

# **DECISION MAKING UNDER INFLATION TARGETING: THE POLISH EXPERIENCE**

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President

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**"Inflation Targeting: Performance and Challenges"**

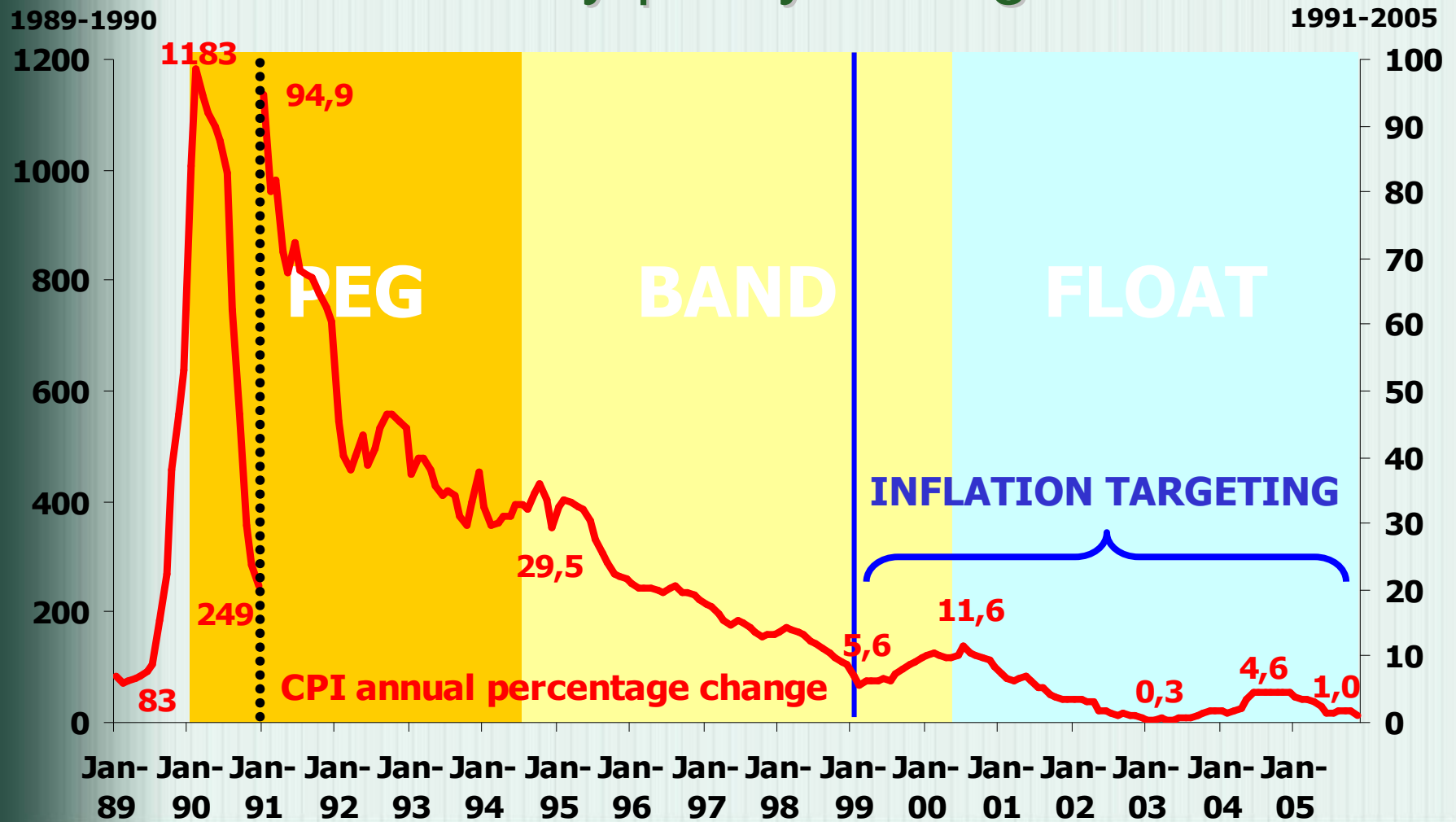
**Istanbul, 19-20 January 2006**

## Presentation outline:

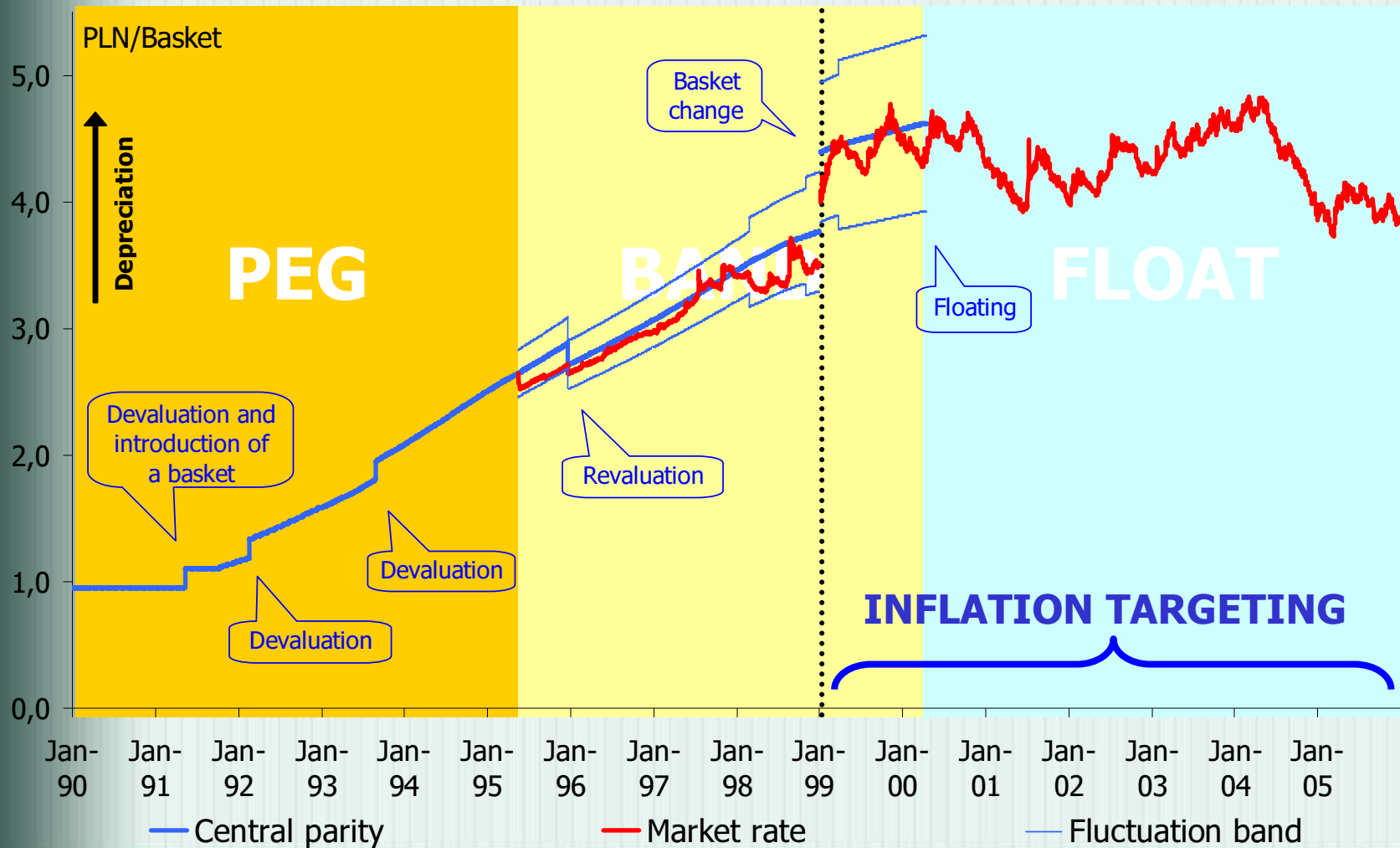
1. Disinflation in Poland – overview
2. Inflation targeting
3. The use of forecasts
4. The decision making process
5. Conclusions

# **1. DISINFLATION IN POLAND – OVERVIEW**

## Disinflation was the most important challenge for monetary policy during transition



## It was conducted under various exchange rate regimes



# Monetary policy before IT (1990-1997)

## ”Eclectic” monetary policy strategy

### **1990-1991**

- Administrative fixed peg (first to the USD, next to a currency basket /USD, DEM, GBP, FRF, CHF/)
- Inflation target (discussed by the NBP with the MinFin, approved by the Parliament)

### **1992-1995**

- Inflation target (discussed by the NBP with the MinFin, approved by the Parliament)
- Crawling peg (crawling band since 1995) to a currency basket
- M2 annual growth as an intermediate target

### **1996-1997**

- Inflation target (discussed by the NBP with the MinFin, approved by the Parliament)
- Crawling band to a currency basket, paving the way to free float (2000)
- M2 annual growth as an intermediate target
- M0 annual growth as an operational target

## Inflation and monetary growth (1990-1997)

Year	Inflation (CPI)*			Monetary growth (M2)		
	Target (percent)	Actual (percent)	Deviation (pp.)	Target (bln PLN)	Actual (bln PLN)	Deviation (percent)
<b>1990 - 1991</b>						
<b>1990</b>	<b>95.0</b>	<b>249.3</b>	<b>+154.3</b>	<b>4.1</b>	<b>10.3</b>	<b>+151.2</b>
<b>1991</b>	<b>32.0</b>	<b>60.4</b>	<b>+28.4</b>	<b>8.5</b>	<b>9.0</b>	<b>+5.9</b>
<b>1992 - 1995</b>						
<b>1992</b>	<b>36.9</b>	<b>44.3</b>	<b>+7.4</b>	<b>12.7</b>	<b>15.0</b>	<b>+18.1</b>
<b>1993</b>	<b>32.2</b>	<b>37.6</b>	<b>+5.4</b>	<b>15.0</b>	<b>14.8</b>	<b>-1.3</b>
<b>1994</b>	<b>23.0</b>	<b>29.5</b>	<b>+6.5</b>	<b>15.5-16.9</b>	<b>21.4</b>	<b>+26.6</b>
<b>1995</b>	<b>17.0</b>	<b>21.6</b>	<b>+4.6</b>	<b>17.1</b>	<b>26.9</b>	<b>+57.3</b>
<b>1996 - 1997</b>						
<b>1996</b>	<b>17.0</b>	<b>18.5</b>	<b>+1.5</b>	<b>23.0</b>	<b>30.5</b>	<b>+32.6</b>
<b>1997</b>	<b>13.0</b>	<b>13.2</b>	<b>+0.2</b>	<b>27.4-28.6</b>	<b>39.8</b>	<b>+39.2</b>

\* As of December each year

Source: NBP, CSO



## Problems with "eclectic" strategy

Main reason behind **low effectiveness of monetary policy**:

- Rising inconsistency of controlling exchange rate, interest rate and monetary growth at the same time under open capital account and rapidly growing foreign reserves (***impossible trinity problem***)

# Macroeconomic developments directly before IT

	1994	1995	1996	1997
CPI (average annual percentage change)	29.5	27.8	19.9	14.9
GDP (annual percentage change)	5.2	7.0	6.2	7.1
Domestic demand (annual percentage change)	4.7	7.0	9.6	9.3
Current Account Balance (percent of GDP)	1.0	0.7	-2.3	-3.9
Public finance structural balance (percent of GDP)	na	-2.3	-2.8	-3.0
NBP Interest Rate*	26.5	25.6	21.6	23.5
Foreign Reserves (bln USD)*	6.0	15	18.2	21.4
REER** (annual percentage change)	1.3	7.4	9.1	2.9

\* As of December each year; \*\* Minus denotes depreciation

Source: NBP, CSO

## **2. INFLATION TARGETING**

## New legislation laid foundations for IT

- New Constitution of 1997 ensured **strong independence of the NBP** and named **price stability as the primary objective** of the central bank

*“The central bank of the State shall be the National Bank of Poland. It shall have the exclusive right to issue money as well as to formulate and implement monetary policy. The National Bank of Poland shall be **responsible for the value of Polish currency.**”*

- The NBP Act of 1997 defined **the NBP’s objective in line with** the objective of **the ECB**

*“The basic objective of NBP activity shall be to **maintain price stability**, and it shall at the same time act in support of Government economic policies, insofar as this does not constrain pursuit of the basic objective of the NBP.”*

- The NBP Act of 1997 **changed** the institutional **process of monetary policy decision-making**

Both the inflation target and monetary policy decisions were to be decided by the **newly established MPC** (goal and instrument independence)

# IT - first term MPC (1998-2003)

## Macroeconomic developments under IT

	1998	1999	2000	2001	2002	2003	2004	2005
<b>CPI (annual average percentage change)</b>	<b>11.8</b>	<b>7.3</b>	<b>10.1</b>	<b>5.5</b>	<b>1.9</b>	<b>0.8</b>	<b>3.5</b>	<b>2.2<sup>a</sup></b>
<b>GDP (annual percentage change)</b>	<b>5.0</b>	<b>4.5</b>	<b>4.2</b>	<b>1.1</b>	<b>1.4</b>	<b>3.8</b>	<b>5.3</b>	<b>3.4<sup>b</sup></b>
<b>Domestic demand (annual percentage change)</b>	<b>6.4</b>	<b>5.2</b>	<b>3.1</b>	<b>-1.4</b>	<b>0.9</b>	<b>2.7</b>	<b>5.9</b>	<b>1.6<sup>b</sup></b>
<b>Current Account Balance (percent of GDP)</b>	<b>-4.1</b>	<b>-7.6</b>	<b>-6.0</b>	<b>-2.9</b>	<b>-2.6</b>	<b>-2.2</b>	<b>-4.3</b>	<b>-1.4<sup>c</sup></b>
<b>Public finance structural balance (percent of GDP)</b>	<b>-2.6</b>	<b>-2.5</b>	<b>-2.4</b>	<b>-3.6</b>	<b>-3.8</b>	<b>-3.1</b>	<b>-4.2</b>	<b>3.8<sup>b</sup></b>
<b>NBP Interest Rate<sup>d</sup></b>	<b>15.5</b>	<b>16.50</b>	<b>19.00</b>	<b>11.50</b>	<b>6.75</b>	<b>5.25</b>	<b>6.5</b>	<b>4.5</b>
<b>Foreign Reserves (bln USD)<sup>d</sup></b>	<b>28.3</b>	<b>27.3</b>	<b>27.5</b>	<b>26.6</b>	<b>29.8</b>	<b>34.2</b>	<b>36.8</b>	<b>42.6</b>
<b>REER<sup>e</sup> (annual percentage change)</b>	<b>4.3</b>	<b>-3.2</b>	<b>10.3</b>	<b>12.4</b>	<b>-3.9</b>	<b>-9.8</b>	<b>-0.2</b>	<b>12.0<sup>c</sup></b>

<sup>a</sup> As of November; <sup>b</sup> Estimate; <sup>c</sup> As of Q1-Q3; <sup>d</sup> As of December each year;

<sup>e</sup> Minus denotes depreciation; Source: NBP, CSO

## Medium-term strategy of monetary policy (1999-2003)

- Main objective: lower **inflation below 4% by 2003**
- Annual (year-end) inflation targets
- NBP information policy aimed at convincing the public about the central bank's commitment – Inflation Report as the main analytical document
- Transition to free floating  
(though FX interventions not excluded)

## Annual inflation targets – main challenge

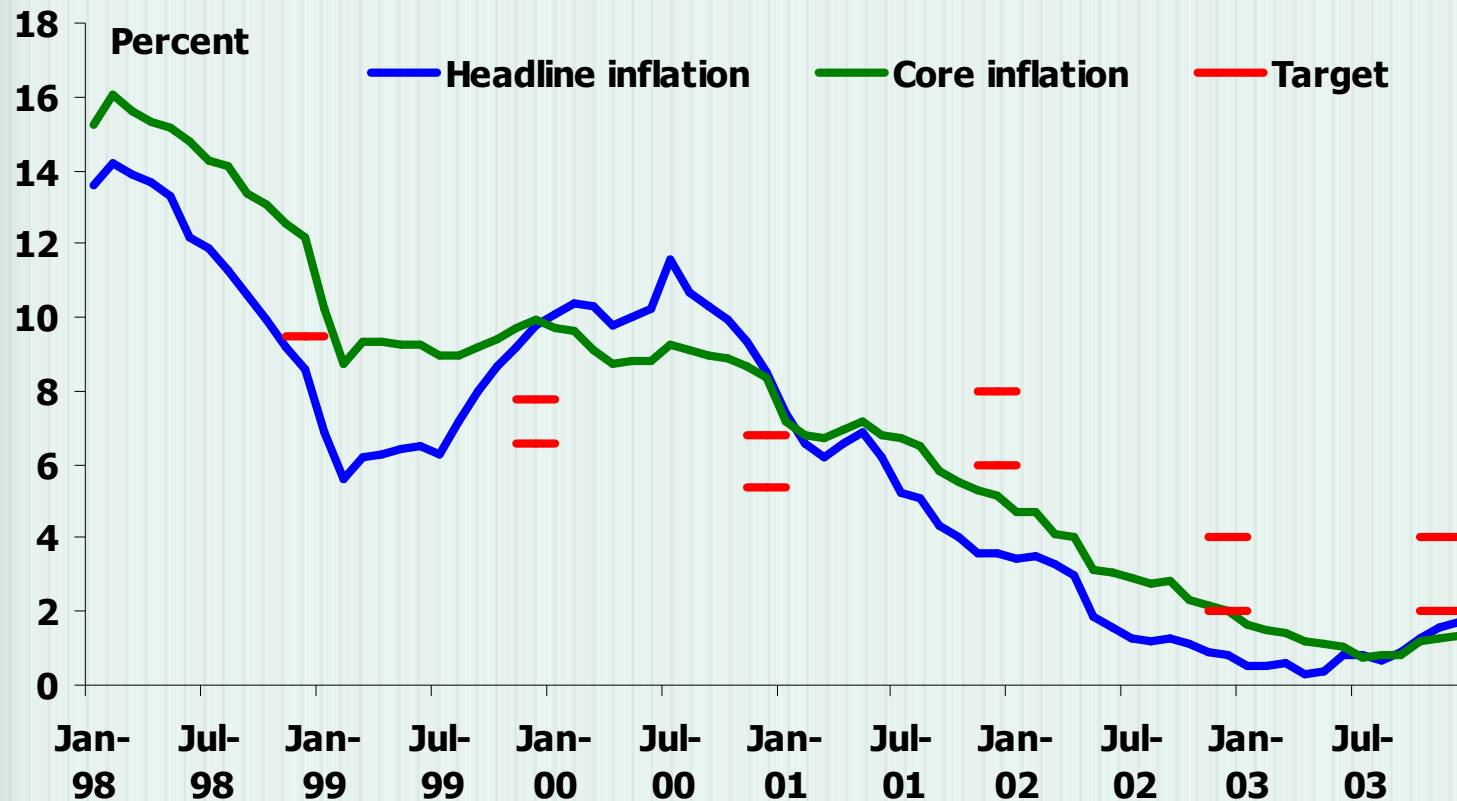
### Annual (year-end) inflation targets

- announced in *Monetary Policy Guidelines* [for each year]
  - helped **increase understanding and thus credibility** of IT
  - IT introduced to **support disinflation** – short-term targets important for anchoring inflation expectations
- 
- However, in practice horizon of annual (year-end) targets inconsistent with monetary transmission lags



## Inflation vs. MPC targets (1999-2003)

- **Medium-term target reached** (below 4% by end-2003)
- Annual targets – missed
- Deviations from the target smaller in terms of core inflation



## Reasons behind annual target misses (1999-2003)

Year	Inflation target (December)	Actual inflation (December)	Deviation (percentage points)*	Causes of deviation
1999	6.6-7.8	9.8	+2.0	<ol style="list-style-type: none"> <li>1. Unexpected public finance sector deficit increase</li> <li>2. <b>Strong oil price increase</b></li> <li>3. Indirect tax increase larger than expected</li> </ol>
2000	5.4-6.8	8.5	+1.7	<ol style="list-style-type: none"> <li>1. <b>Fuel price growth higher than expected</b></li> <li>2. Exchange rate depreciation</li> <li>3. <b>Food price growth higher than expected</b></li> <li>4. <b>Regulated price growth higher than expected</b></li> <li>5. Social security system deficit higher than expected</li> </ol>
2001	6.0-8.0	3.6	-2.4	<ol style="list-style-type: none"> <li>1. <b>Food price growth lower than expected</b></li> <li>2. <b>Unexpected drop in fuel prices</b></li> <li>3. Indirect tax increase smaller than expected</li> <li>4. Global economic slowdown stronger than expected</li> <li>5. Exchange rate appreciation</li> </ol>
2002	3.0 +/- 1 pp.	0.8	-1.2	<ol style="list-style-type: none"> <li>1. <b>Unexpected drop in food prices</b></li> <li>2. <b>Regulated price growth lower than expected</b></li> <li>3. Economic growth abroad lower than expected</li> </ol>
2003	3.0 +/- 1 pp.	1.7	-0.3	<ol style="list-style-type: none"> <li>1. <b>Regulated price growth lower than expected</b></li> <li>2. Economic growth abroad lower than expected</li> </ol>

\* Deviation from the upper/lower end of the target range

IT - current term MPC  
(since 2004)

## Monetary policy strategy beyond 2003

- Main objective: to stabilize **inflation at 2.5% +/- 1 pp. in the medium term**
- Free floating

**Target: 2.5 percent +/- 1 pp. in terms of CPI**

### **Why 2.5 percent?**

- Consistent with strong and sustainable economic growth
- Close to the expected reference value for the Maastricht price stability criterion

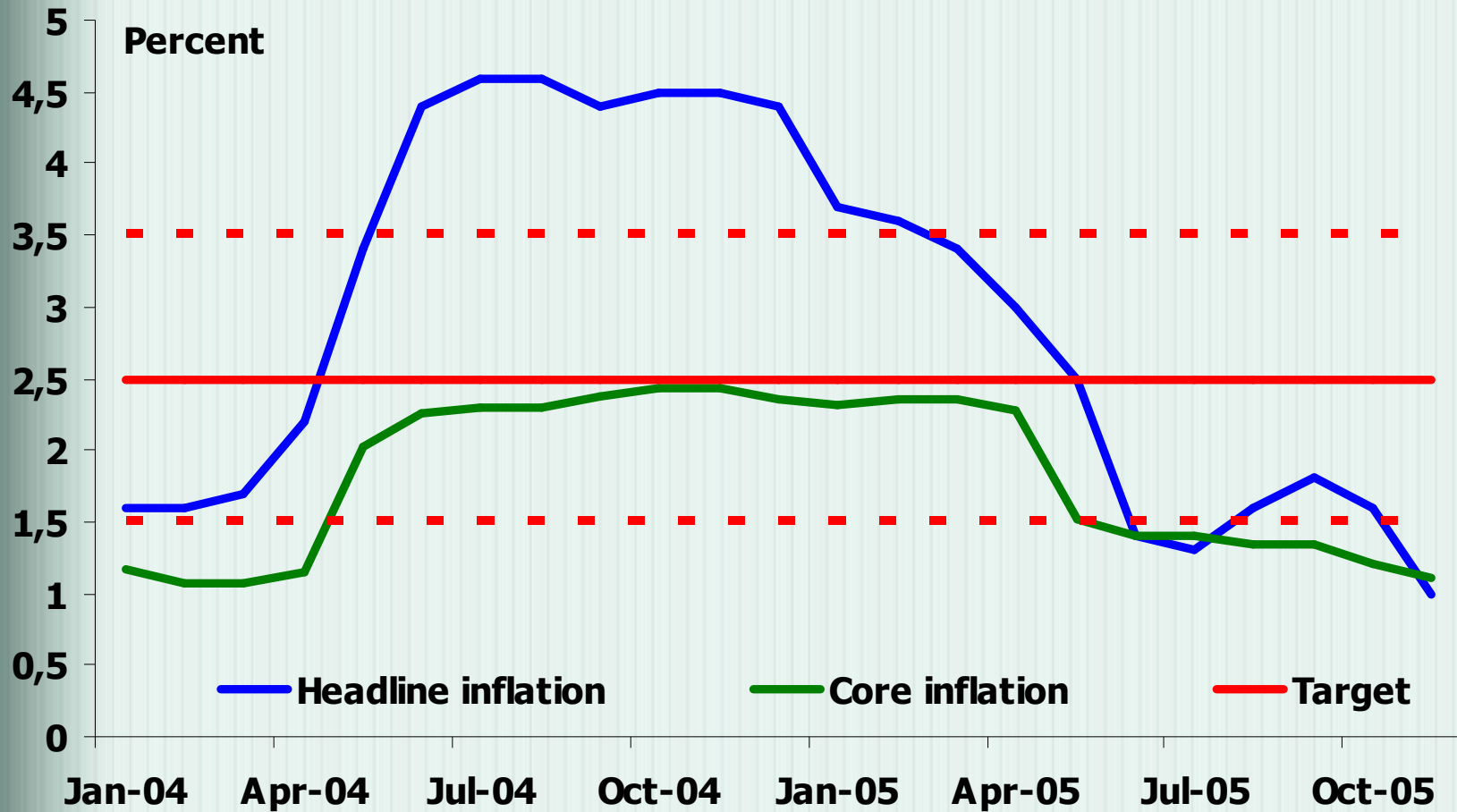
### **Medium term orientation – why?**

- To ensure flexibility in reaction to shocks
- To account for transmission lags
- To limit output volatility

### **Why CPI?**

- Widely recognized by the society
- Universally used in the Polish economy since the beginning of transition

## Inflation vs. MPC target (since 2004)

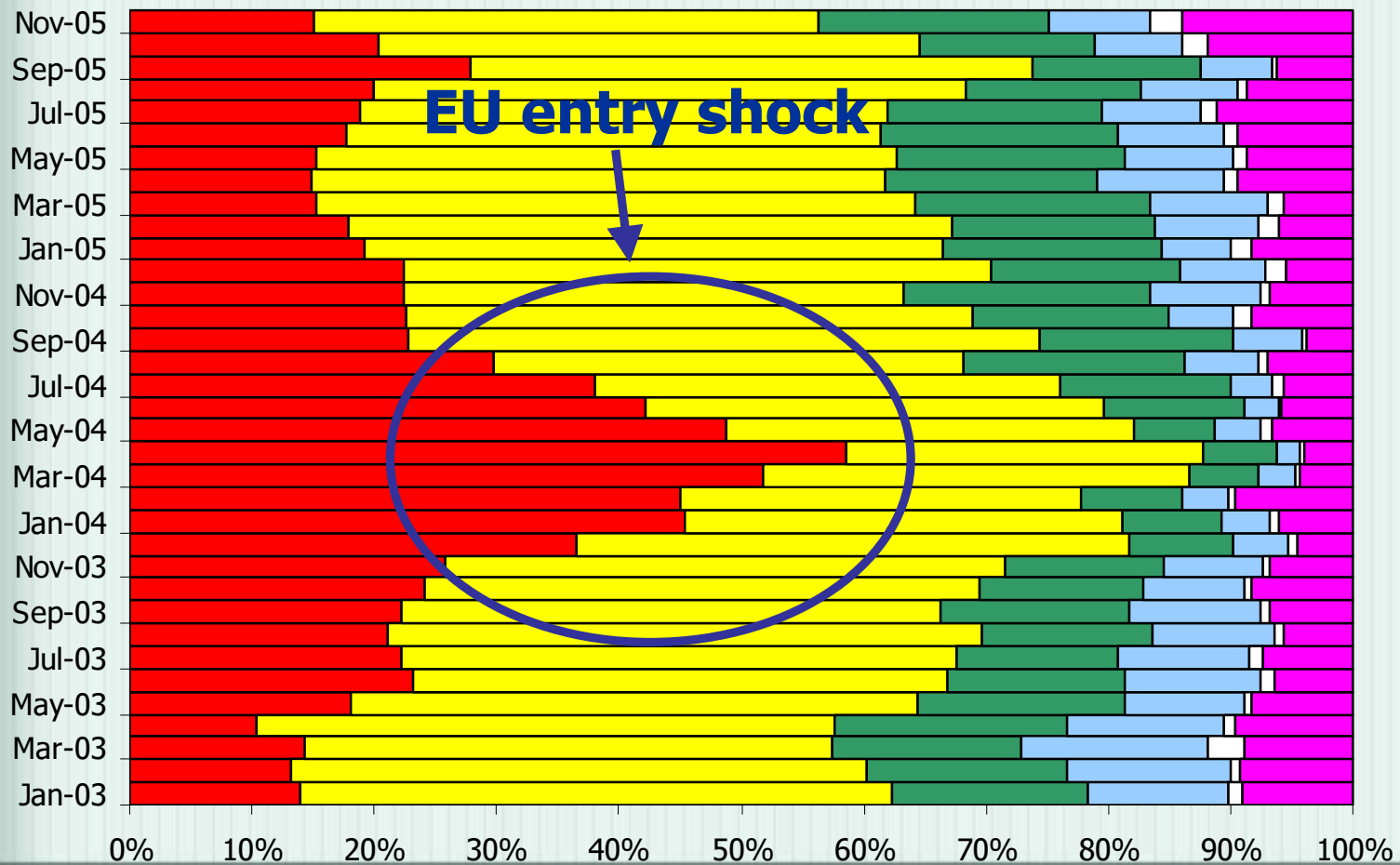


Source: CSO, NBP

## Inflation expectations hike in 2004

Considering the present situation, do you think that prices during the next 12 months will

- grow faster than now
- grow slower than now
- stay the same
- difficult to say
- decrease



## Reasons behind target misses (2004-2005)

Year	Inflation target	Inflation outside the tolerance band (number of months)	Causes of deviation
2004	2.5 +/-1 pp.	7 (out of 12)	<ol style="list-style-type: none"> <li>1. <b>Food price growth larger than expected due to:</b> <ul style="list-style-type: none"> <li>- Increased domestic demand for certain products in the pre-accession period</li> <li>- Increased external demand for Polish food following the EU entry</li> </ul> </li> <li>2. <b>Rise in oil prices</b></li> </ol>
2005		5 (out of 11)*	<ol style="list-style-type: none"> <li>1. <b>Food price growth smaller than expected</b></li> <li>2. <b>Exchange rate appreciation</b></li> </ol>

\*As of November 2005

## **3. THE USE OF FORECASTS**



## The use of forecasts - evolution

- At the time of IT introduction (1998/1999) – simple model forecasts used (ARIMA, VAR, monetary models)
- In 1999 first forecasts based on structural models introduced
- Since 2001 fully fledged structural model forecasts used
- Since 2004 inflation projection published in Inflation Report

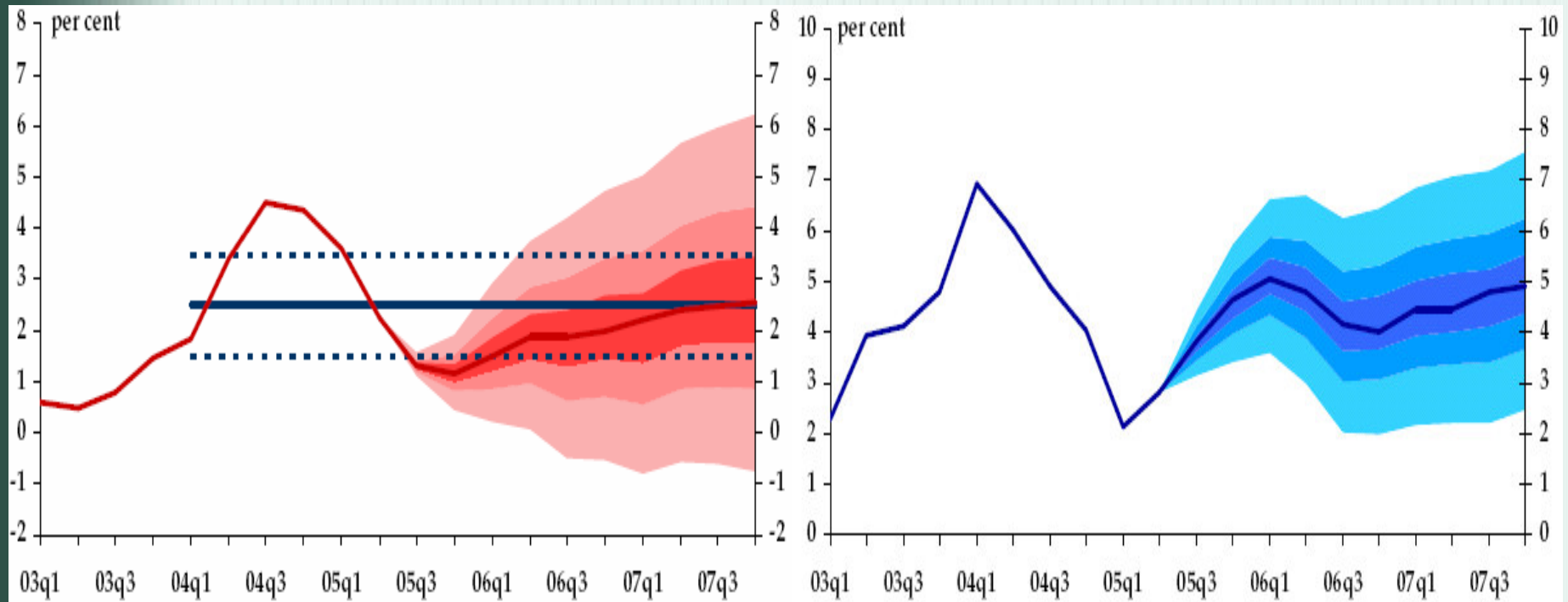
## The use of forecasts – current framework

1. 2 macroeconomic projections presented to the MPC:
  - Projection based on macroeconometric structural model (ECMOD)
  - Projection based on 2 other structural models (combination)
2. Macroeconomic projections produced quarterly (along with IR)
3. Projection published in IR (including fanchart) based on ECMOD
4. Macroeconomic projection: NBP staff-owned

## The use of forecasts – current framework

1. Macroeconomic projection
  - 2-3 year horizon
  - constant interest rates
  - does not include some important information (inflation expectations, business confidence indicators)
2. Projection fanchart based on uncertainty of exogenous variables (oil prices, food prices, foreign interest rates etc.) and model uncertainty (goodness-of-fit)
  - Uncertainty of exogenous variables assessed by experts (judgement)
3. Macroeconomic projection
  - basis for the assessment of the balance of risks for future inflation
  - an important input into MPC decision on interest rates

## The use of forecasts – current framework

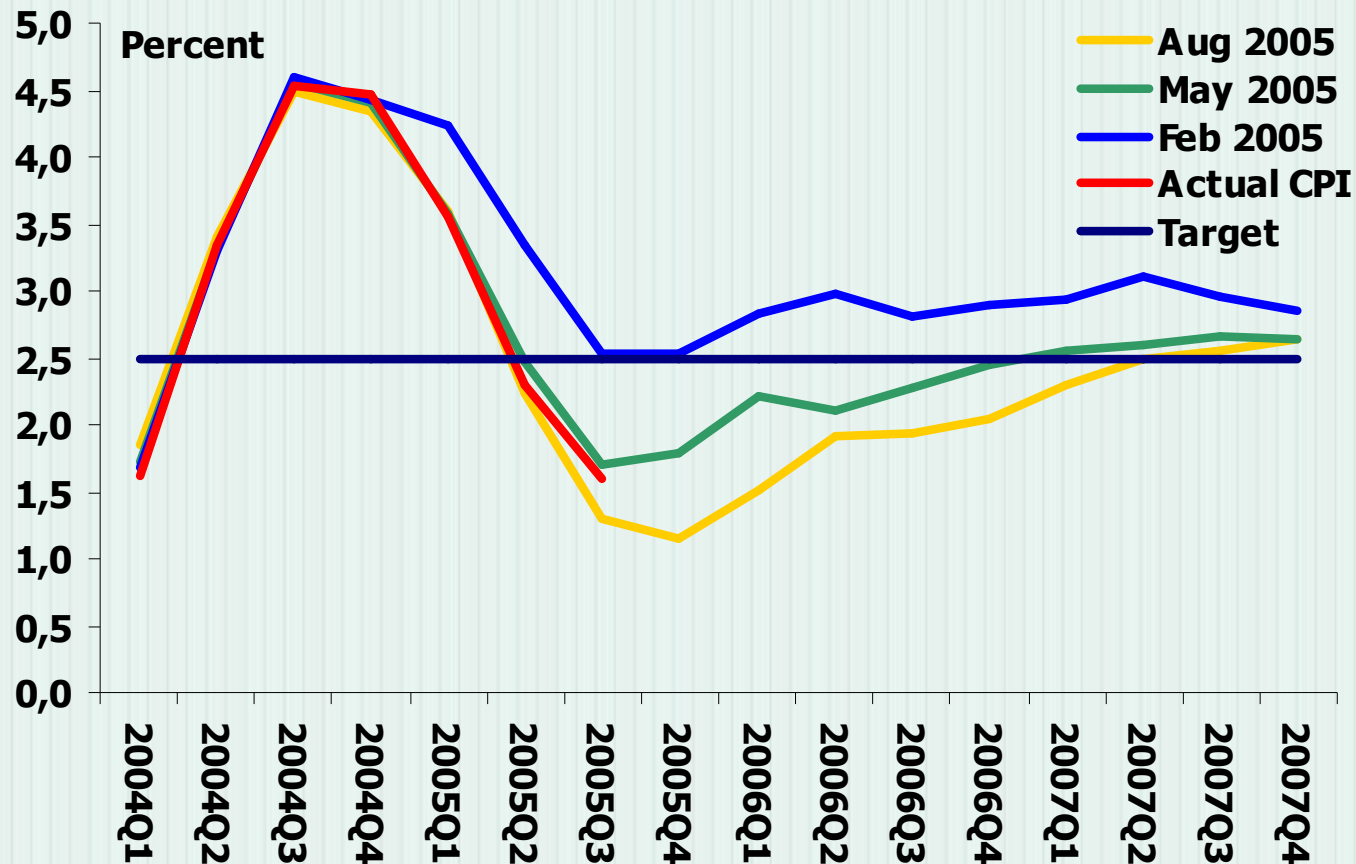


CPI inflation (y/y)

Real GDP growth (y/y)

Source: Inflation Report, August 2005, NBP

## The use of forecasts – problems

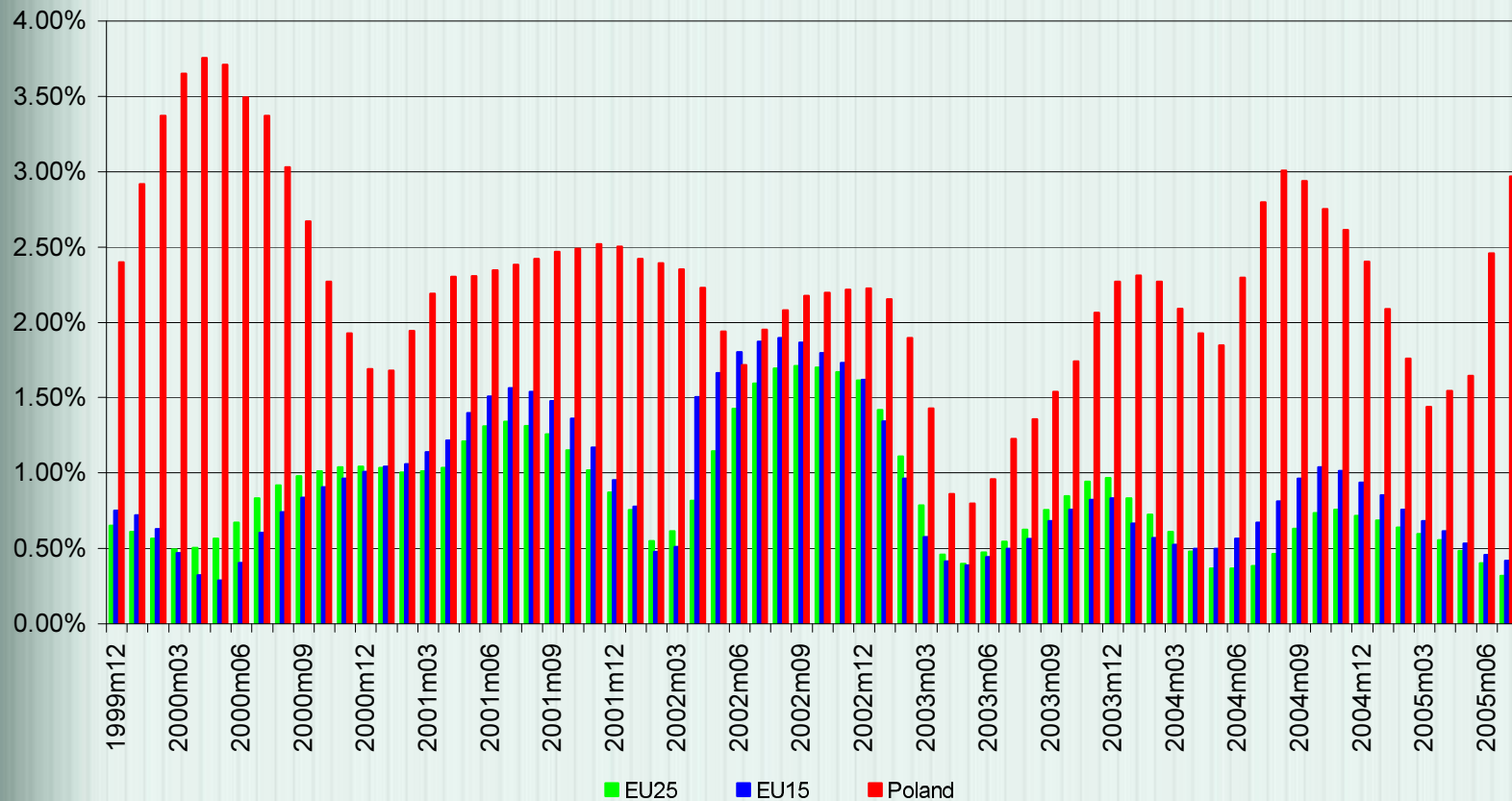


Inflation (central) projection subject to significant movements due to:

- Large volatility of food prices
- Large volatility of exchange rate

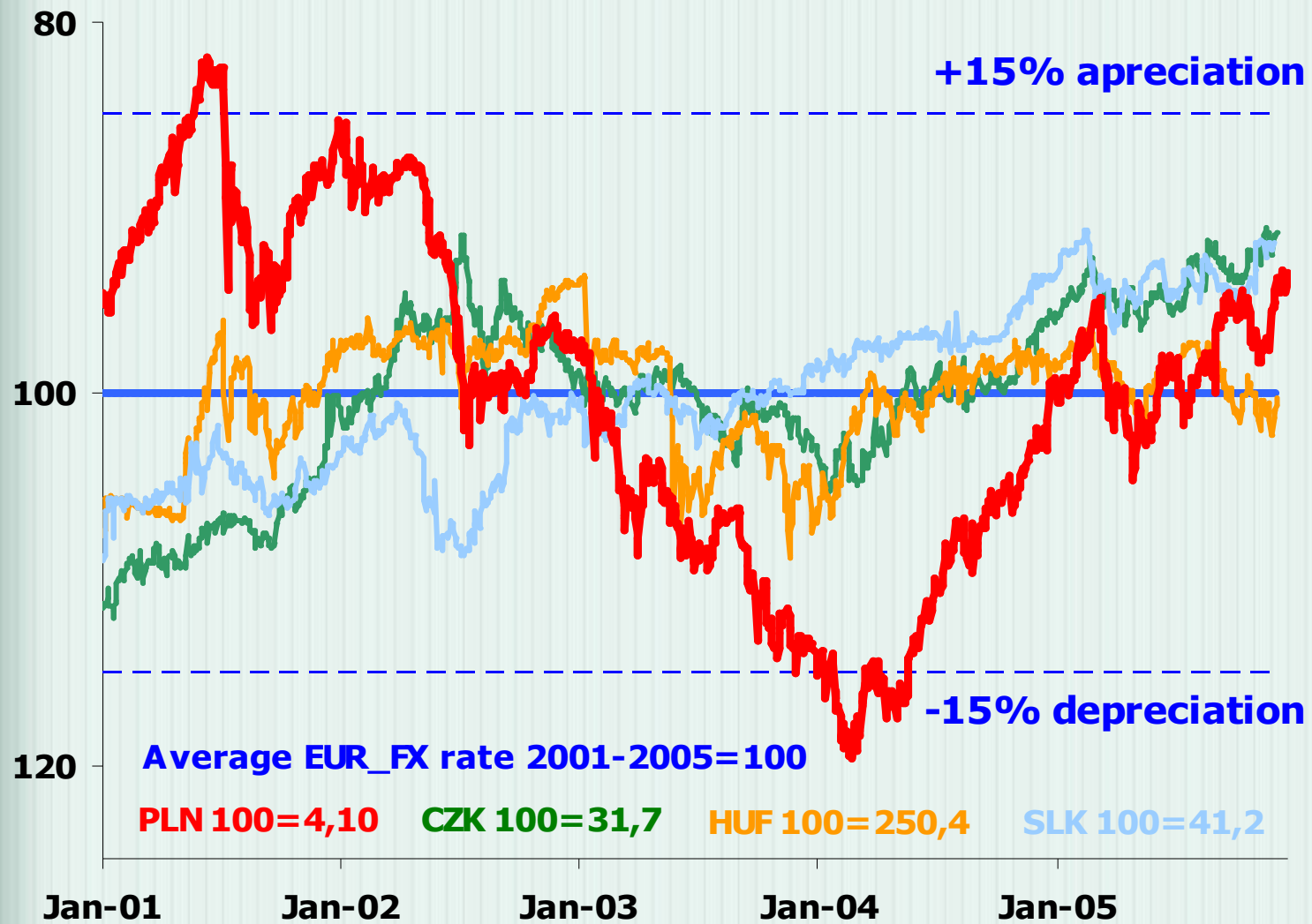
## Large volatility of food prices in Poland

The 12-month moving coefficient of variation for prices of food and non-alcoholic beverages in HICP in Poland, EU-25 and EU-15



Source: NBP, CSO, Eurostat

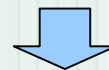
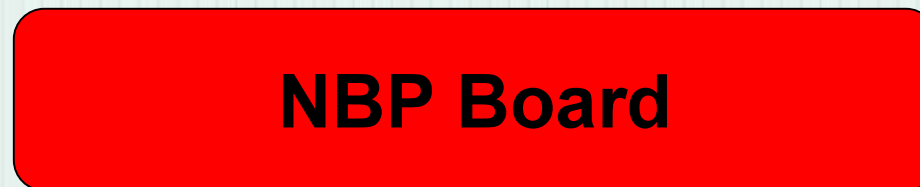
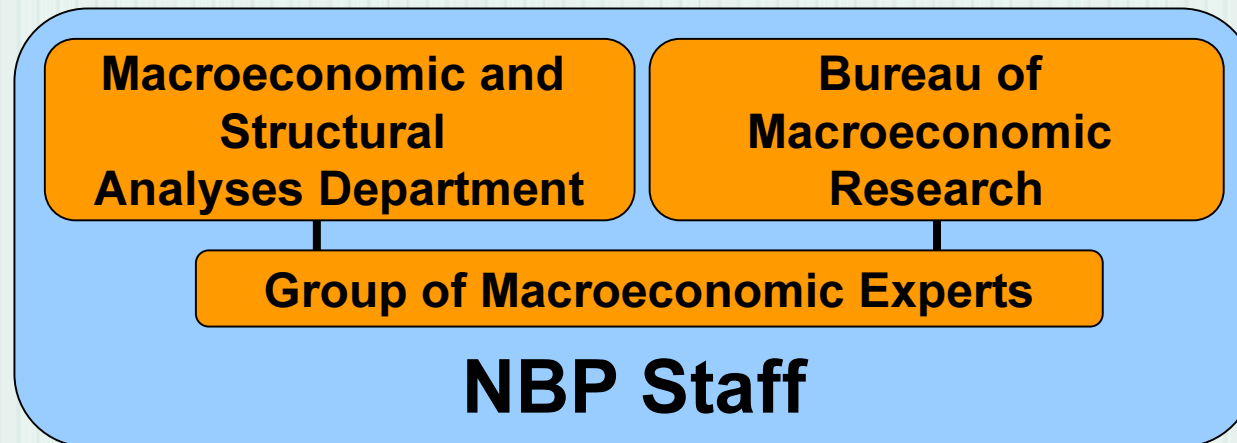
## Large volatility of exchange rate in Poland



# 4. THE DECISION MAKING PROCESS



## Macroeconomic analysis - stages



**Monthly: Decision on interest rates. Press release**  
**Quarterly: Inflation Report**  
**Annually: Monetary Policy Guidelines. Report on Monetary Policy Implementation**

## MPC in the decision-making process

MPC (10 persons):

- MPC chairperson: NBP President
- 9 MPC members (appointed by the President of Poland (3) and Lower (3) and Upper (3) Houses of the Parliament - not staff or Board members)
- MPC **discusses and takes decisions in monetary policy** (sets NBP interest rates and reserve requirement ratio)
- MPC **prepares** (in co-operation with the NBP staff)
  - Press release (monthly)
  - Inflation Report (quarterly)
  - Monetary Policy Guidelines (annually)
  - Report on Monetary Policy Implementation (annually)
  - Opinion on the Budget Act (annually)

## The decision on interest rates – premises

### With projection

- Macroeconomic projection (GDP, inflation)
- Other relevant information not included in the projection: inflation expectations, business confidence indicators, sustainability of public finances etc.
- Judgemental assessment of the balance of risks for future inflation (by the NBP staff) – the macroeconomic projection as a benchmark



### Without projection

- Relevant macroeconomic information not included in the projection: inflation expectations, business confidence indicators, sustainability of public finances etc.
- Judgemental assessment of the balance of risks for future inflation (by the NBP staff) - the latest macroeconomic projection as a benchmark



**Assessment of the balance of risks for future inflation  
by the MPC**



**Interest rate decision**

# 5. CONCLUSIONS

## Conclusions

- Transition from peg to float
  - evolutionary
  - driven by rising economic openness of Poland
  - without financial instability
- IT introduction necessary to solve the impossible trinity dilemma
- Disinflation successfully completed
- Volatile food prices, fuel prices and exchange rate render forecasting inflation and thus policymaking more difficult
- Staff macroeconomic projection – important decision input
- Judgemental balance of risks for future inflation – useful tool for regular analysis (esp. at times between projections)

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