Monetary policy and interrelationships in the Norwegian economy

Governor Øystein Olsen
Different horizons – different models

- Statistical models (SAM)
- Business cycle models (NEMO)
- Equilibrium models

Horizon

0-1 year
1-4 years
Long term
Main requirements for a model for monetary policy

1. Monetary policy controls inflation
2. Expectations must be included
3. Based on theory and empirical data
4. Understandable and easy to communicate
Growth and inflation
Percentage annual growth. Average

Sources: Statistics Norway and Norges Bank
Main requirements for a model for monetary policy

1. Monetary policy controls inflation

2. Expectations must be included

3. Based on theory and empirical data

4. Understandable and easy to communicate
“Essentially, all models are wrong, but some are useful.”

George Box (1979)
Output and inflation
Percentage deviation from trend

Sources: Statistics Norway and Norges Bank
Output and unemployment
Percentage deviation from trend

Sources: Statistics Norway and Norges Bank
Unemployment and wage growth
Percentage deviation from trend

Sources: Statistics Norway and Norges Bank
Wage growth and inflation
Percentage deviation from trend

Sources: Statistics Norway and Norges Bank
The interest rate is an endogenous variable

The effect of a change in the interest rate depends on:

- The reason for the change
- Whether the change is a surprise
- Whether the change is temporary or of long duration
VAR model
(vector autoregressive model, structural)

- Mainland GDP
- Inflation (CPI-ATE)
- Exchange rate
- Interest rate
Isolated effect on GDP of an interest rate increase in two different VAR models

Per cent

![Chart showing isolating effect on GDP](image)

Estimation period 1996-2009

Estimation period 1986-2009

Source: Norges Bank
Maximum impact of a 1 percentage point interest rate increase, different estimation periods

**GDP**
Per cent

**Inflation**
Percentage points

Source: Norges Bank
Number of quarters to maximum effect of interest rate change, different estimation periods

GDP

Inflation

Source: Norges Bank
Effect of monetary policy shocks, different models/estimation periods

GDP
Per cent

Inflation
Percentage points

Quarters
Source: Norges Bank
NEMO (Norwegian Economy Model)

- General equilibrium model (DSGE)
- Forward-looking participants
- Monetary policy controls inflation and gives weight to stabilising output
- No long-term trade-off between inflation and unemployment
- Estimated on Norwegian data
Effect of monetary policy shocks in the VAR models and in NEMO

GDP
Per cent

Inflation
Percentage points

Quarters
Source: Norges Bank
Projected inflation and output gap in the baseline scenario from MPR 2/11
Per cent. Quarterly figures. 2008 Q1 – 2014 Q4

Sources: Statistics Norway and Norges Bank
Projected key policy rate in the baseline scenario from MPR 2/11 with fan chart

Per cent. Quarterly figures. 2008 Q1 – 2014 Q4

Source: Norges Bank
Key policy rate in the baseline scenario and in the alternative scenarios from MPR 2/11
Per cent. Quarterly figures. 2008 Q1 - 2014 Q4

- Baseline scenario
- Higher price and cost inflation
- Lower growth abroad

Source: Norges Bank
Summary:
Response pattern in interest rate setting

- Empirically anchored
- Theory-based
- Professional judgement
- Learning