflation
- Exchange rate channel also important, especially for speed of disinflation (two channels: direct, via pass-through; indirect, through influences on real sector and asset portfolios)
- Aggregate activity (output gap) channel relatively less effective at present, but crucial for ensuring continuity of disinflation process
- Monetary policy impulses intermediated by relatively sluggish bank deposit and lending rates



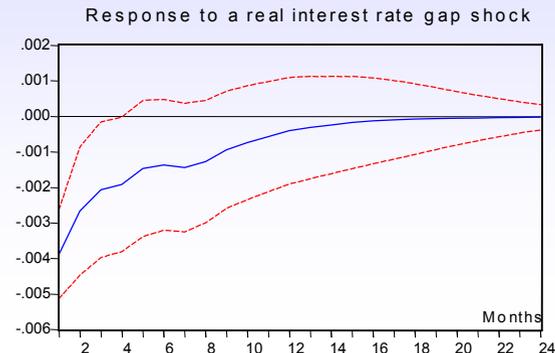


# Increasing role of policy rate in influencing inflation

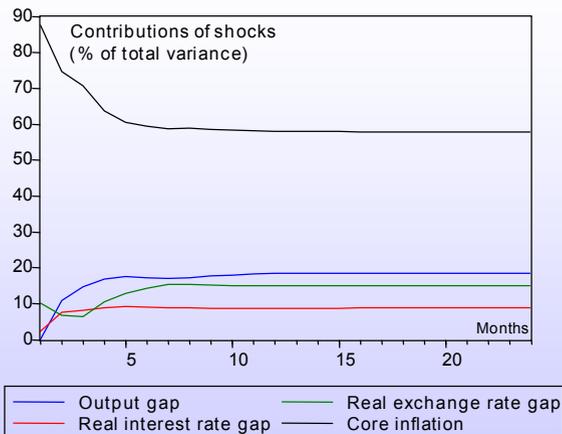
Response of core inflation to monetary policy induced shocks  
Sample: June 1997 - December 2000



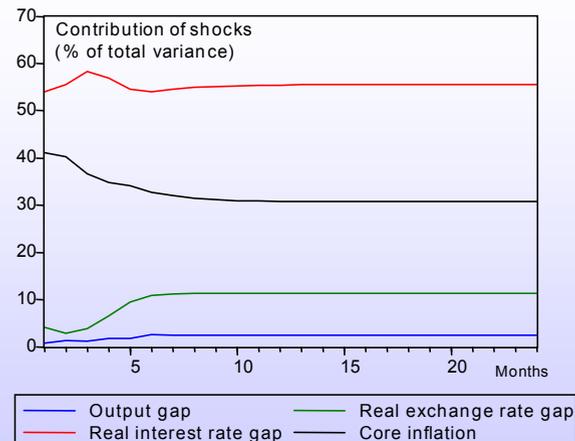
Response of core inflation to monetary policy induced shocks  
Sample: September 2000 - November 2004



Variance decomposition of core inflation  
Sample: June 1997 - December 2000



Variance decomposition of core inflation  
Sample: September 2000 - November 2004





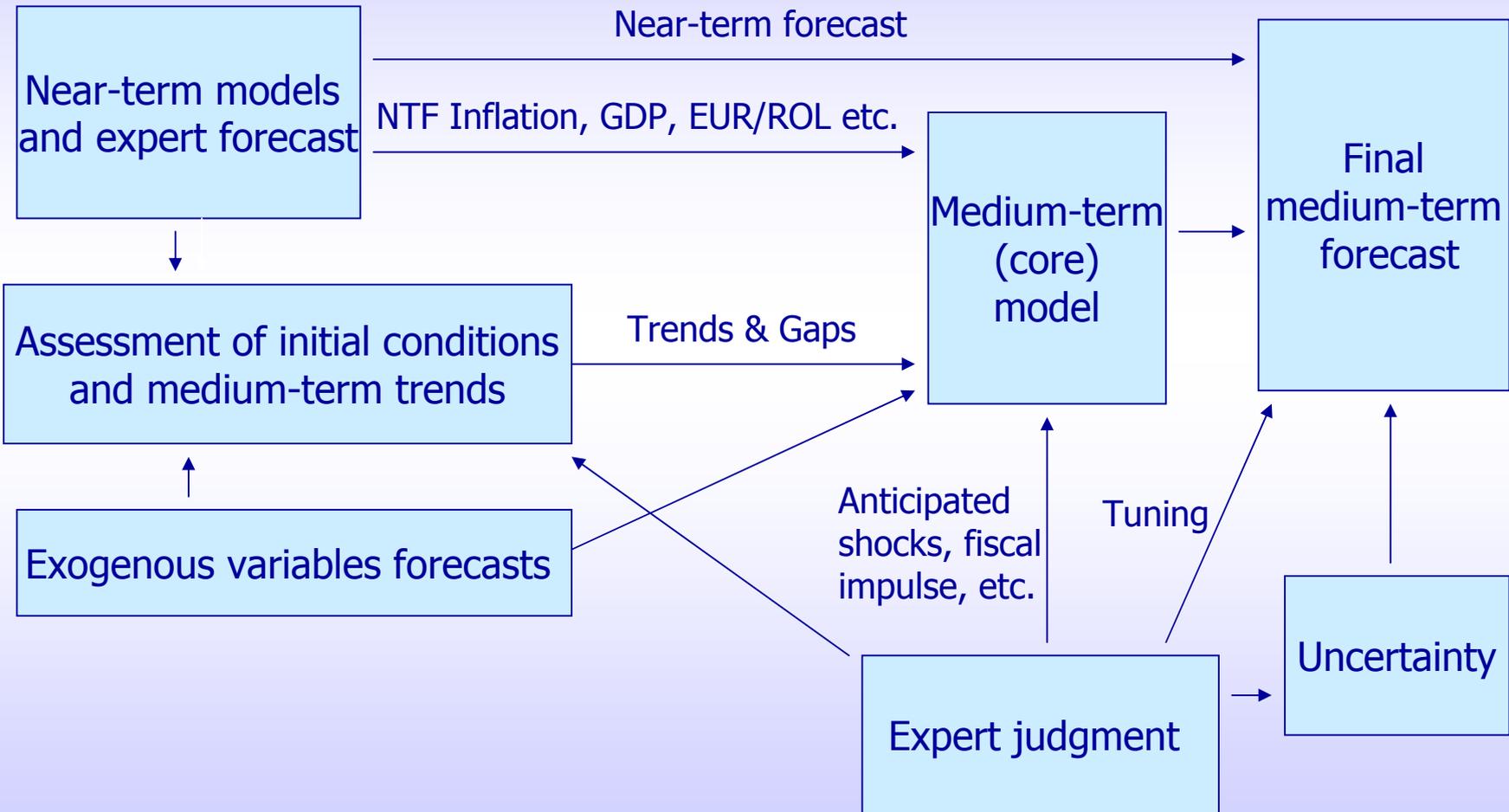
## 2.3.3 The forecasting process

- Role of near-term forecasting
  - Covers short end of forecast horizon
  - Shapes the initial conditions of the forecast
  - (In the future) Serves as cross-check for final forecast
- Role of expert judgment
  - Flexibility of MAMTF allows direct incorporation of expert input (incl. survey-based information)
  - Forecasts of effects of anticipated exogenous events (e.g. capital account liberalization)
  - Forecasts of variables not explicitly modeled (e.g. fiscal stimulus)
  - Model forecasts can be “tuned” if unrealistic
- Role of medium-term model
  - Integrates all information in a consistent way
  - Generates an interest rate path which can serve as policy guideline
  - Can be used to generate risk scenarios, analyze consistency of alternative scenarios





# Flow of information in the forecasting process at the National Bank of Romania





## 2.4 Communication issues

- Restructuring of the existing inflation report
- Policy made more transparent
- Supporting external communication





## 2.4.1 The New Inflation Report

- Plays the central role in the communication strategy under IT
- To be published quarterly, reflecting the forecasting cycle; first quarterly report (2005Q1) expected July, also serving to emphasize multi-period preoccupation for attaining the inflation targets
- Based on the same information set used in the forecasting process
- Compared to existing 6-month Inflation Reports: (i) more timely publishing; (ii) transparent inclusion of NBR inflation forecast, policy decision, detailed risk assessment; (iii) balance favors forward-looking analysis over backward-looking reporting; (iv) will replace a substantial portion of analysis currently included in NBR Annual Reports, some streamlining of monthly bulletins also a result
- Unpublished draft inflation reports for the two dry-run forecasting rounds, for purposes of internal analysis





## 2.4.2 Increased Policy Transparency

- Increased frequency and quality of communication with public on policy issues
- Prior announcement of calendar for policy-related Board meetings
- Press releases on contents of between-forecast meetings and on the monetary policy decisions
- Prior announcement of confirmation of fully-fledged implementation of IT regime, with details on bandwidth, formalized exceptions, etc.





## 2.4.3 Supporting external communication

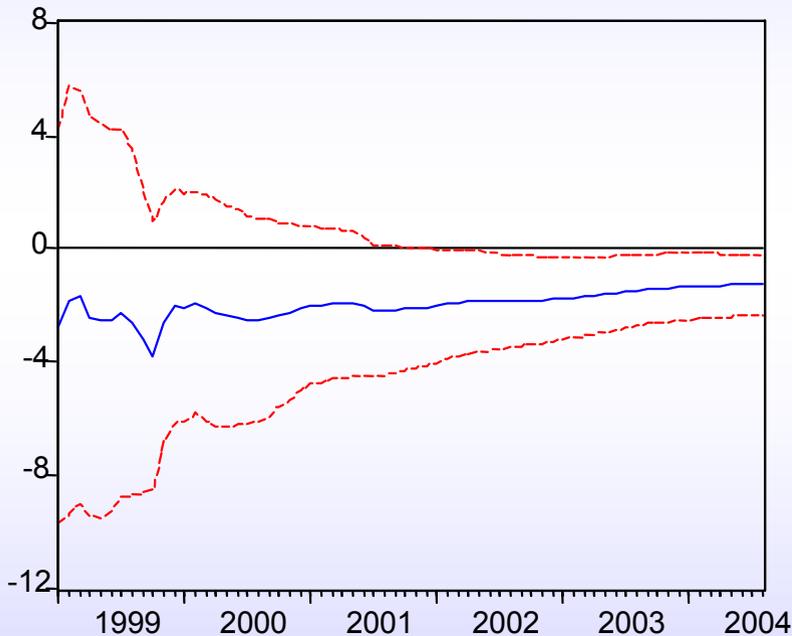
- The NBR website will be re-designed to allow easier access to policy related information and to include background information on inflation targeting
- Dedicated briefings on benefits of IT and the related policy process to be organized
- Brochure series targeted for broader audience
- Background papers to be published
- Conferences, interviews, public speeches



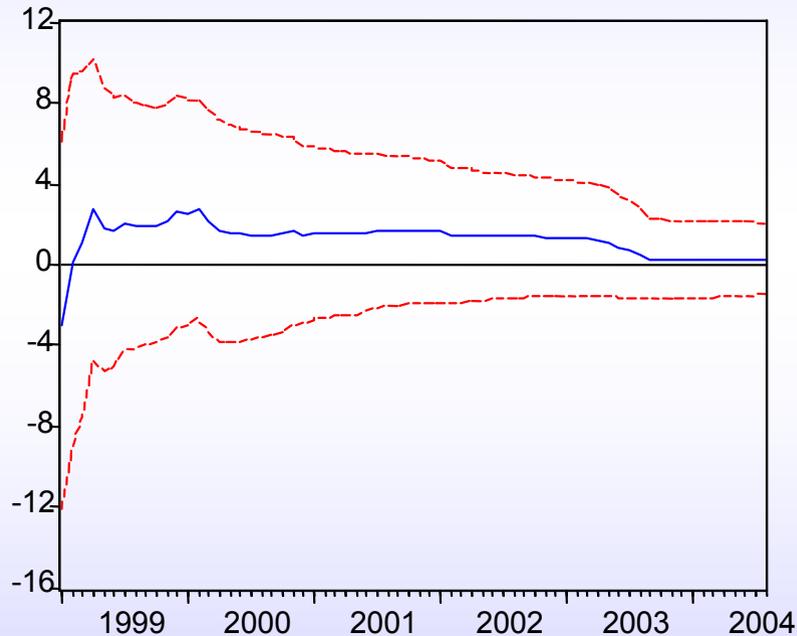


### 3. Prerequisites for Inflation Targeting

#### 3.1 Absence of Fiscal Dominance (dep var. IINTER = (BUBID3M + BUBOR3M)/2)



— Recursive log NBR steriliz. flow estimates  
 - - - ± 2 S.E.

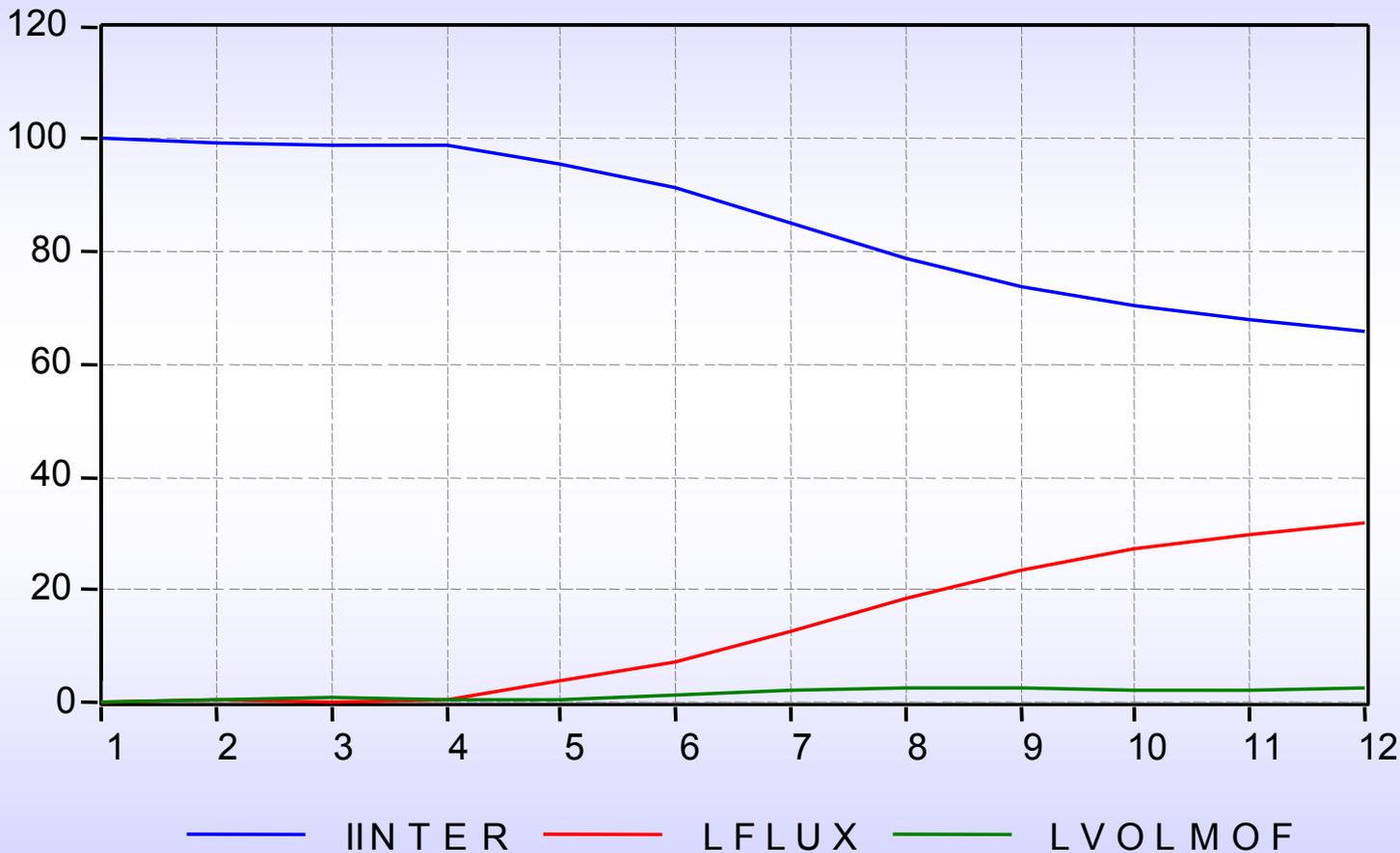


— Recursive log MoF debt issuance <=1Y estim.  
 - - - ± 2 S.E.

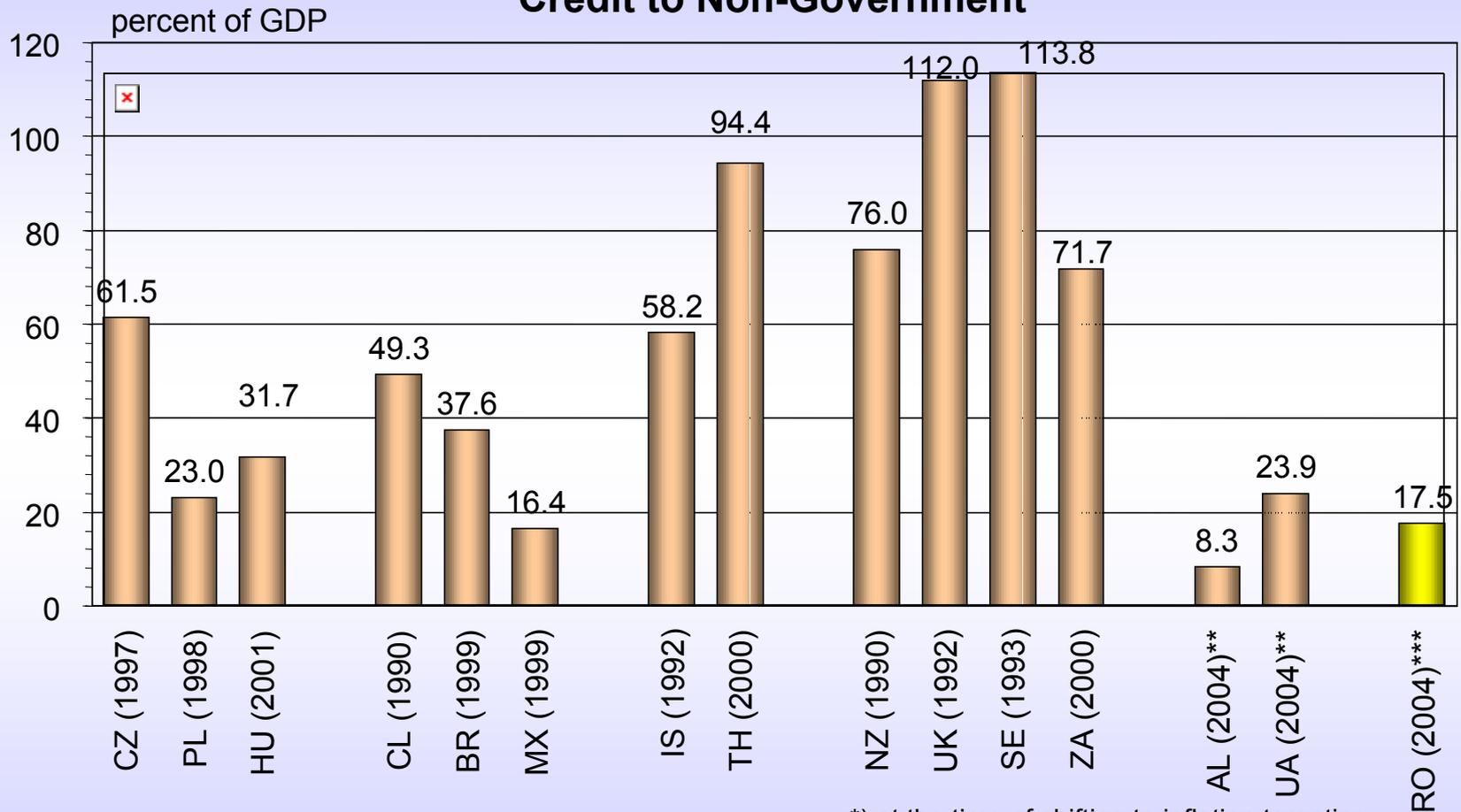




# Variance Decomposition of IINTER



## 3.2 International Comparisons Credit to Non-Government\*



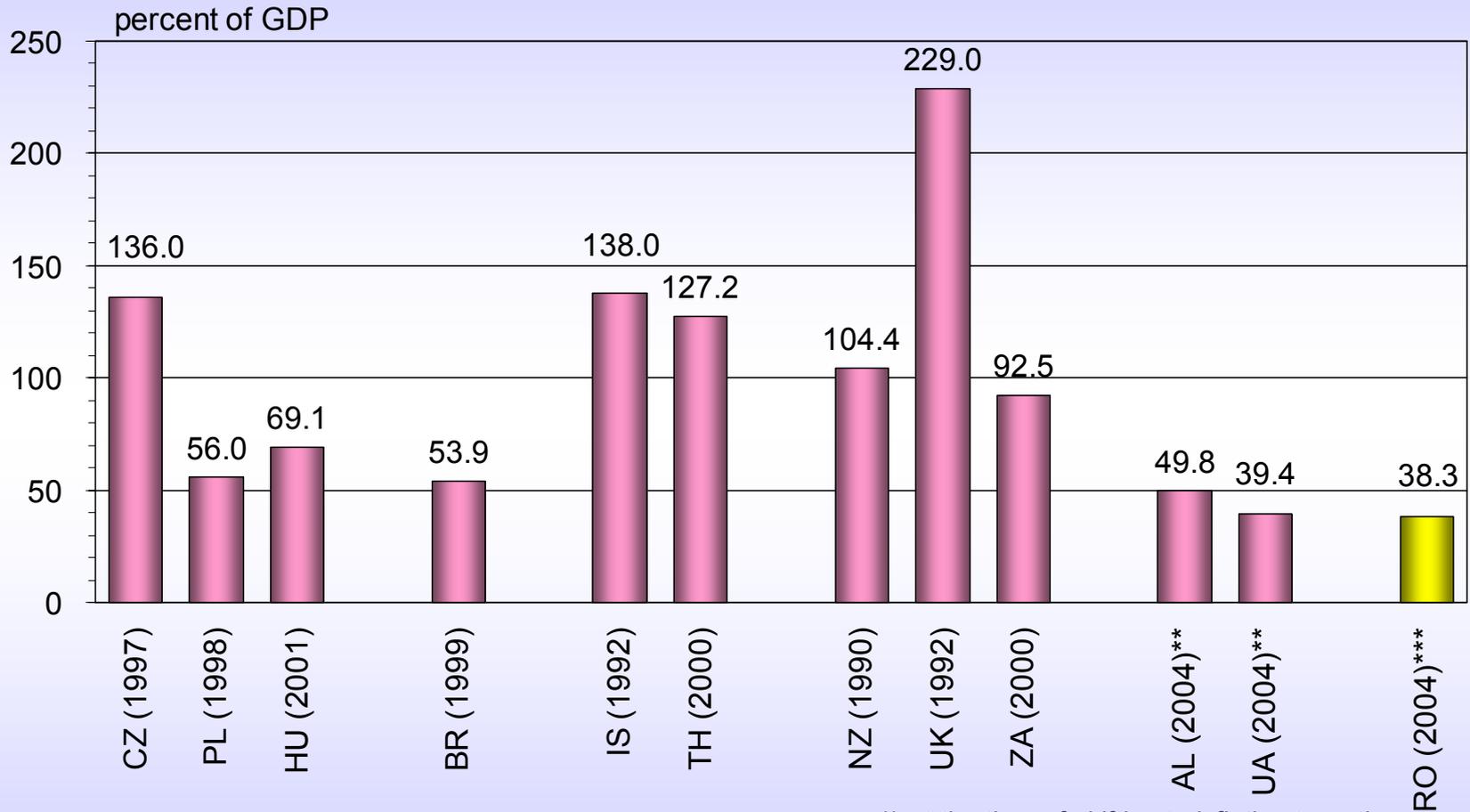
\*) at the time of shifting to inflation targeting

\*\* ) intends to adopt inflation targeting

\*\*\* ) to shift to inflation targeting in 2005

Source: EUROSTAT, NBR, NIS, IMF

# Bank Assets\*



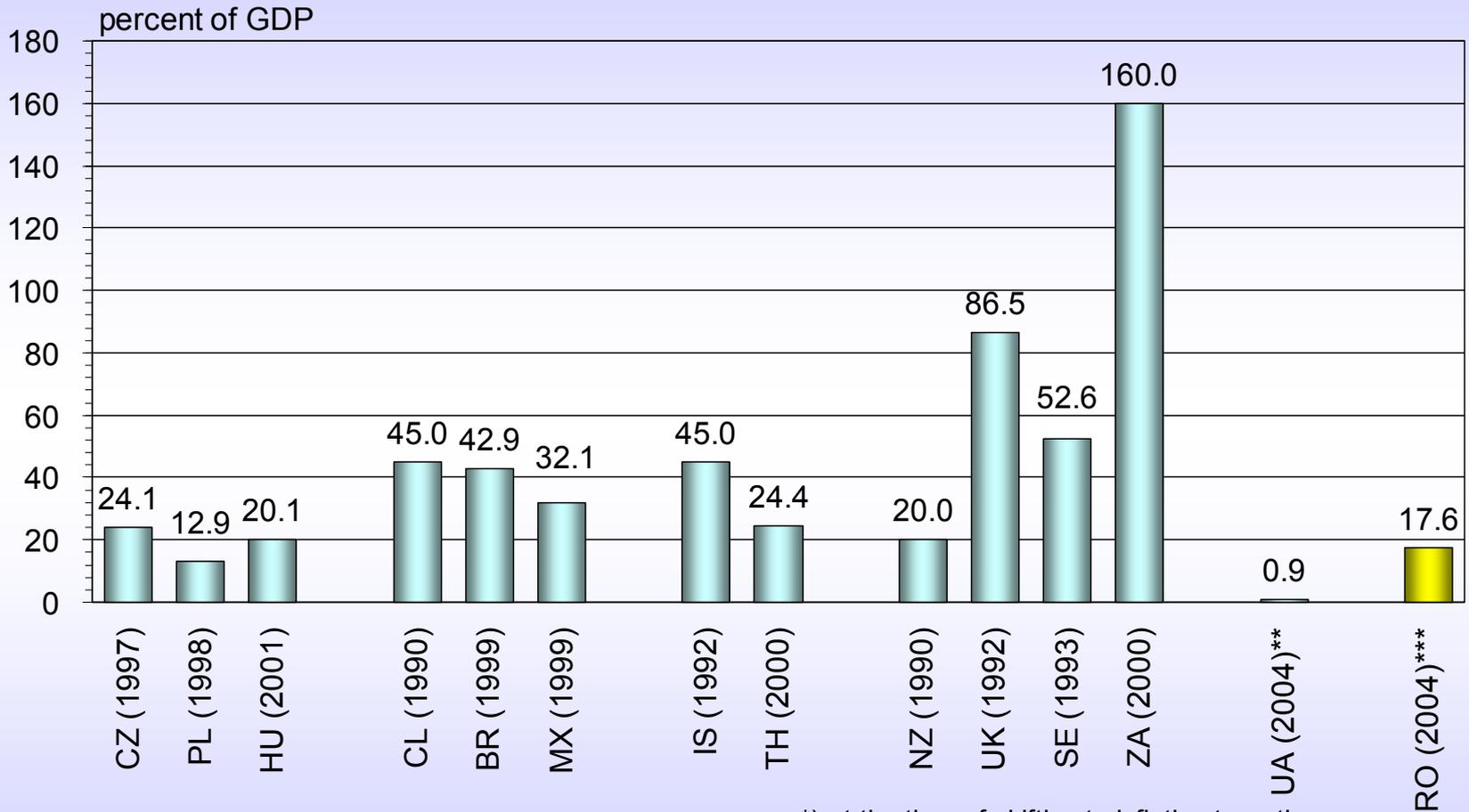
\*) at the time of shifting to inflation targeting

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Source: Websites of central banks and national statistics institutions

# Stock Market Capitalisation\*



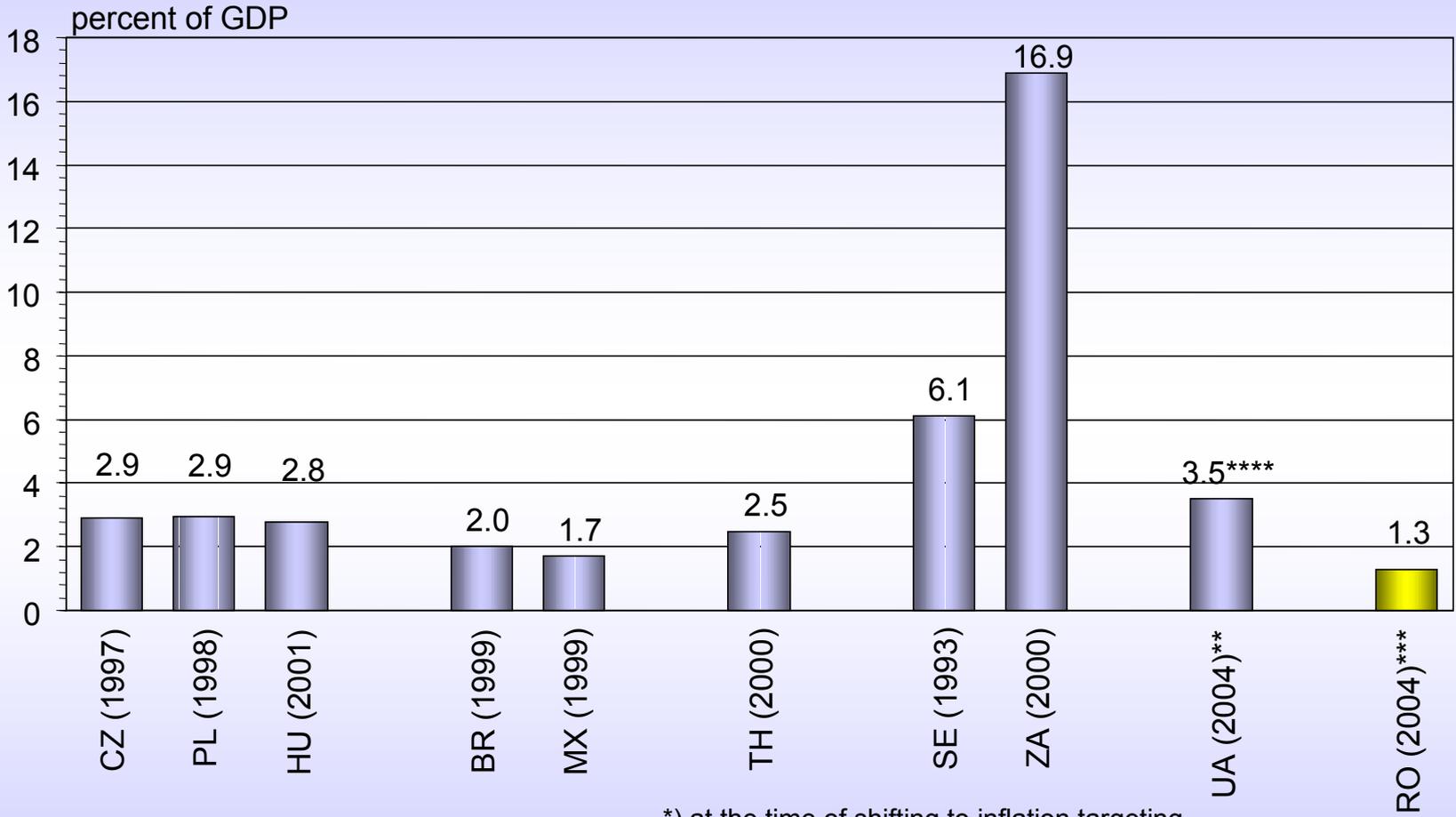
\*) at the time of shifting to inflation targeting

\*\*\*) intends to adopt inflation targeting

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Source: EUROSTAT, NIS, BSE, RASDAQ

# Insurance Premia\*

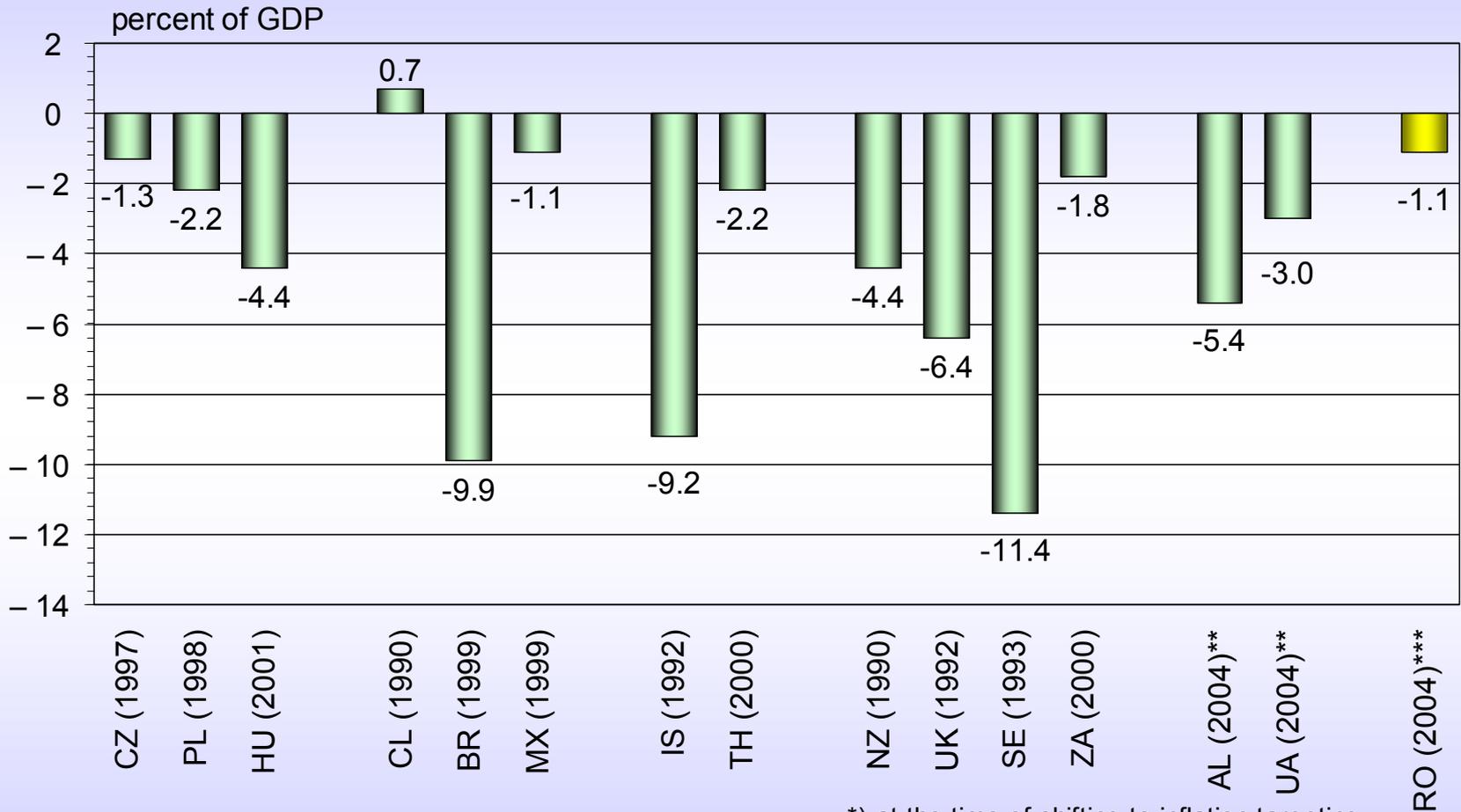


\* ) at the time of shifting to inflation targeting  
\*\* ) intends to adopt inflation targeting  
\*\*\* ) to shift to inflation targeting in 2005

Source: EUROSTAT, Swiss Re, ISC, NIS

\*\*\*\*) 2003

# Fiscal Surplus/Deficit\*



\*) at the time of shifting to inflation targeting

\*\* ) intends to adopt inflation targeting

\*\*\* ) to shift to inflation targeting in 2005

Source: EIU, MPF, NIS



## 4. Steps Ahead

- Additional scope in data reporting, surveys: integrating reliable information & expectations regarding housing & financial assets
- Improvements in near-term forecasting and integration into decision-making: ARMAX, expert judgment
- Improvements in MAMTF: (i) refining calibration; (ii) adding extra "wrinkles"; (iii) interaction with additional blocks (satellite sub-models): external accounts, fiscal; (iv) extending range to 6 and 8 quarters ahead
- Transparency & communication: improvements in content of QIR; briefing sessions on regular basis; possible publication of minutes/voting records

