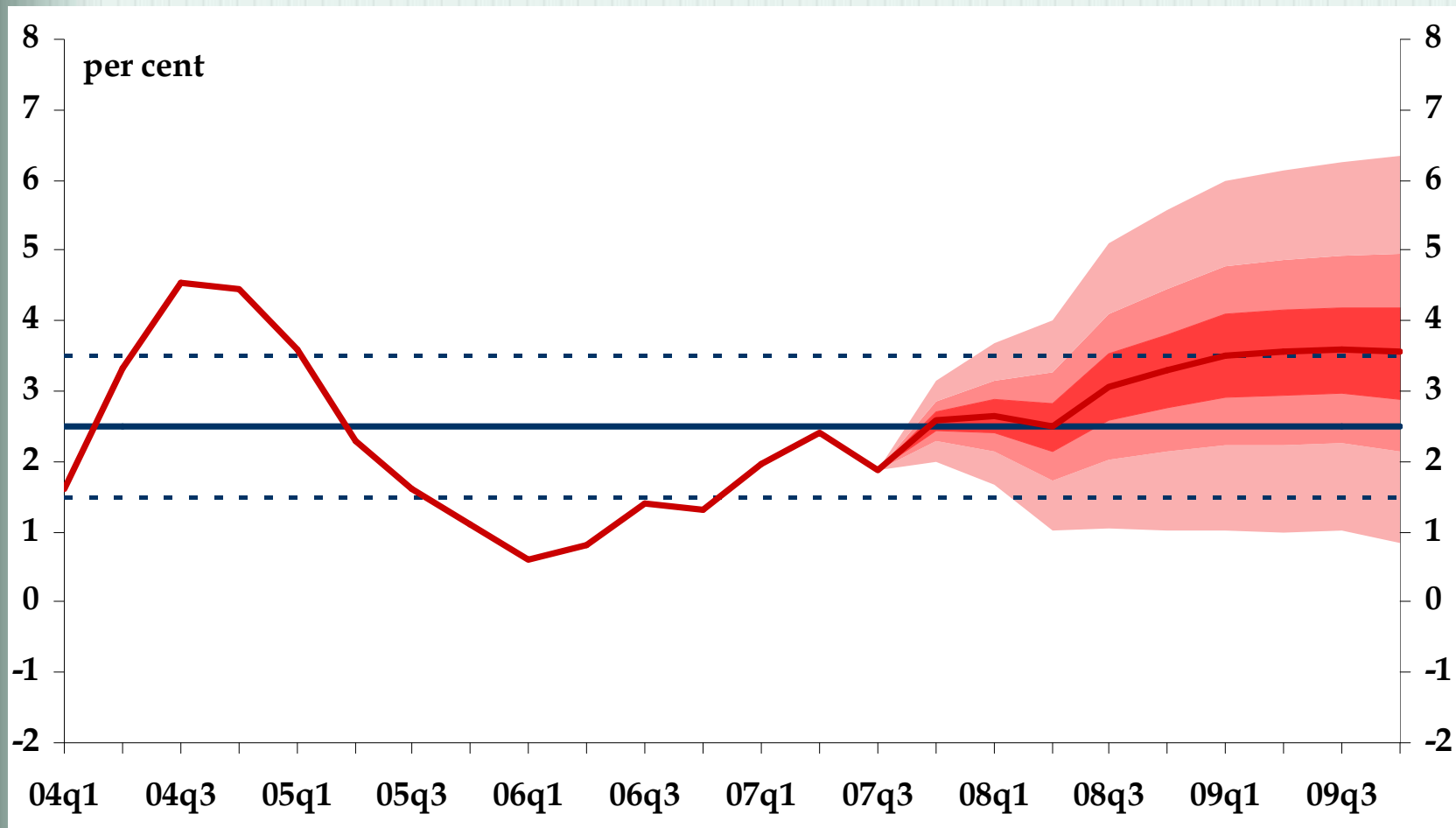


**Inflation projection
of the National Bank of Poland
based on the ECMOD model**

October 2007

Inflation projection – October 2007



Source: Macroeconomic and Structural Analyses Department

Presentation plan

- Central projection
 - Starting point compared to the July projection
 - Projection for 2007-2009
 - The October projection compared to the July projection
 - Expert adjustments
- Analysis of inflation projection uncertainty
 - Factors accounted for in the model – fan charts
 - Factors unaccounted for in the model

Central projection

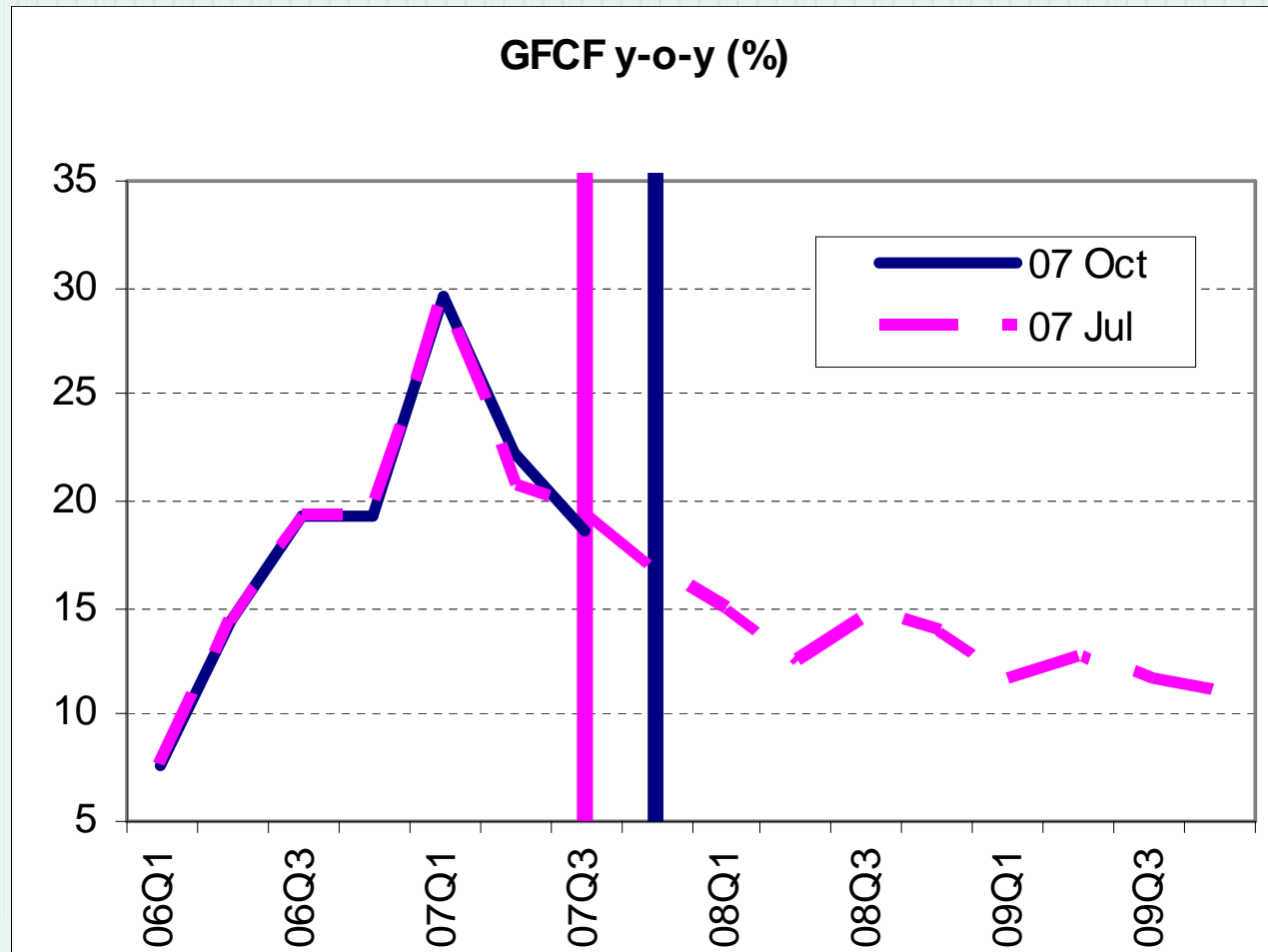
Starting point of the October projection as compared to the July projection

- GDP and its components
- Labour market
- CPI and core inflation

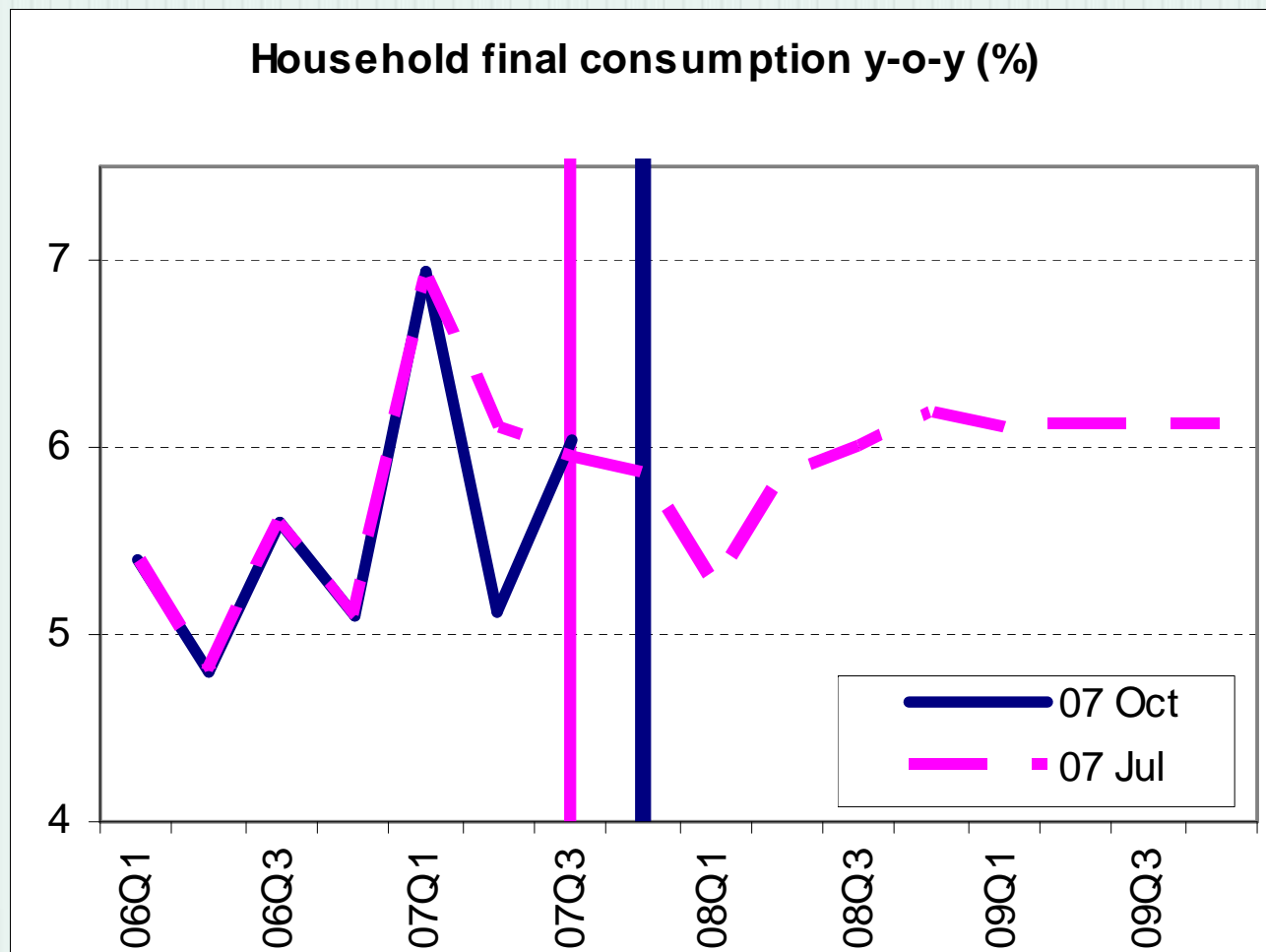
GDP and its components

Starting point

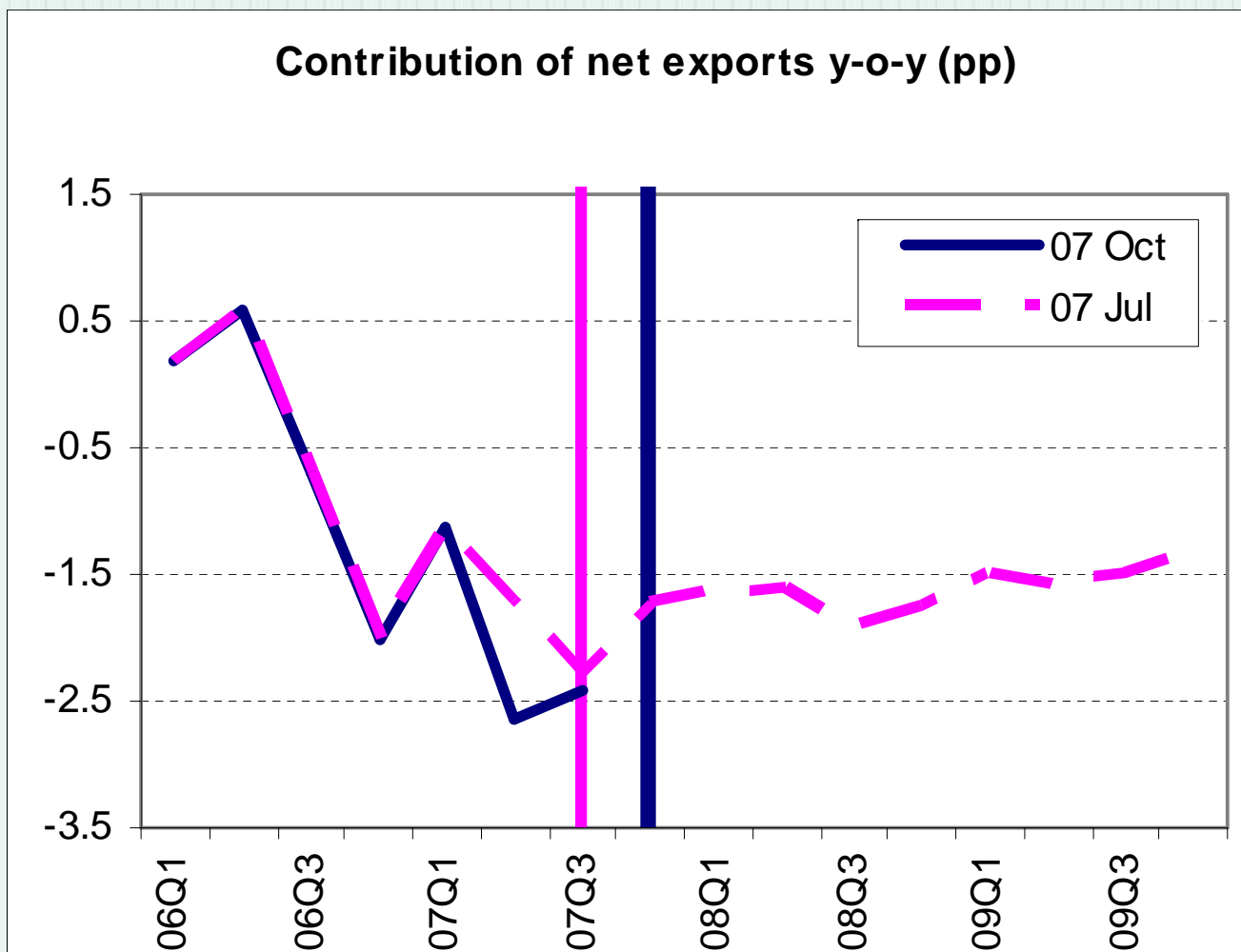
Gross fixed capital formation: similar growth rate



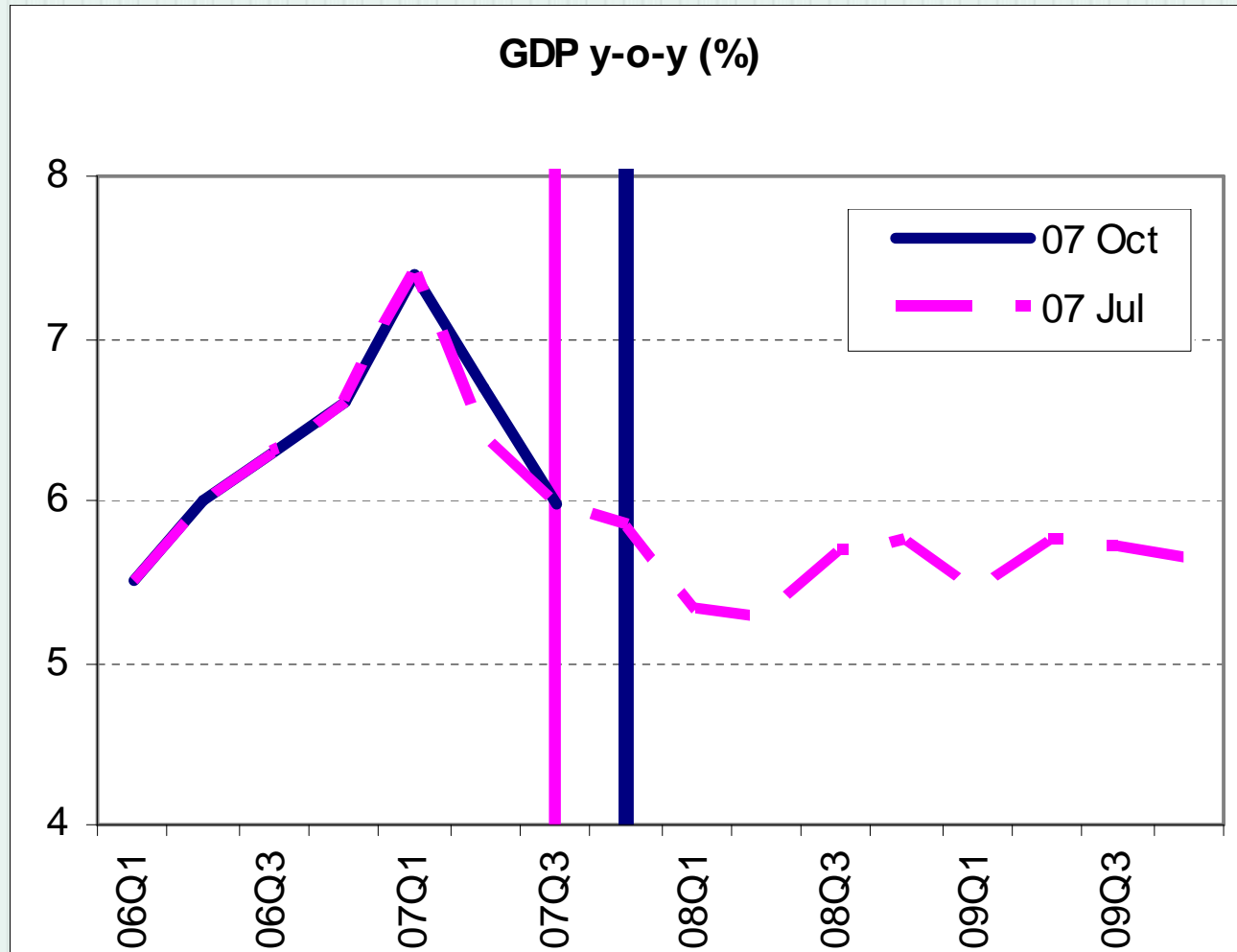
Household final consumption: lower growth rate in Q2,
similar growth rate in Q3



Contribution of net exports: lower



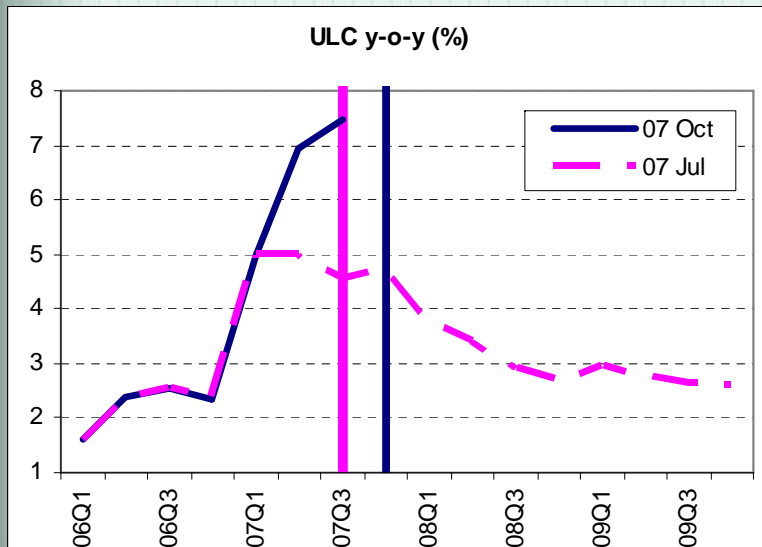
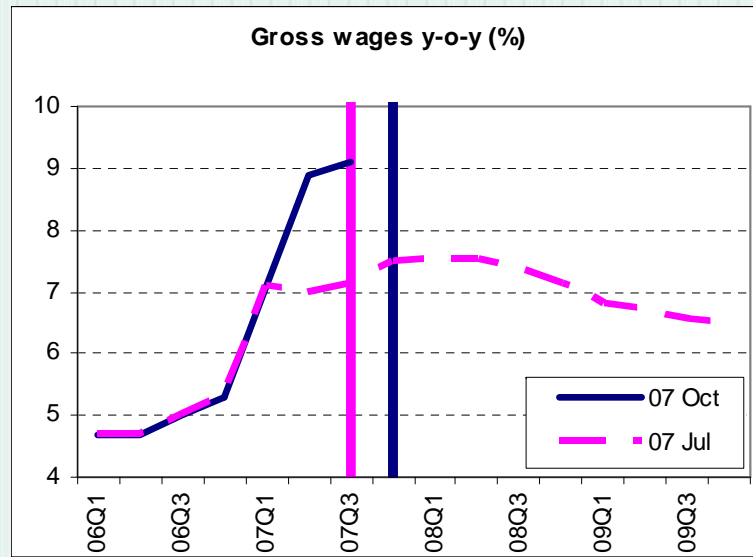
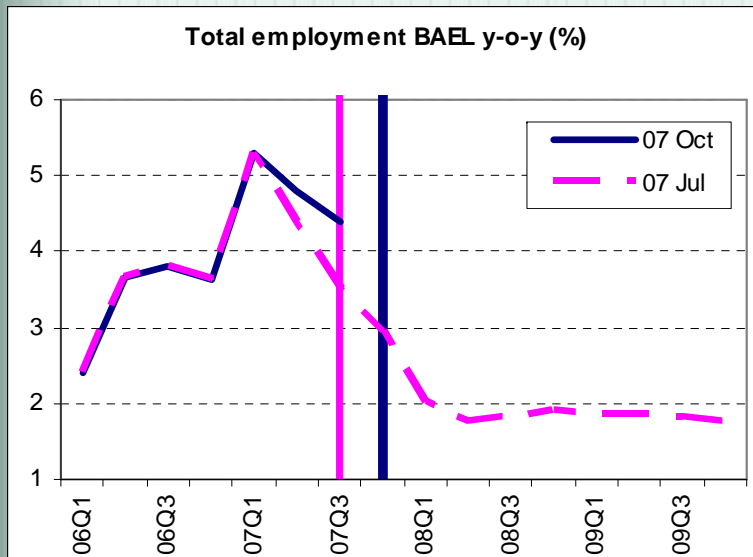
GDP: similar growth rate



Labour market

Starting point

Total employment, wages and ULC

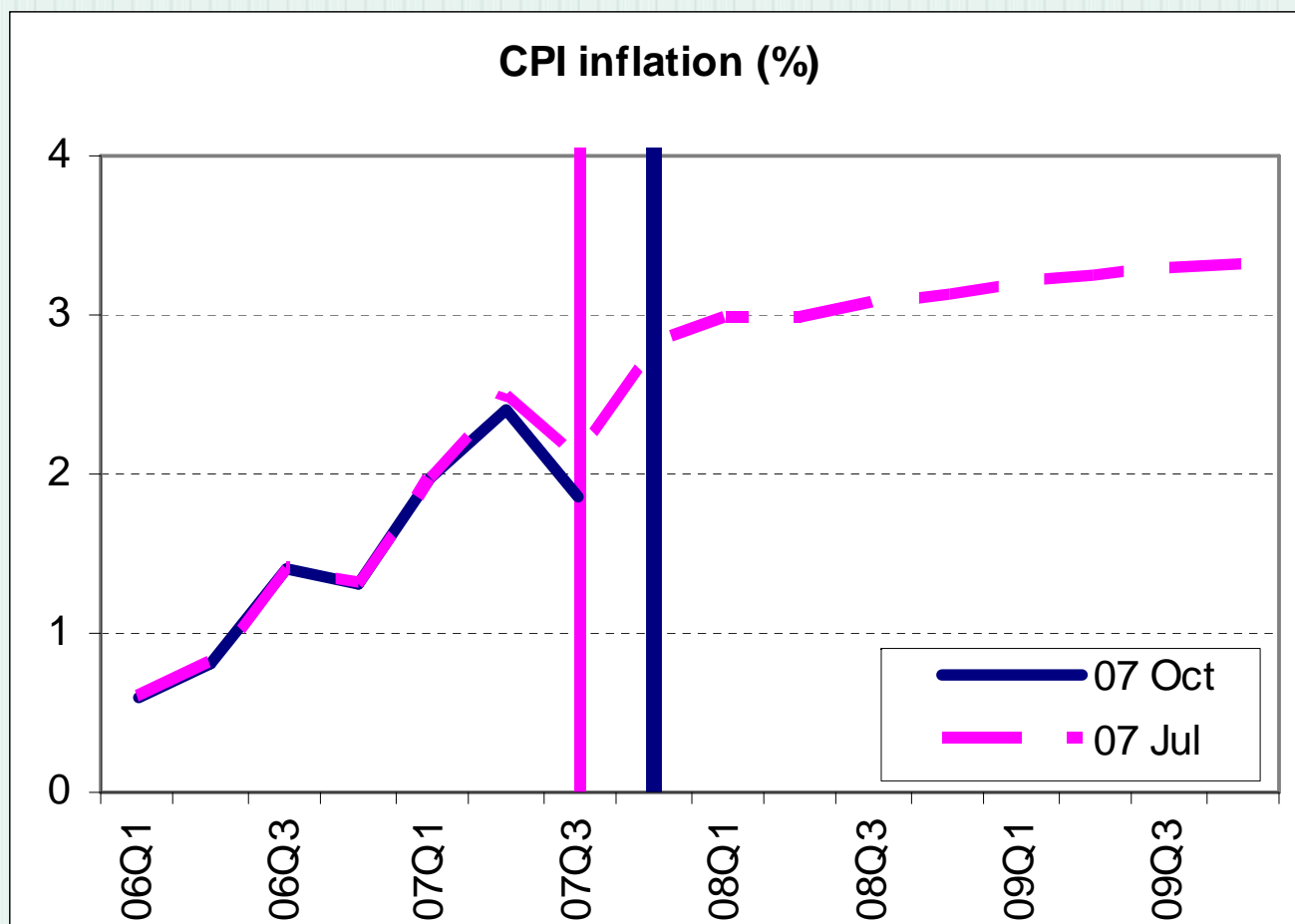


- Stronger labour market recovery
- Higher growth rate in total employment, significantly higher growth of wages and ULC

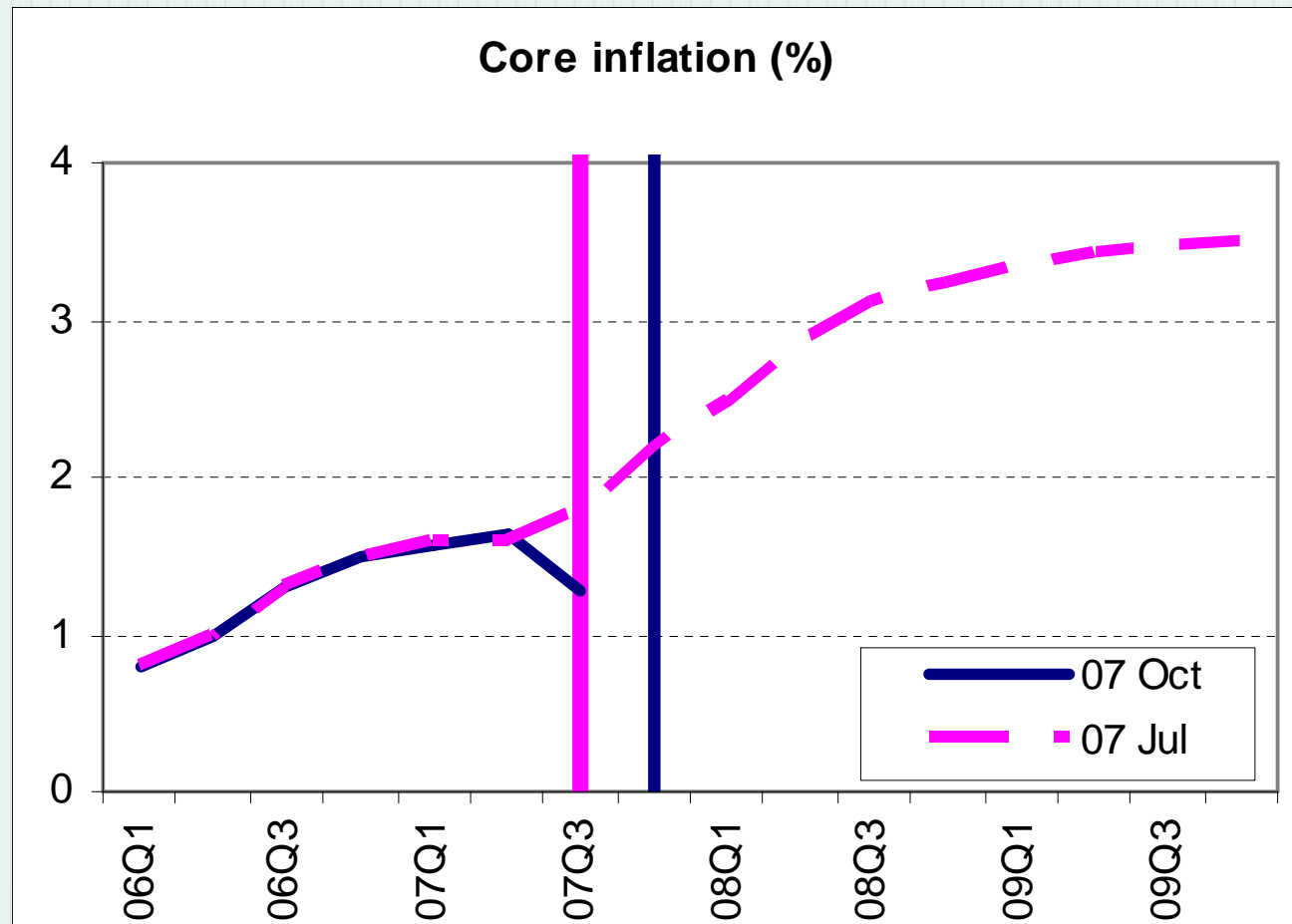
Inflation

Starting point

Inflation: lower



Core inflation: lower



Macroeconomic projection for 2007-2009

Constant interest rates

Assumptions

Macroeconomic projection

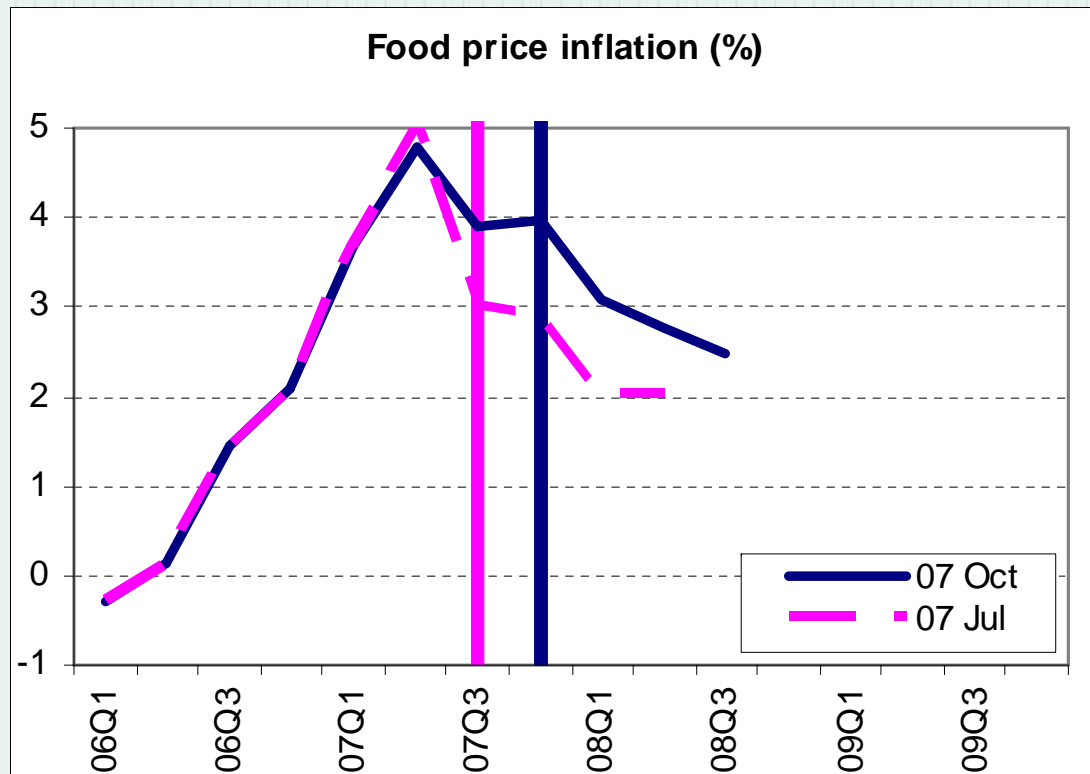
Assumptions: external factors

- More expansionary monetary policy in the euro area and in the United States - lower **interest rates** forecasts than in the July projection:
 - in the US - by approx. 0.1 pp in 2008 Q1 and approx. 0.8 pp in 2009 Q4
 - in the euro area - by approx. 0.1 pp in 2007 Q3 and approx. 0.4 pp in 2009 Q4)
- In 2008-2009 **oil prices** higher by approx. 5-6 \$/bar as compared to the July projection
- Slightly lower **GDP growth** in the United States and United Kingdom than assumed a quarter ago, similar GDP growth rate forecast for the euro area
- No significant changes in the foreign **GDP deflator** growth rate forecast

Assumptions: internal factors

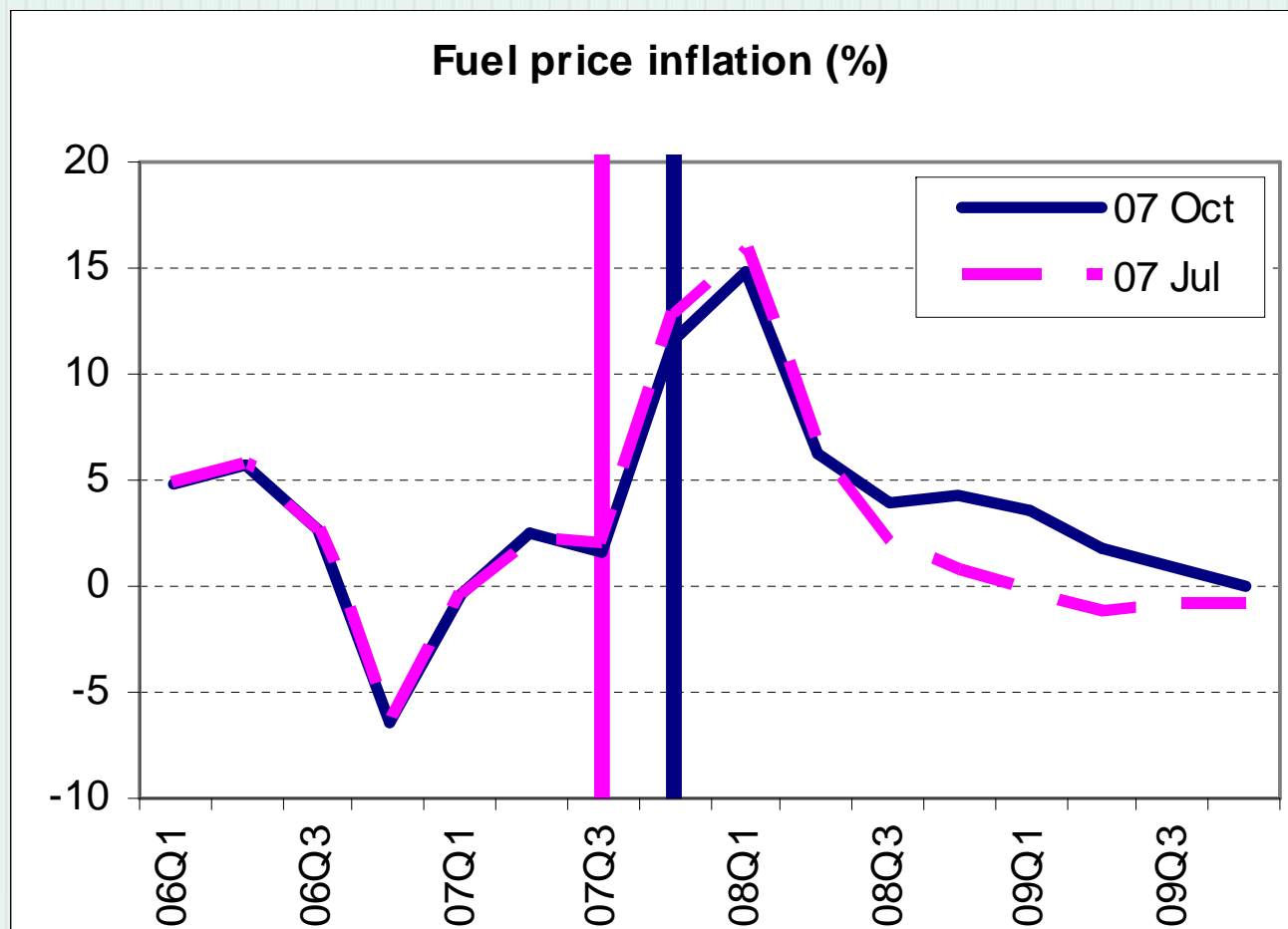
- Growth rate of **food prices** higher than forecast in July - according to experts food prices will grow, on average, by 0.9 pp (y-o-y) faster in the first four quarters of the forecast that expected in July
- Slightly higher growth of **fuel prices** in the long-term projection horizon
- Path of structural and cohesion fund utilisation for 2007 returned to the level assumed in the April projection, which is higher than expected in July (EU fund utilisation data are better than expected). No change in assumptions for 2008-2009.

Food prices y-o-y: higher growth rate in the next three quarters



- **Decreasing impact** of expert-set food prices on inflation (subsiding after 4 quarters)
- Food price growth rate **converges with net inflation growth rate** (no sequence of shocks is forecast that would deviate food price inflation from the net inflation)

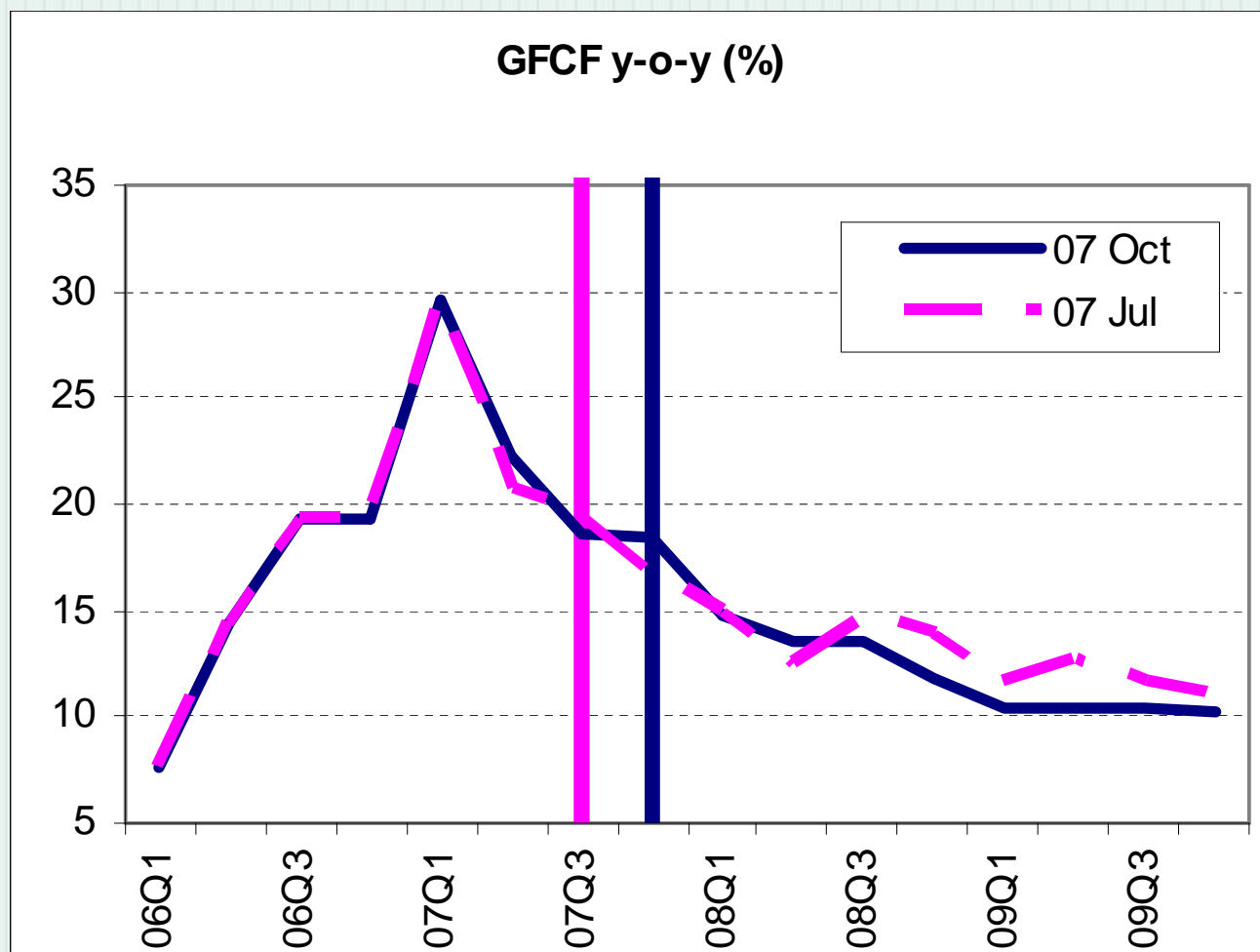
Fuel prices y-o-y: slightly higher growth starting from 2008 Q3



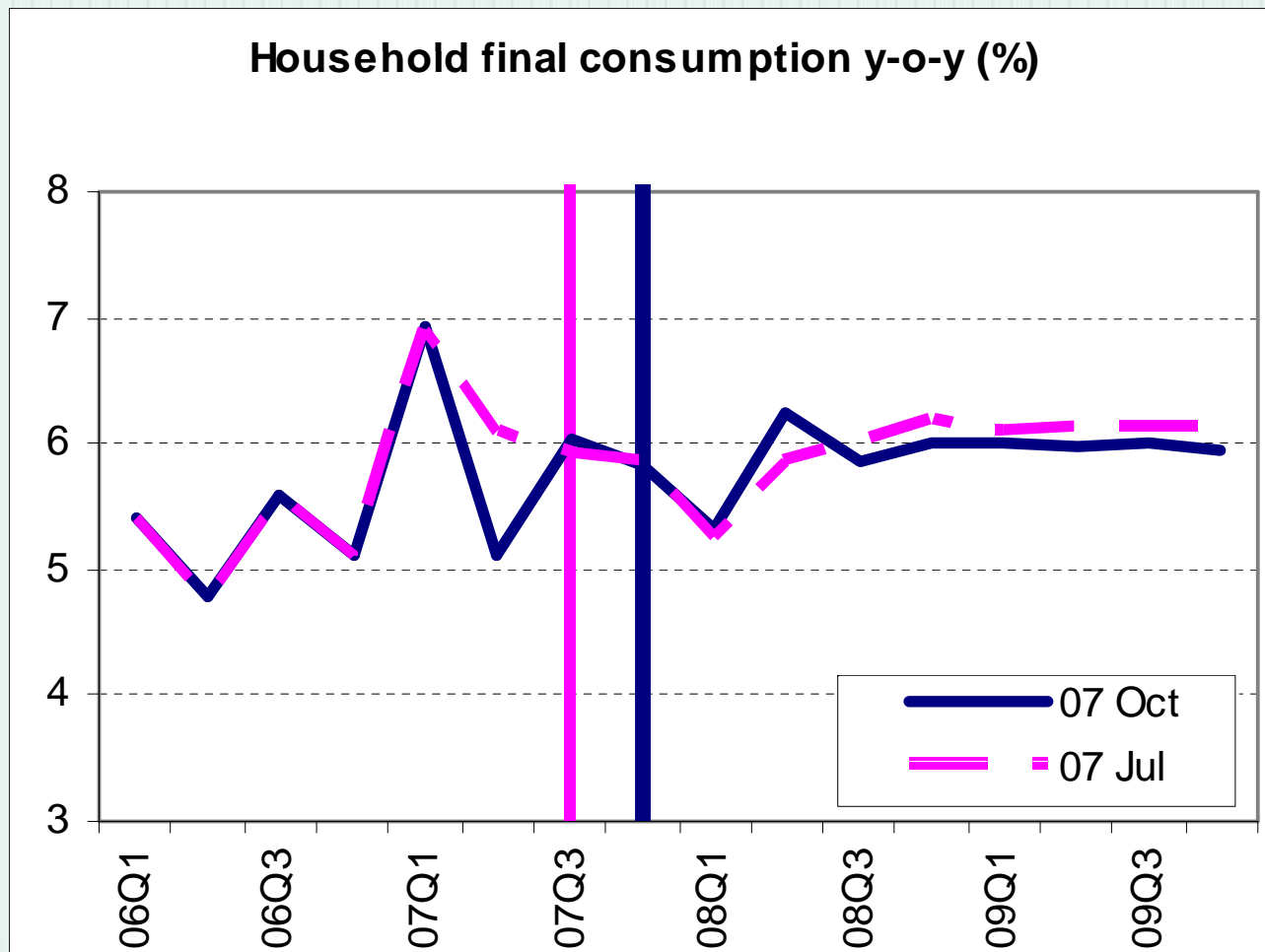
GDP and its components

Macroeconomic projection

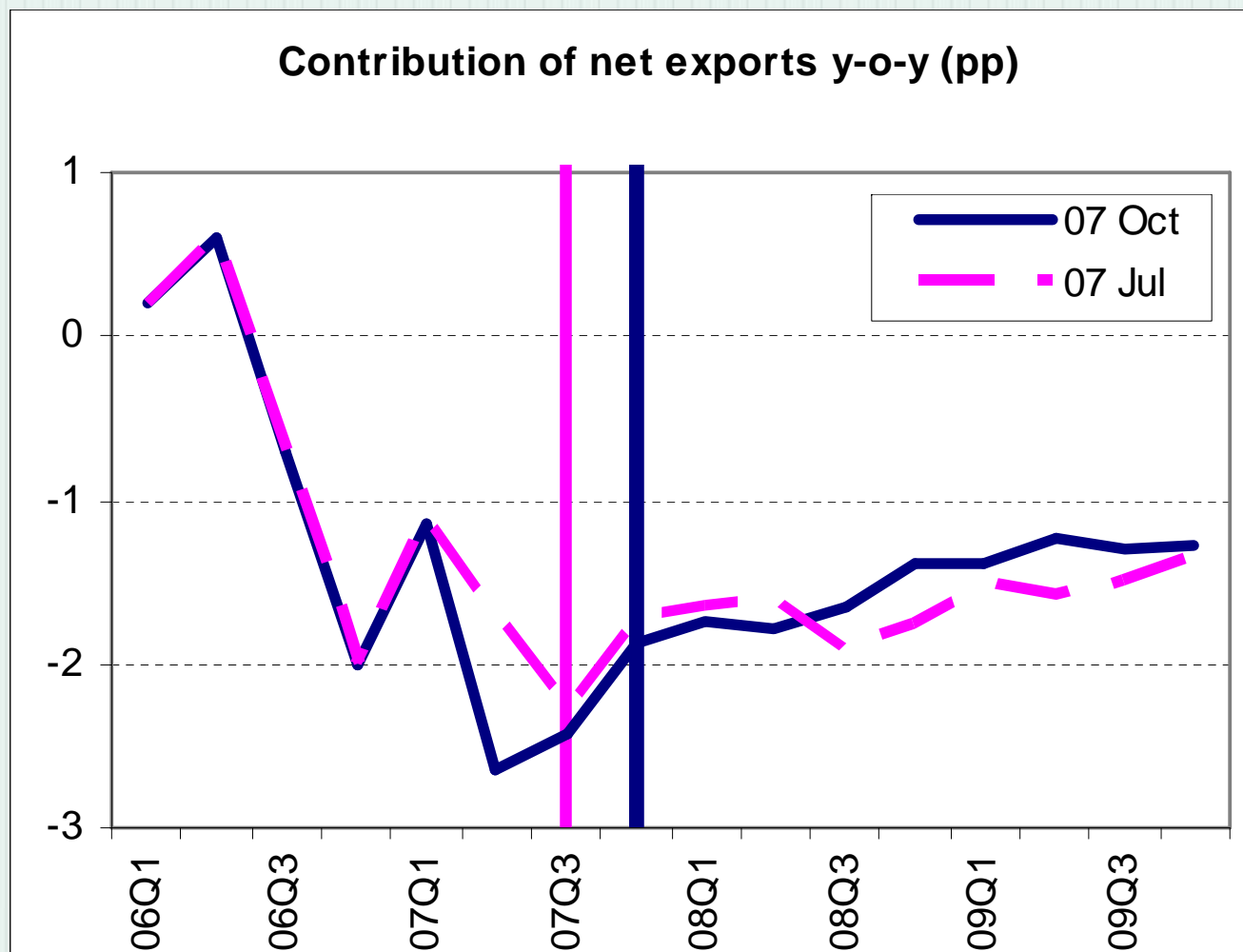
Gross fixed capital formation



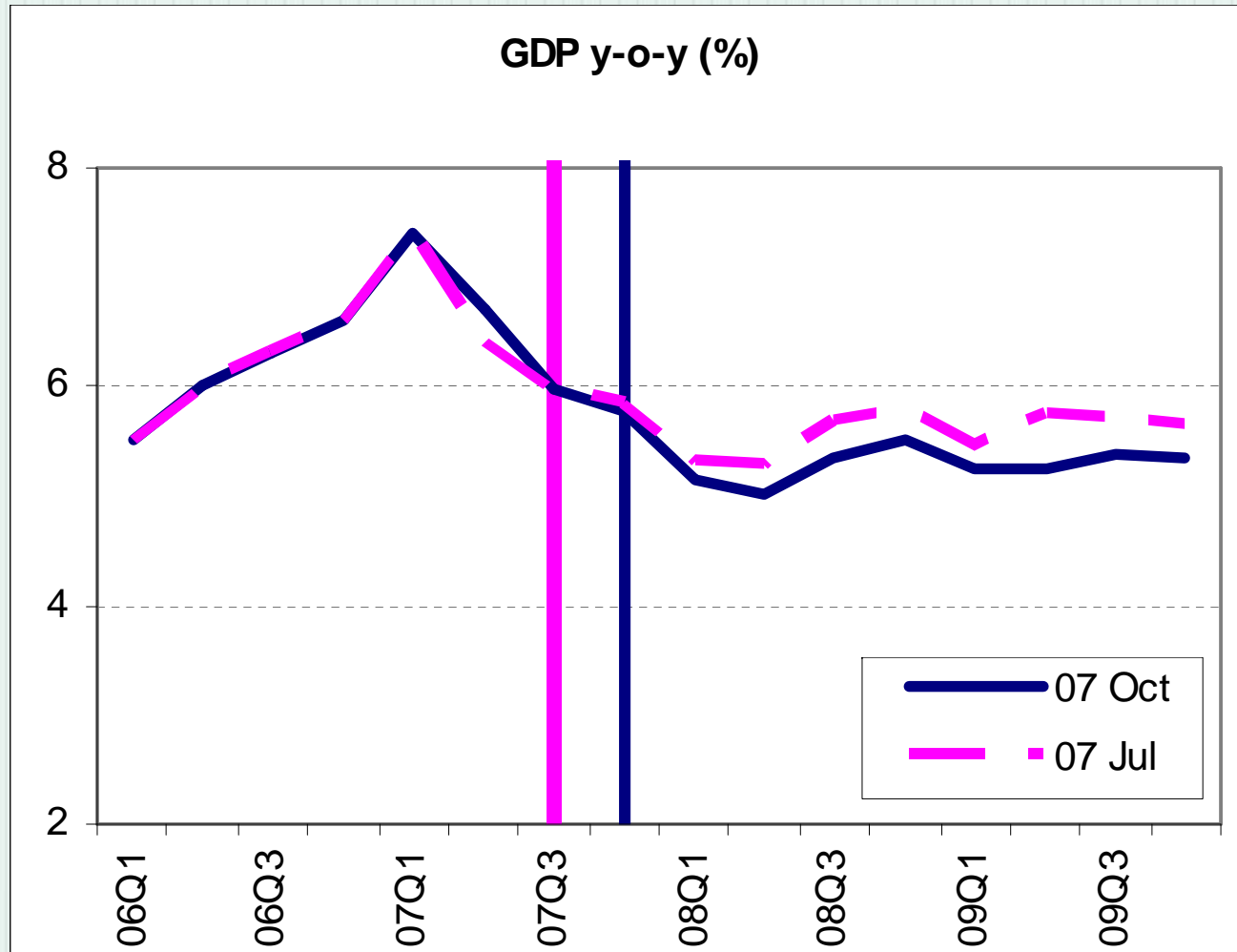
Household final consumption



Contribution of net exports



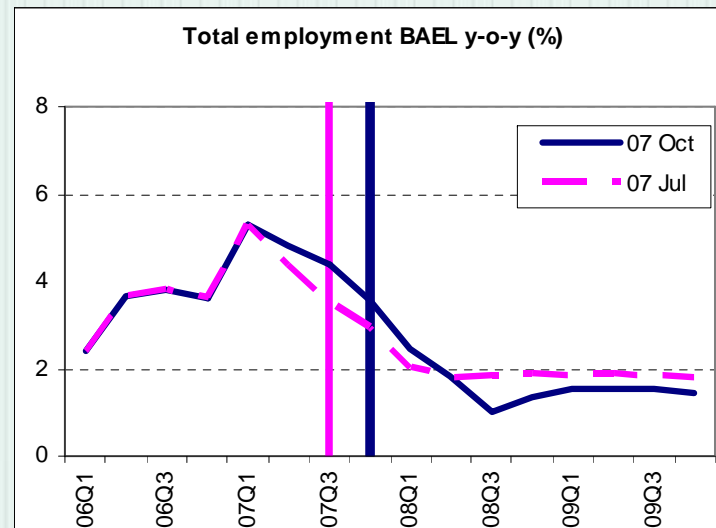
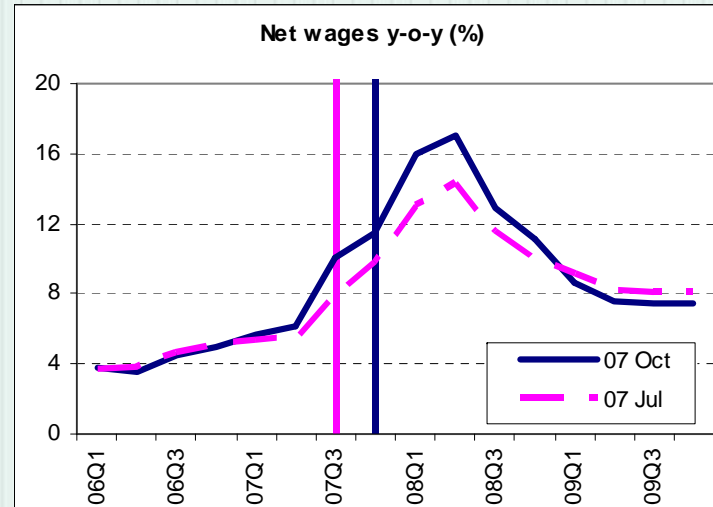
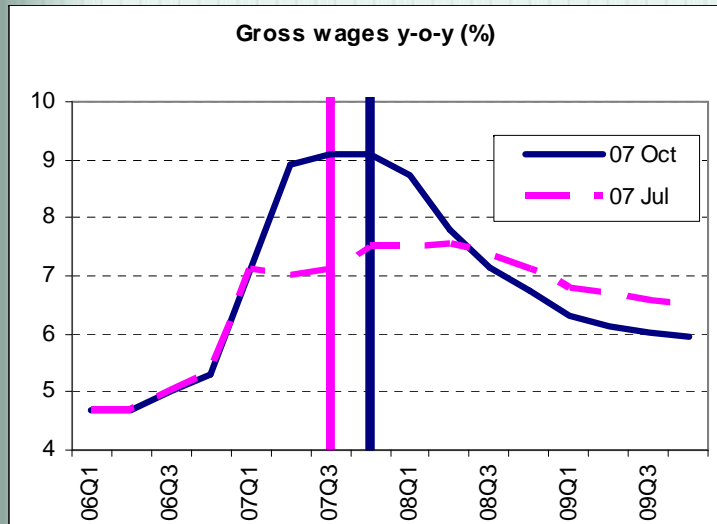
GDP



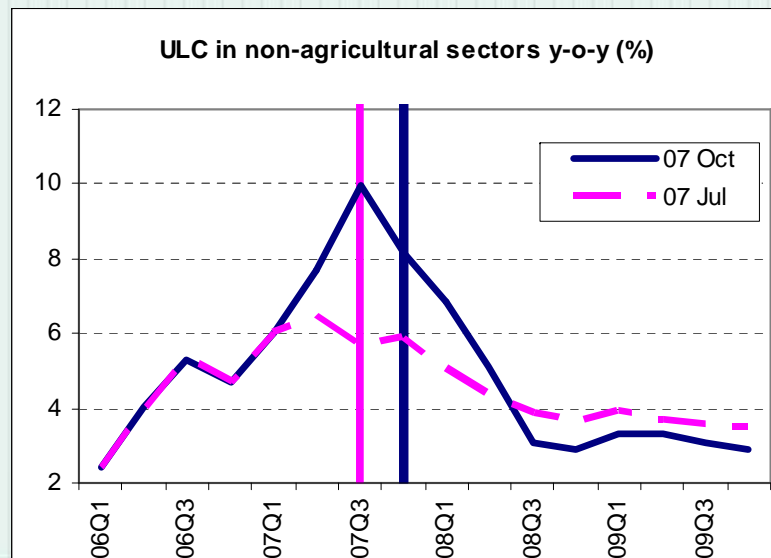
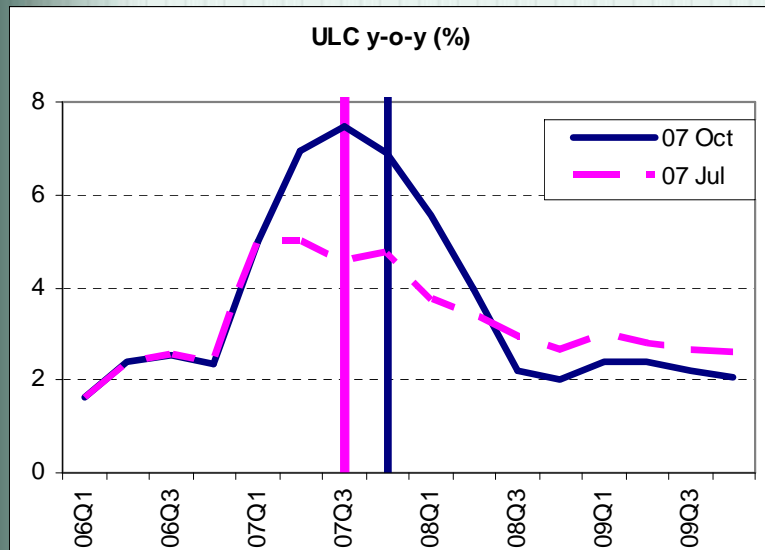
Labour market

Macroeconomic projection

Labour market



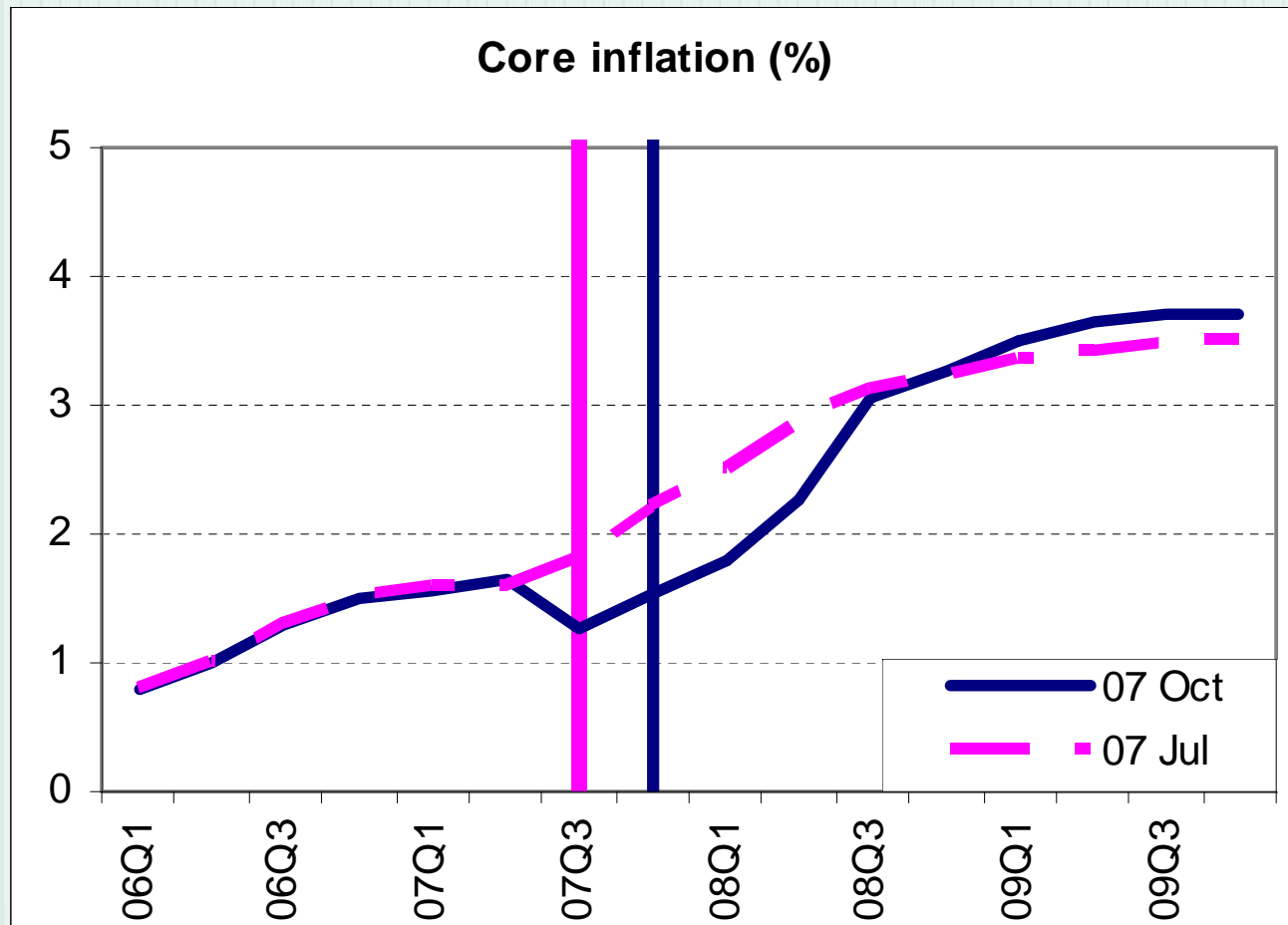
Labour productivity and ULC



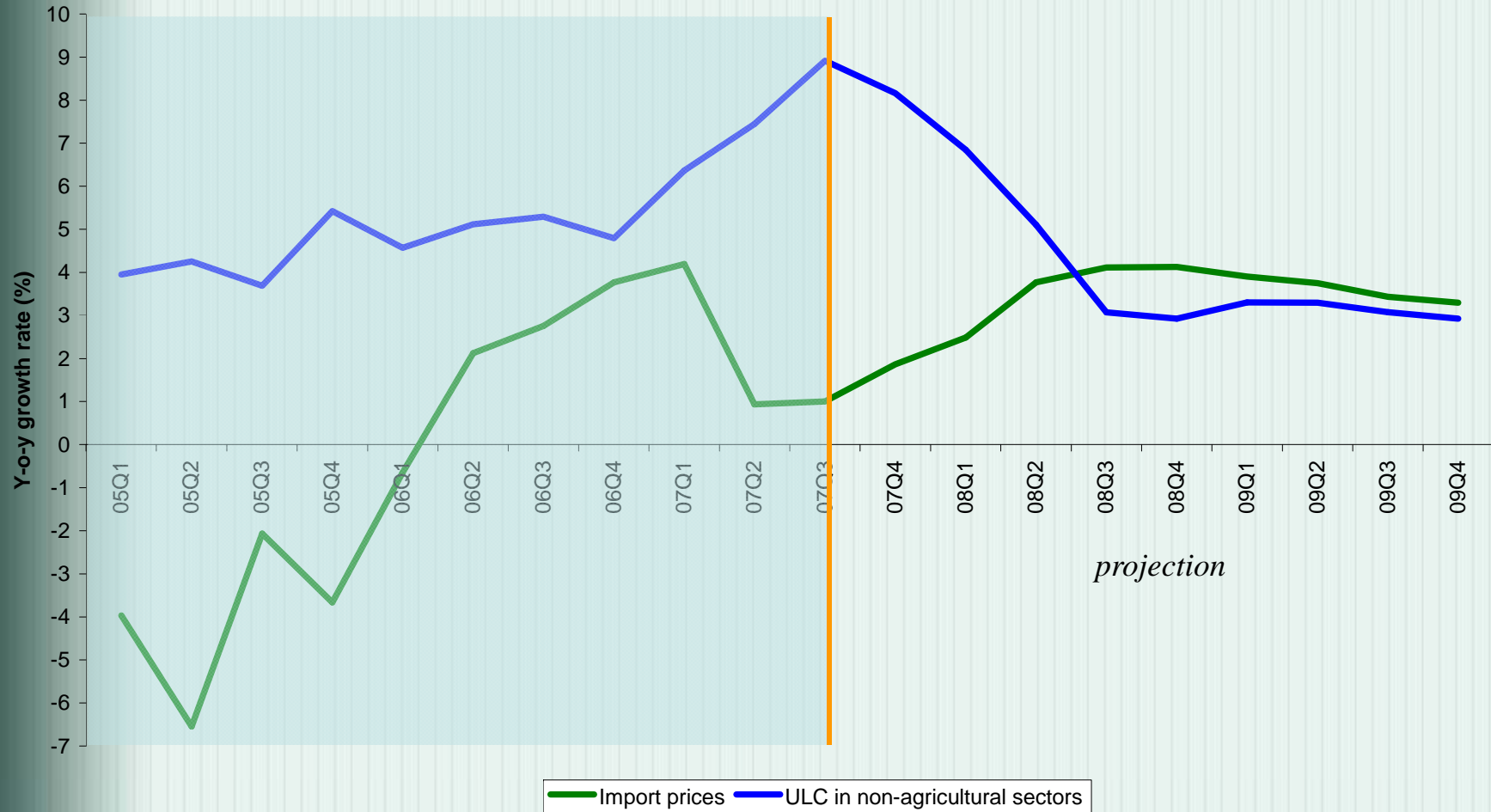
Inflation

Macroeconomic projection

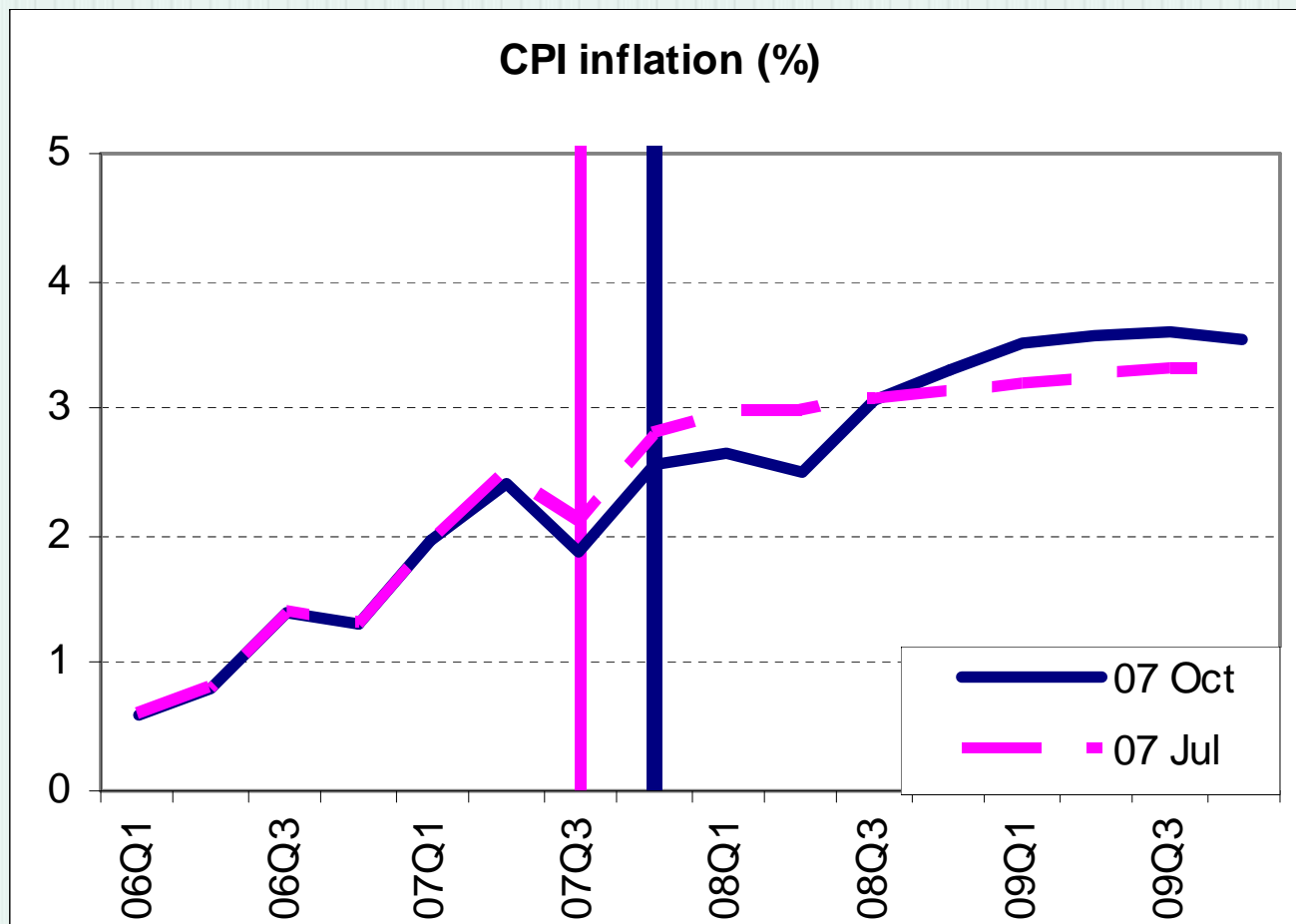
Core inflation y-o-y



Determinants of y-o-y core inflation (%)



CPI inflation



The October projection compared to the July projection

Macroeconomic projection

The October projection compared to the July projection: CPI inflation

- CPI inflation remains below the path of the July projection through 2008 Q2. In the subsequent quarters inflation accelerates: starting from 2008 Q4 it runs approx. 0.2-0.3 pp above the July forecast
- Differences in CPI inflation paths result from:
 - **core inflation** is lower than in the July projection until 2008 Q4, and higher in the subsequent quarters,
 - in the short term **food prices growth rate** is higher than in July projection
 - in the longer term (starting from 2008 Q3) **fuel prices growth rate** is higher

The October projection compared to the July projection: core inflation

- Differences in core inflation paths result from:
 - 0.5 pp **lower core inflation at the starting point** of the projection
 - **labour market developments**: growth rate of ULC in non-agricultural sectors in 2007 Q2 and Q3 higher on average by 2.5 pp than forecast a quarter ago.
- In the short-term horizon of the forecast: lower core inflation path amid a rapid growth in ULC
- In the long-term horizon of the forecast: increasing imbalance between price level and its cost determinants leads to inflation acceleration

Expert adjustments

Macroeconomic projection

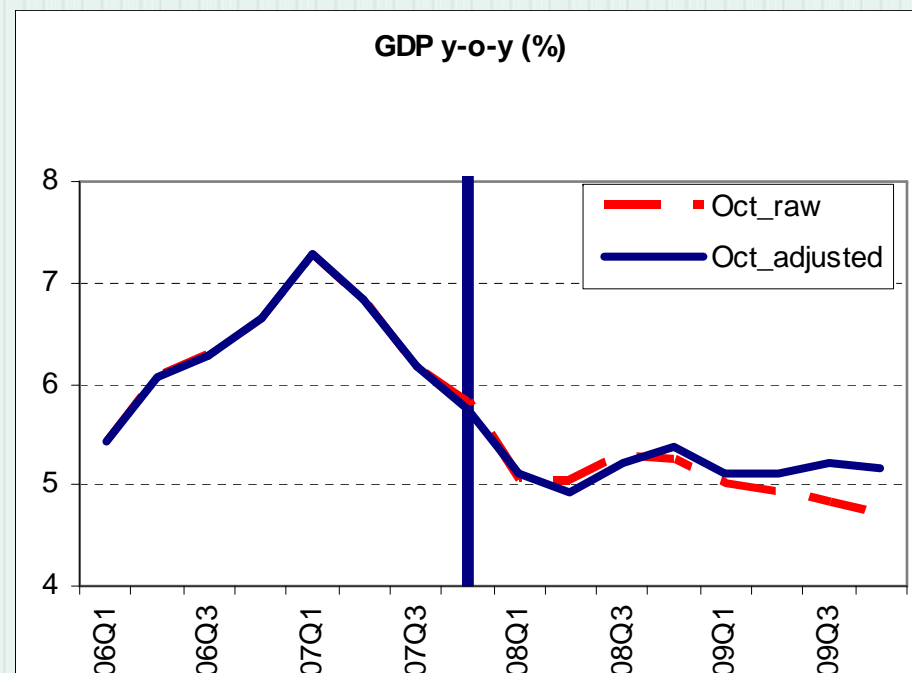
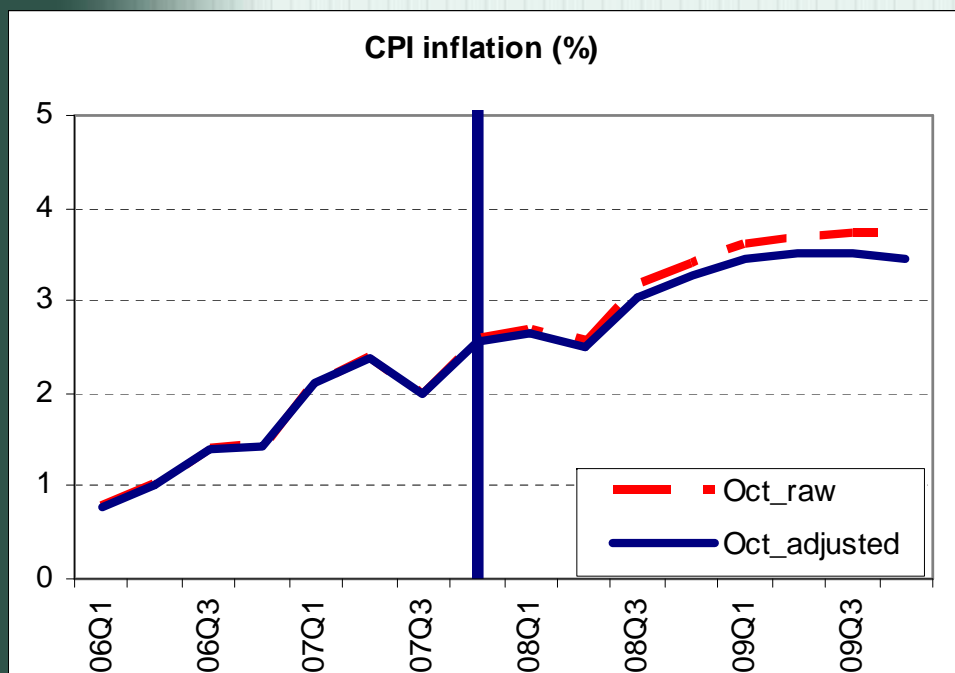
Expert adjustments

- Main areas of adjustments in the October forecasting round:
 - **Structure of GDP growth:** nature and scope of the adjustments similar to those introduced in the July projection. The structure of GDP growth adjusted in order to strengthen the contribution of internal demand amid the weakening net exports contribution.
 - **Labour market developments:** adjustments necessitated by problems with BAEL (LFS) data credibility and interpretation of recently observed labour market phenomena (high profitability of enterprises amid accelerating wage increase and low pass-through of higher labour costs to prices)

Expert adjustments

- Main areas of adjustments in the October forecasting round:
 - household final consumption,
 - gross fixed capital formation,
 - public consumption,
 - fiscal sector variables,
 - export and import volumes,
 - number of working persons,
 - wages, NAWRU and import prices
- The following slides present the paths of variables before adjustments (so-called raw projection) and after introducing all expert adjustments to the model (the October projection).

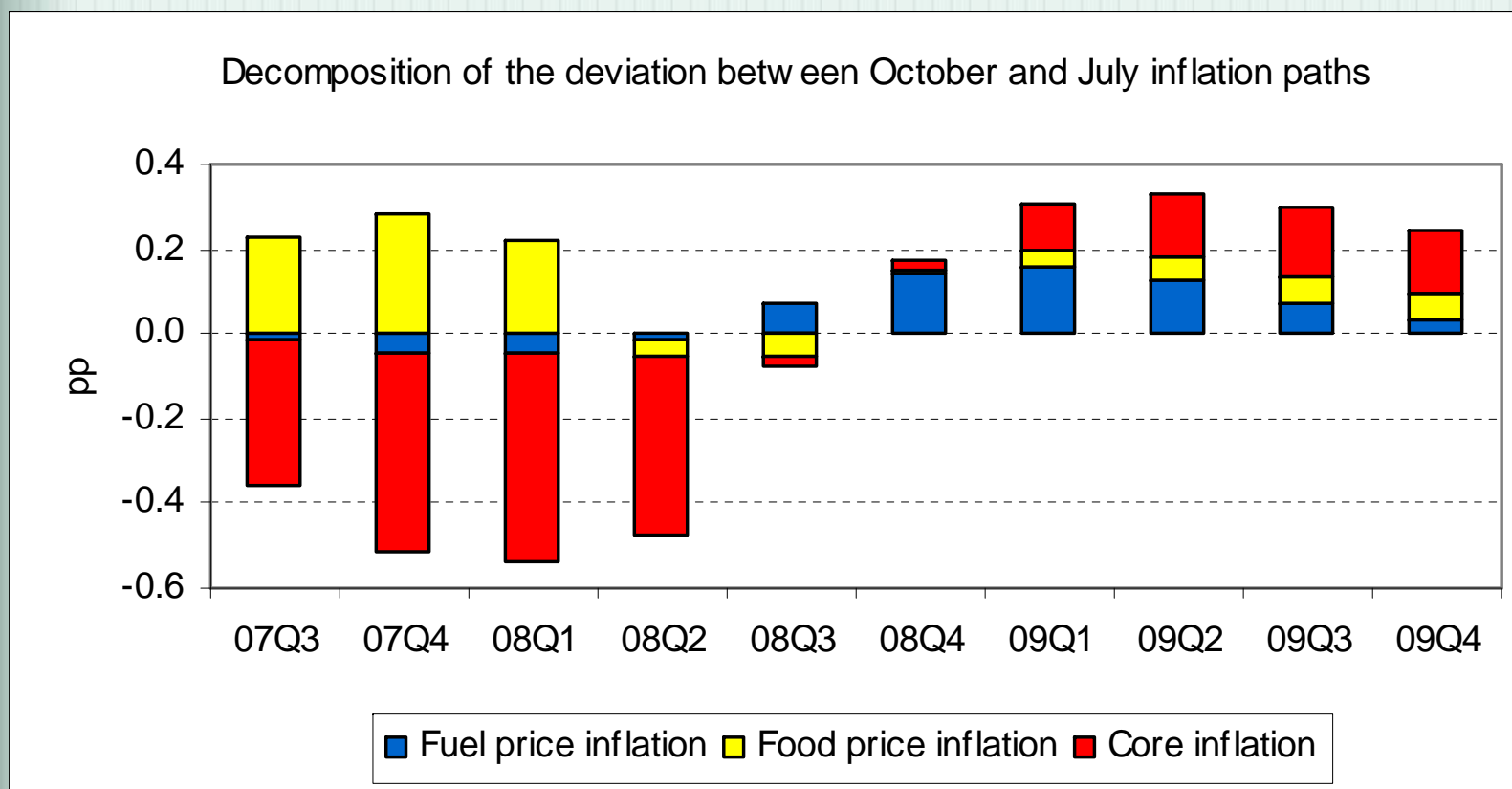
Joint effect of the adjustments on inflation and GDP



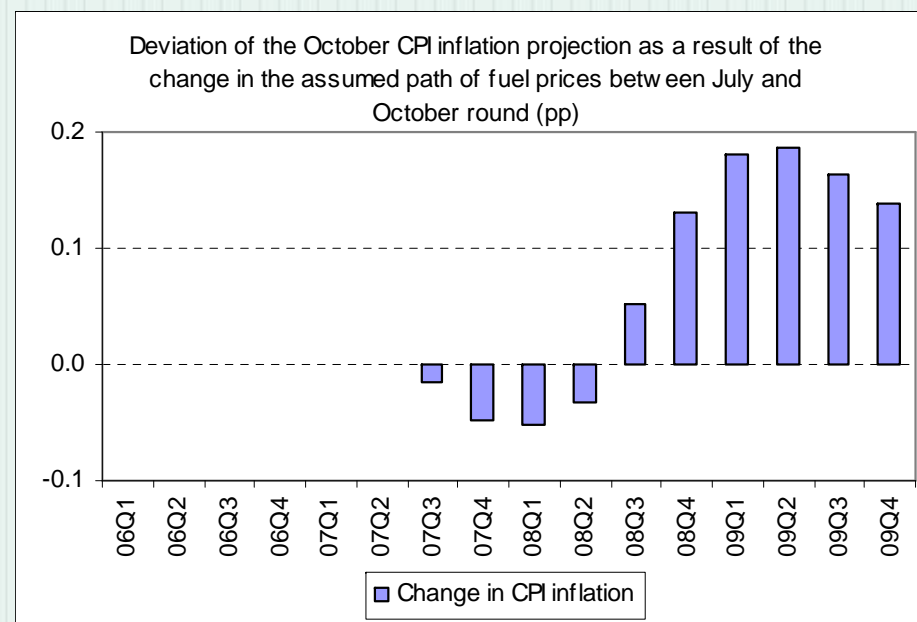
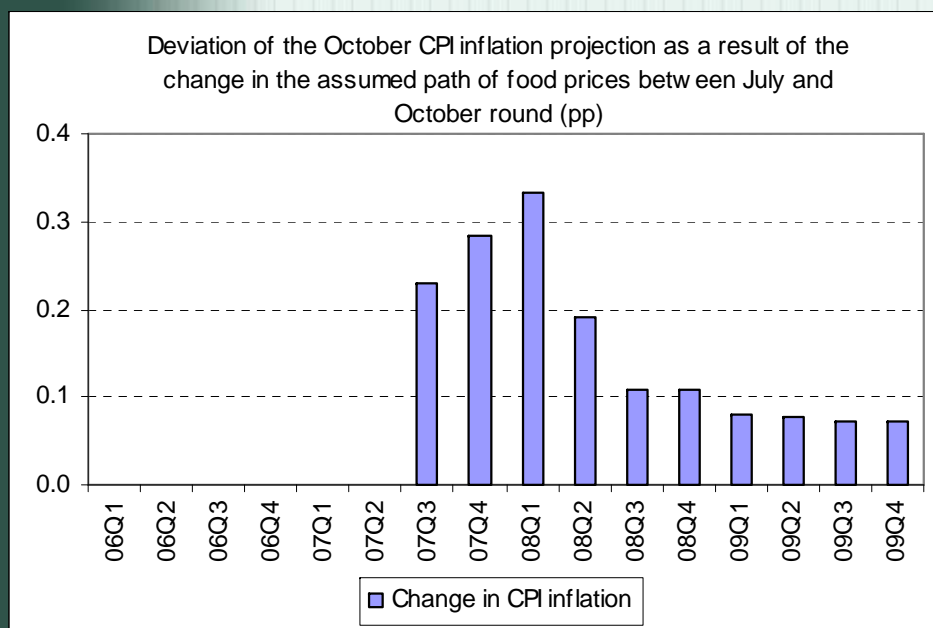
Accounting for CPI inflation

Macroeconomic projection

Decomposition of the deviation between the October and July inflation path



Food prices* and fuel prices

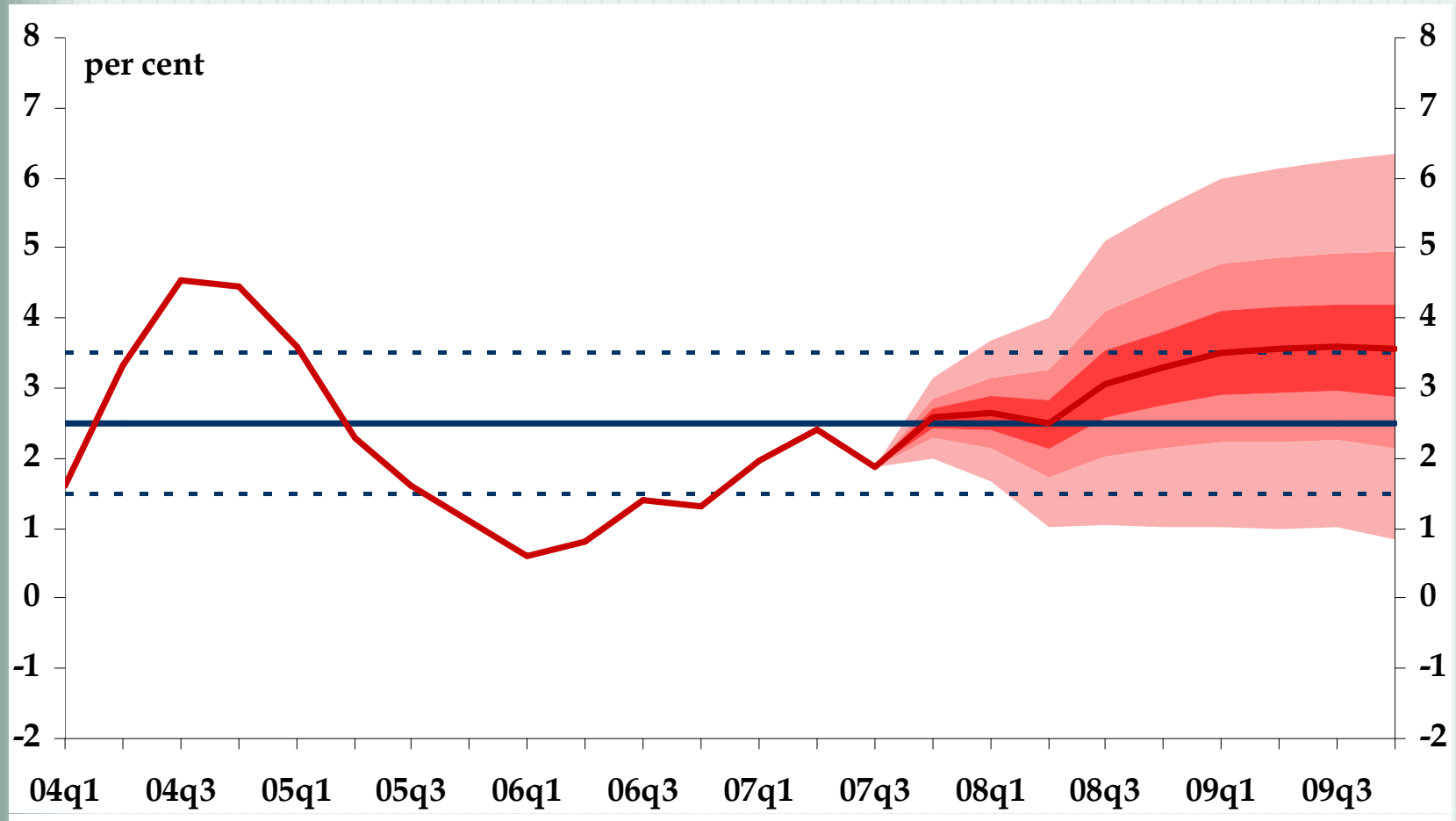


* Food prices **directly** affect the CPI in the first four quarters of the projection. In subsequent quarters, food prices affect the CPI **indirectly** through the relationships holding within the model (such as the impact of CPI inflation on core inflation and auto-regression in the equation of core inflation).

Uncertainty factors accounted for in the model – Fan chart

Uncertainty of projection

Inflation projection – October 2007



Source: Macroeconomic and Structural Analyses Department

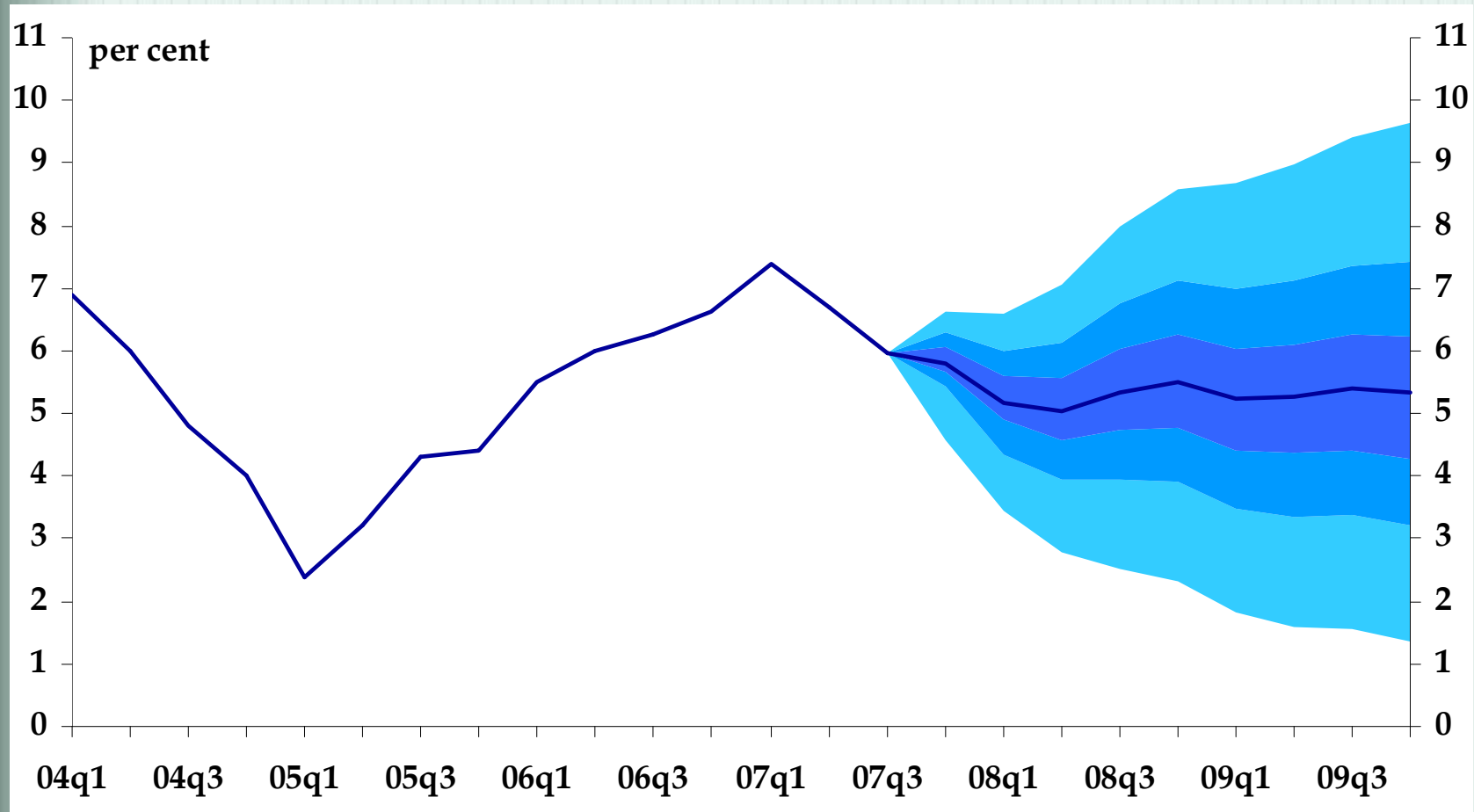
Inflation projection - October 2007 (constant interest rates)

- The central path indicates that the inflation target level (2.5%) will be breached in 2007 Q4, while in 2009 Q2 CPI inflation will overshoot (by 0.1 pp) the upper tolerance limit for deviations from the inflation target (i.e. 3.5%)
- The fan chart points out to a roughly symmetrical distribution of risk of inflation deviating upwards and downwards from the central path in the projection horizon

Overview of probabilities for inflation

Probability of inflation running:					
	below 1.5%	below 2.5%	below 3.5%	below the central path	in the range (1.5%; 3.5%)
2007 Q4	0.002	0.421	0.995	0.504	0.992
2008 Q1	0.027	0.403	0.915	0.505	0.888
2008 Q2	0.136	0.508	0.866	0.505	0.730
2008 Q3	0.102	0.327	0.644	0.504	0.543
2008 Q4	0.096	0.284	0.560	0.500	0.464
2009 Q1	0.092	0.255	0.502	0.501	0.409
2009 Q2	0.094	0.249	0.487	0.502	0.394
2009 Q3	0.094	0.248	0.481	0.503	0.388
2009 Q4	0.108	0.267	0.494	0.506	0.386

Projection of GDP growth rate – October 2007



Source: Macroeconomic and Structural Analyses Department

Decomposition of central path uncertainty (decomposition of the fan)

- **Throughout the projection:** dominant impact on inflation uncertainty is exerted by uncertainty of the paths of food prices, core inflation and oil prices
- **In the medium term:** additionally the inflation uncertainty is affected by random component error in the equations of GDP deflator, exchange rate and import prices
- The fan chart does not account for uncertainty of the model (it is constructed under the assumption of an adequate model)

Uncertainty factors unaccounted for in the model (1)

- **The scale of the pass-through of labour cost growth to future inflation amid ongoing globalisation:**
 - Lower scale of the pass-through of labour costs to prices at enterprises
 - Increased possibilities of reducing non-wage production costs
- **Uncertainty of BAEL (LFS) data**
 - Probable overestimation of the growth rate in the number of working persons
- **Labour market developments:**
 - The scale of the transmission of the economic recovery on the rise in effective supply of labour, i.e. the number of economically active persons and the NAWRU

Uncertainty factors unaccounted for in the model (2)

- **Labour market developments (contd.):**
 - The scale of wage pressure weakening resulting from wage wedge reduction
 - Intensity and nature of migration flows
 - The impact on the labour market exerted by the already implemented or probable changes in fiscal and regulatory policies (minimum wage, extended period of granting early retirement, reinstatement of the Alimony Fund)
- **External demand and inflation:**
 - Increased risk connected with slowdown in the world economy which could potentially translate into lower than currently observed paths of GDP and inflation in Poland

Uncertainty factors unaccounted for in the model (3)

- **External demand and inflation (contd.):**
 - The risk of reduced propensity to invest in Poland and other countries in the region due to the heightened global uncertainty in financial markets
- **Uncertainty about the condition of the public finance sector**
 - Persisting uncertainty connected with the fiscal policy direction after the recent parliamentary election
 - The uncertainty about the condition of general government sector should also be considered against the background of the developments in the world economy and the domestic labour market
 - A possible economic growth deceleration resulting from disruptions in international financial markets would be conducive to worsening the amount of deficit and debt of the public finance sector in relation to GDP (there would be an increased risk of weakening the confidence of both domestic and foreign investors and exchange rate depreciation)

Uncertainty factors unaccounted for in the model (4)

- **Exchange rate path:**
 - Uncertainty connected with the exchange rate forecast increased after the last projection owing to the disruptions in international financial markets

- **Data released after the cut-off date**
 - Data and forecasts released after the cut-off date suggest the possibility of oil price hiking above the level accounted for in the projection
 - Data on inflation in September suggest a stronger food price growth in the horizon of the next few quarters than it was accounted for in the current projection
 - The latest data point to the possibility of a stronger appreciation of the euro against the US dollar than it was accounted for in the projection
 - Accounting for the revision of the National Accounts and the actual monthly data for September (data on the construction and assembly output and retail sales) slightly increases the risk of a lower than forecast GDP growth rate in the short-term horizon of the projection

The balance of all risk factors for the projection can be assessed as **symmetrical in the short-term projection horizon**, while in the longer horizon **it is slightly more probable that inflation will run below** the path from the projection than above it