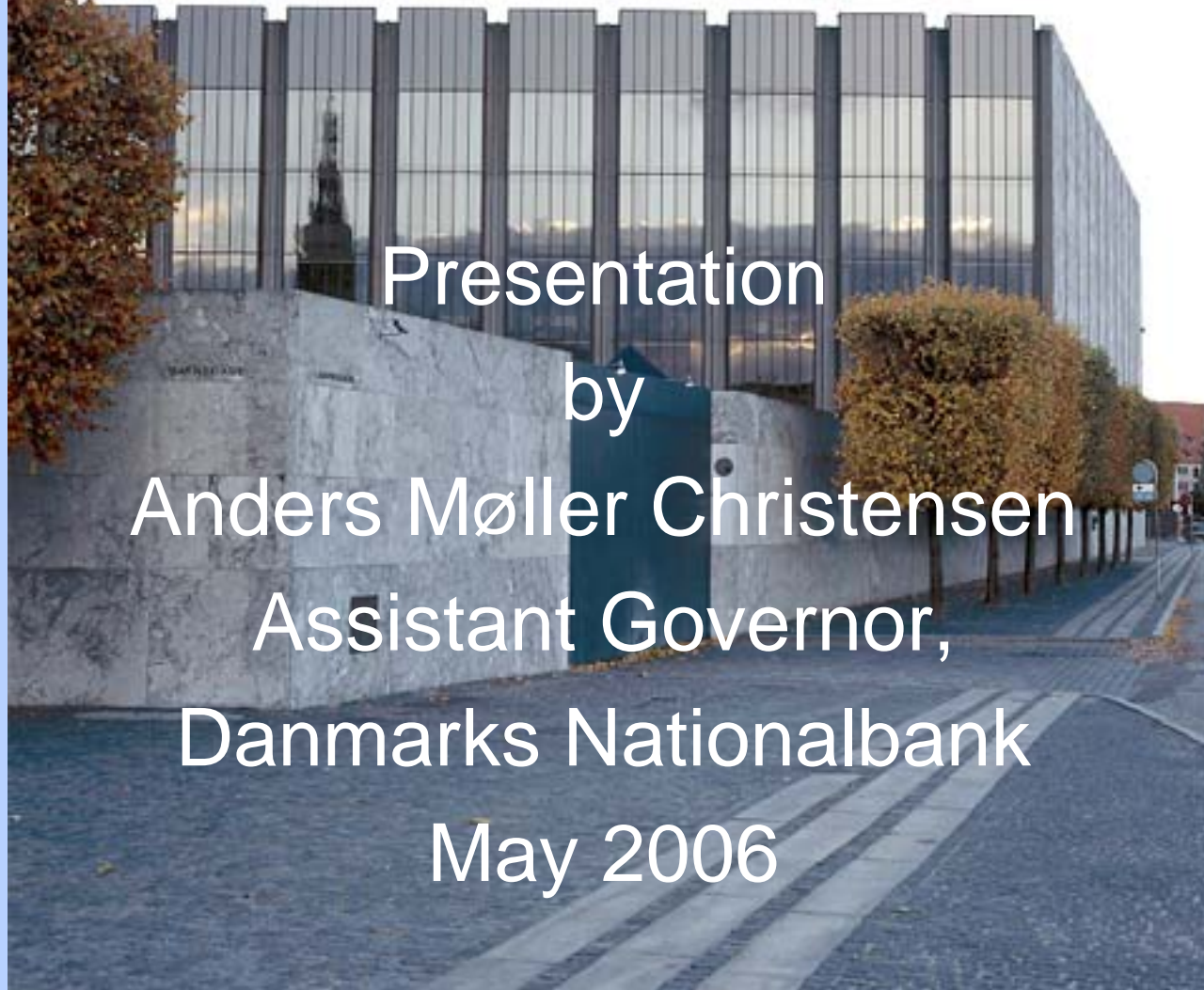




Monetary policy in a fixed-exchange-rate regime



Presentation

by

Anders Møller Christensen

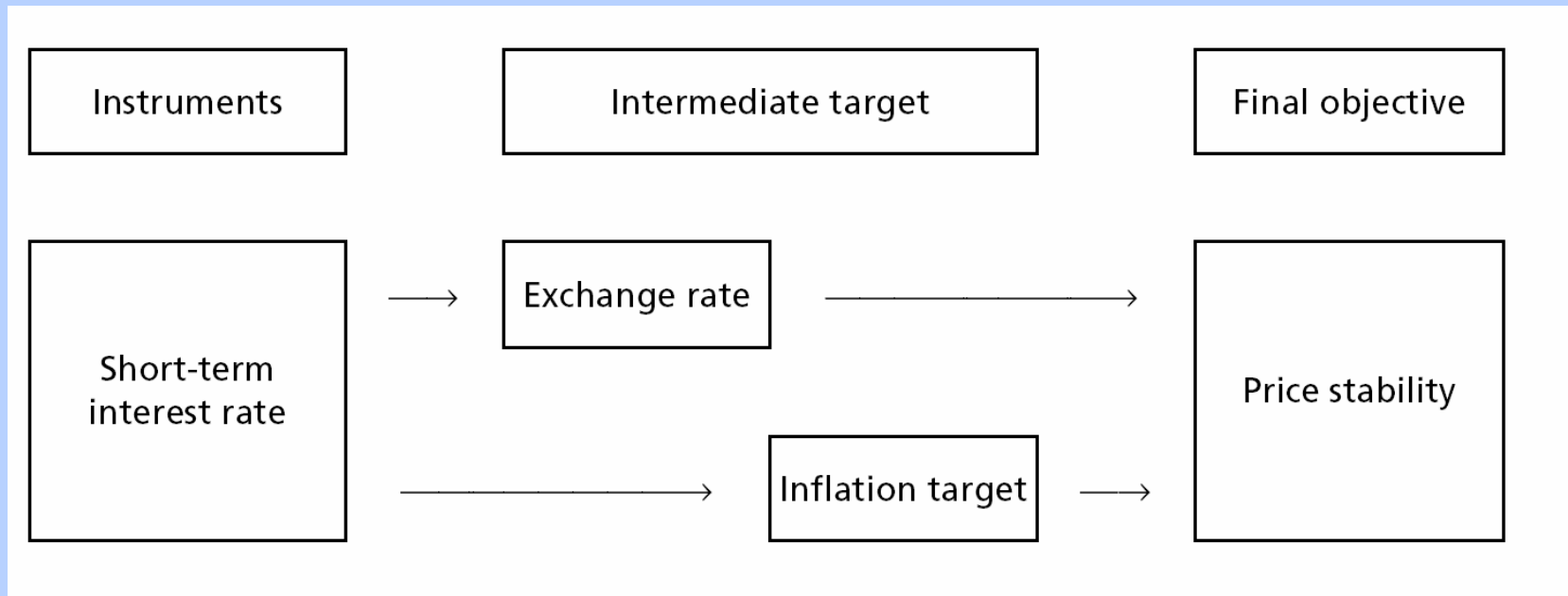
Assistant Governor,

Danmarks Nationalbank

May 2006

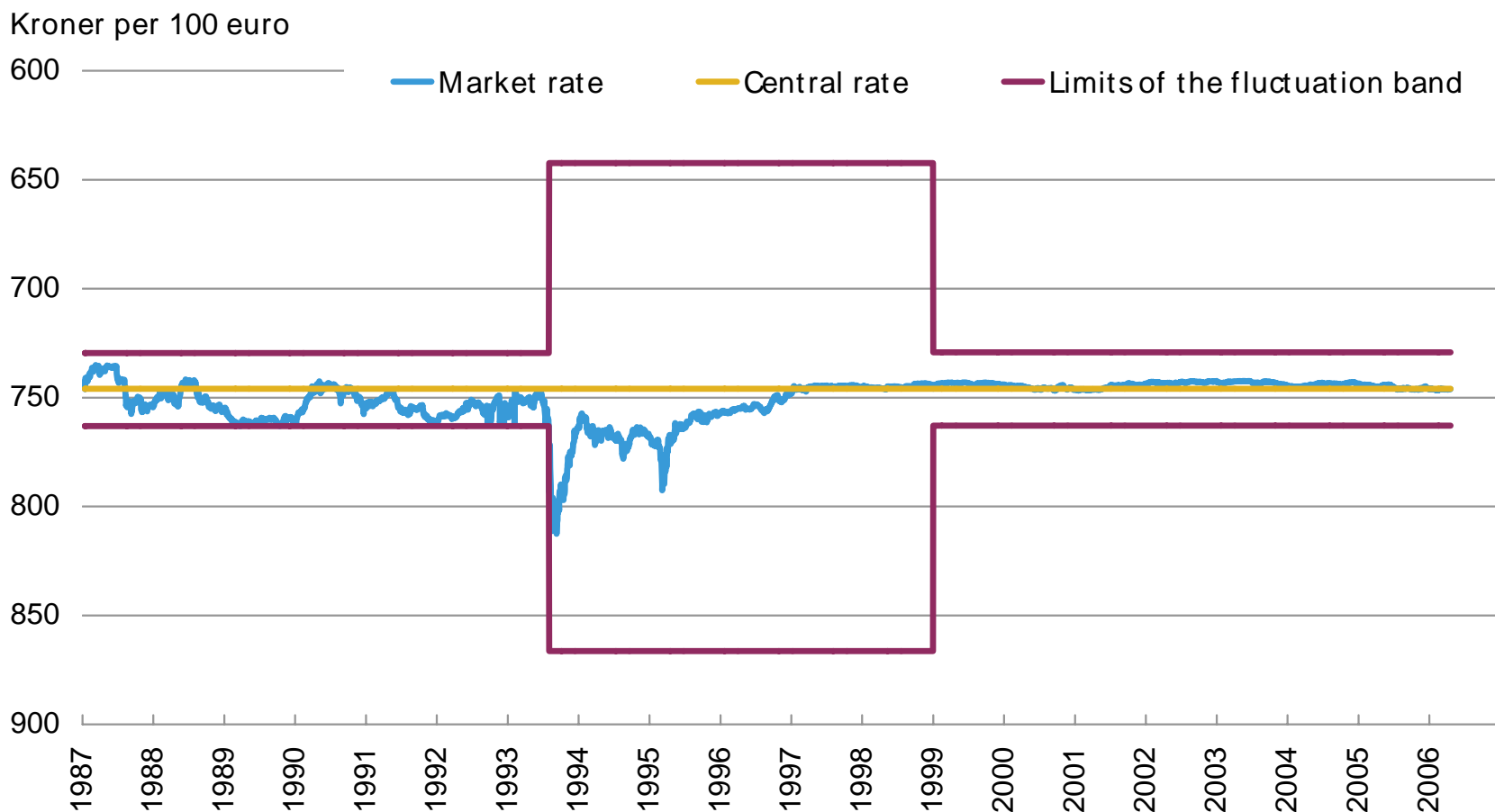


MONETARY-POLICY STRATEGIES





EXCHANGE RATE OF THE KRONE VIS-À-VIS THE EURO 1987-2006



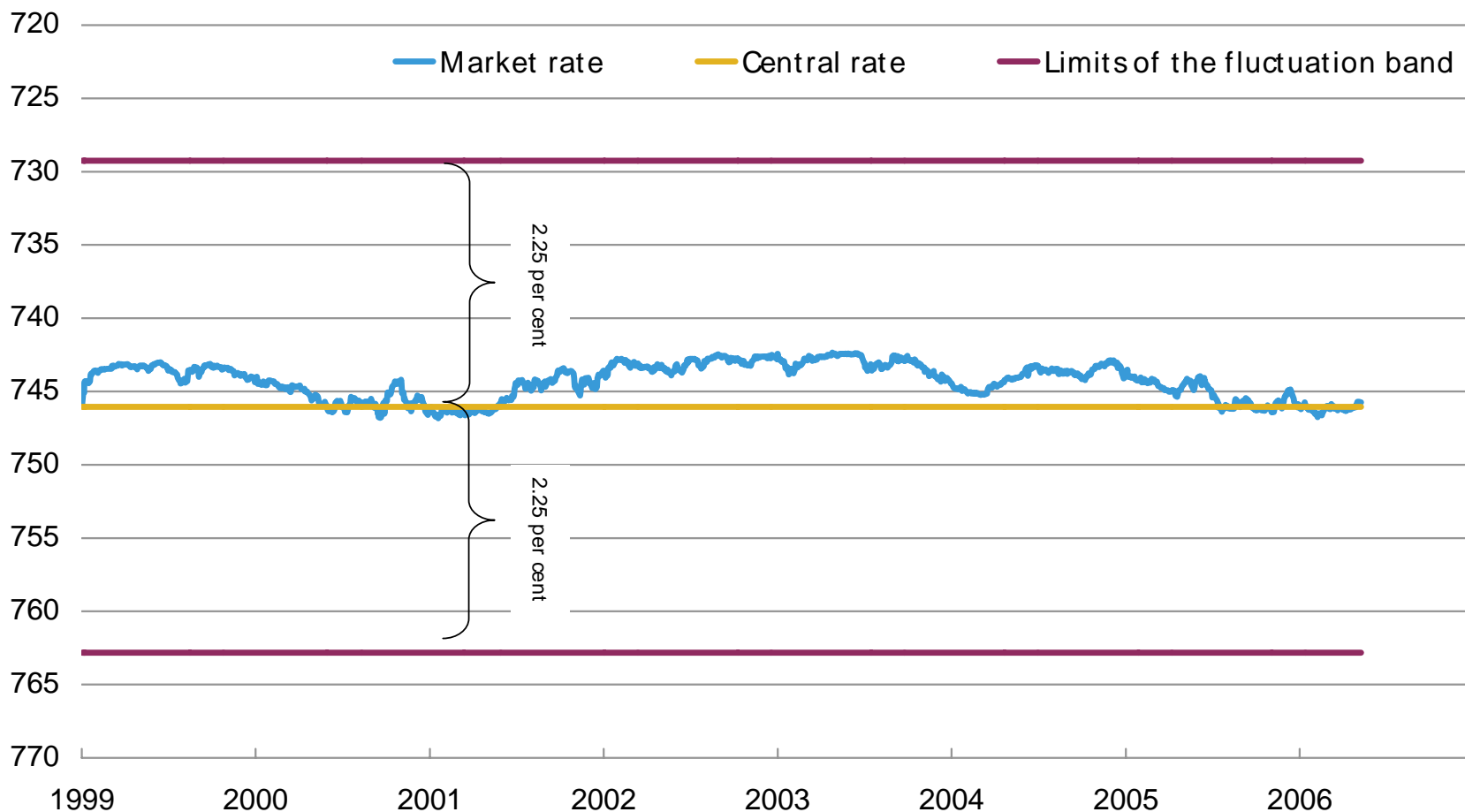
Before 1999, a synthetic krone rate vis-à-vis the euro is applied, calculated on the basis of the krone rate vis-à-vis the D-mark and the D-mark-to-euro conversion rate fixed at 1 January 1999.

Source: Danmarks Nationalbank.



EXCHANGE RATE OF THE KRONE VIS-À-VIS THE EURO 1999-2006

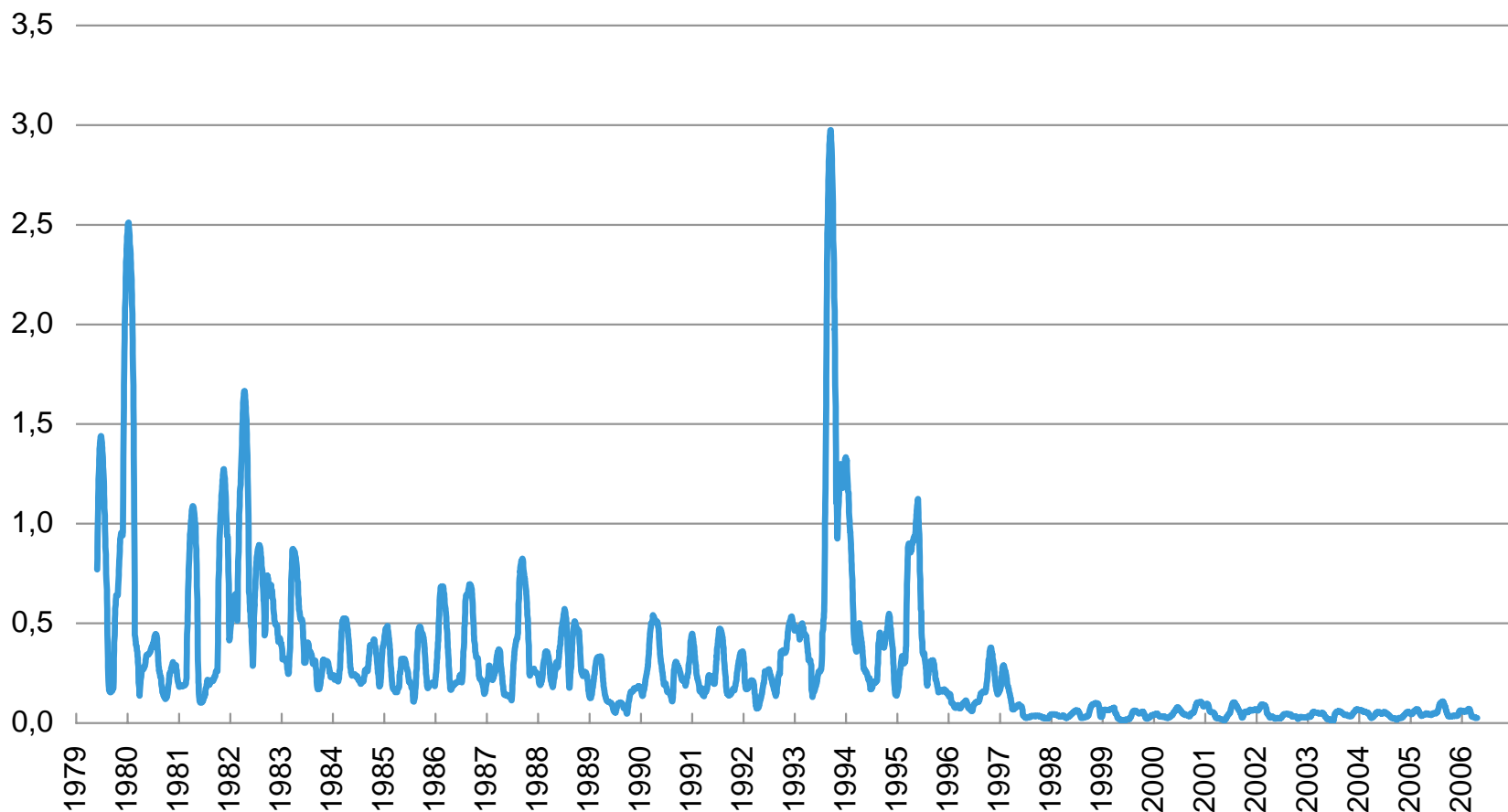
Kroner per 100 euro



Source: Danmarks Nationalbank.



VOLATILITY OF THE KRONE VIS-À-VIS THE EURO 1979-2006



Note: The volatility is the 60-day moving standard deviation measured in per cent. Before 1 January 1999 the D-mark exchange rate is used.

Source: Danmarks Nationalbank.



THE DANISH PARTICIPATION IN ERM II

- ◆ Within the ERM II the krone is allowed to fluctuate within a narrow band of ± 2.25 pct. vis-à-vis the central rate against the euro (746.038 kroner per 100 euro). In practice however the krone has been kept very stable around the central rate.
- ◆ Denmark has concluded an agreement with the ECB on the narrow band. The standard fluctuation band in ERM II is ± 15 per cent.
- ◆ The euro is at the core of ERM II, and the other participating currencies have central rates vis-à-vis the euro, but not vis-à-vis each other. The obligation to intervene if a participating currency reaches one of its fluctuations margins rests on the central bank of the relevant member state and the ECB only. Other participating member states are under no obligation to intervene.
- ◆ Currently Denmark, Estonia, Cyprus, Latvia, Lithuania, Malta, Slovenia and Slovakia participate in ERM II.



MONETARY POLICY INSTRUMENTS

- ◆ Monetary-policy counterparties: Banks and mortgage-credit institutes.
- ◆ Weekly market operations (“open window”)
 - ◆ Counterparties may raise 14-days loans against collateral and/or place funds by purchasing 14-day certificates of deposits (CD's).
 - ◆ The rates of interest on the two types of 14-day transactions are normally identical.
- ◆ Standing facilities:
 - ◆ Current-account deposits (Overnight deposits) within certain limits.
- ◆ Finetuning operations (purchase and sales of CD's), e.g. in case of major central-government payments.

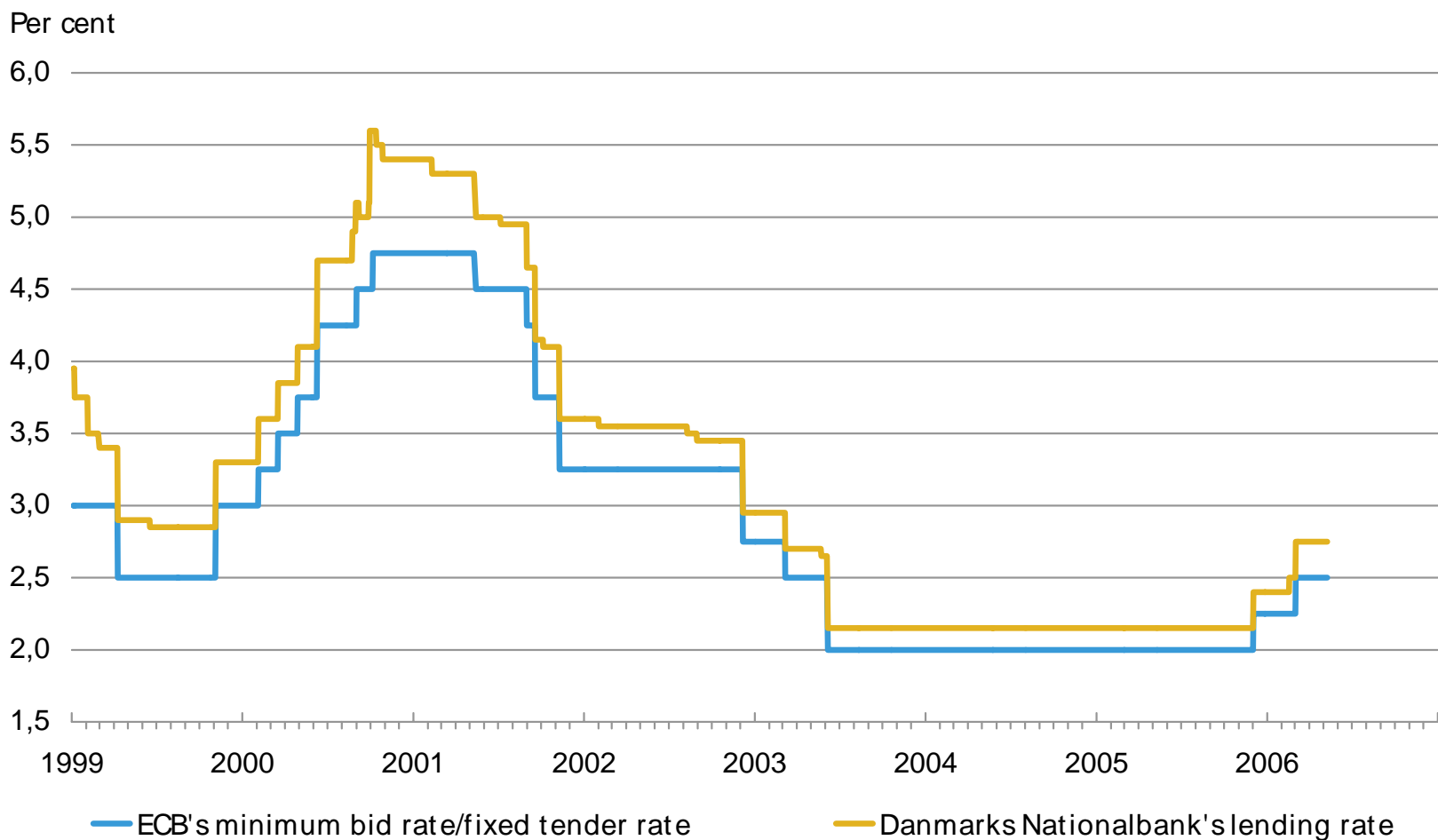


DESIGN OF MONETARY POLICY INSTRUMENTS IN A FIXED EXCHANGE-RATE REGIME

- ◆ Danmarks Nationalbank's monetary-policy instruments resemble those of the Eurosystem.
- ◆ However, some differences related to the fixed-exchange-rate regime:
 - ◆ No marginal lending facility => No ceiling on overnight interest rate. This may help to dampen any unrest in the foreign-exchange market.
 - ◆ A current-account-limit system => prevents a build-up of large current-account deposits which could be used to speculate in changes in interest and exchange rates.
 - ◆ No reserve requirements
 - ◆ Maturity of monetary policy instruments: 14 days (ECB 7 days).



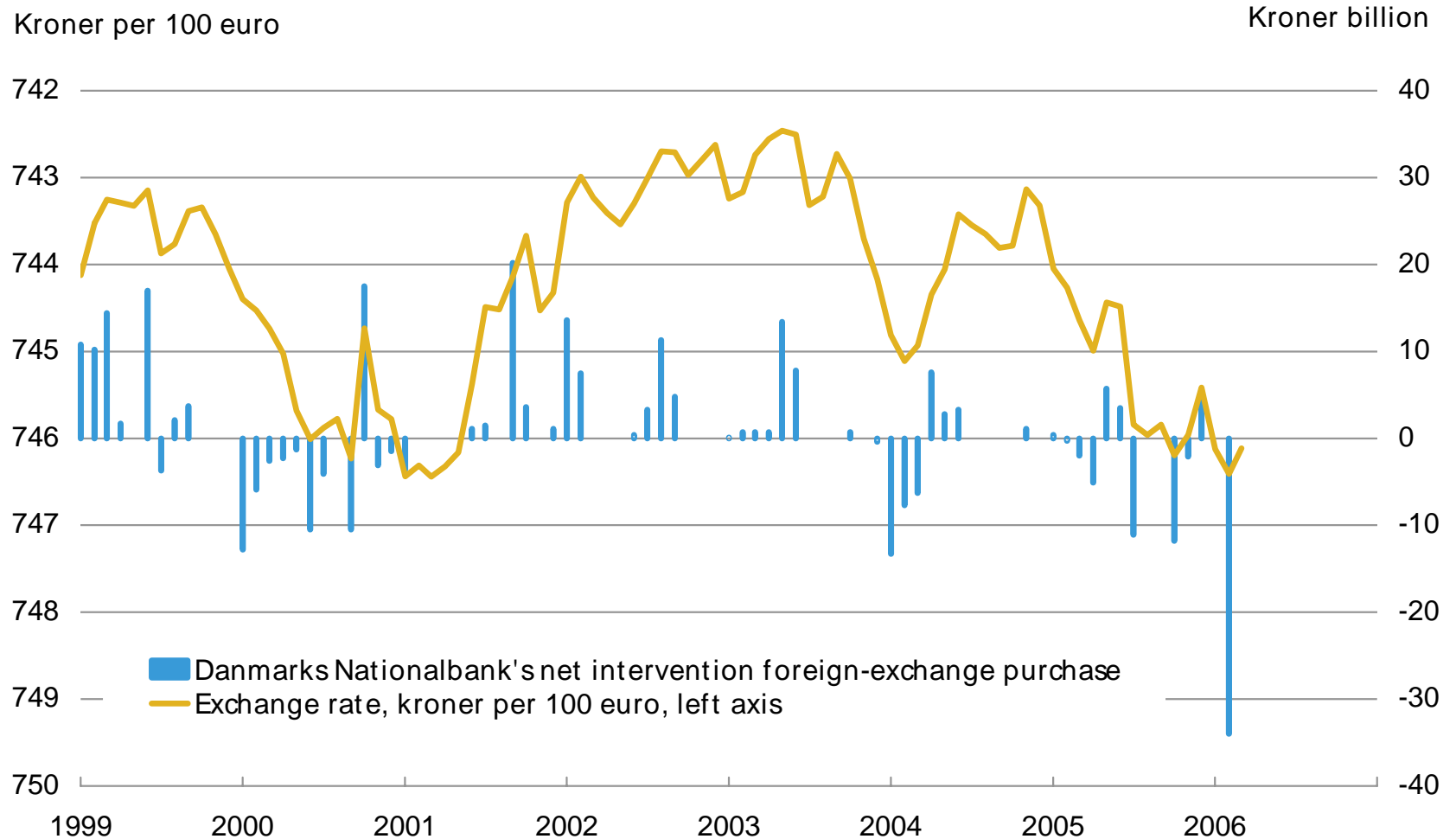
MONETARY-POLICY INTEREST RATES IN DENMARK AND THE EURO AREA 1999-2006



Source: Danmarks Nationalbank and ECB.



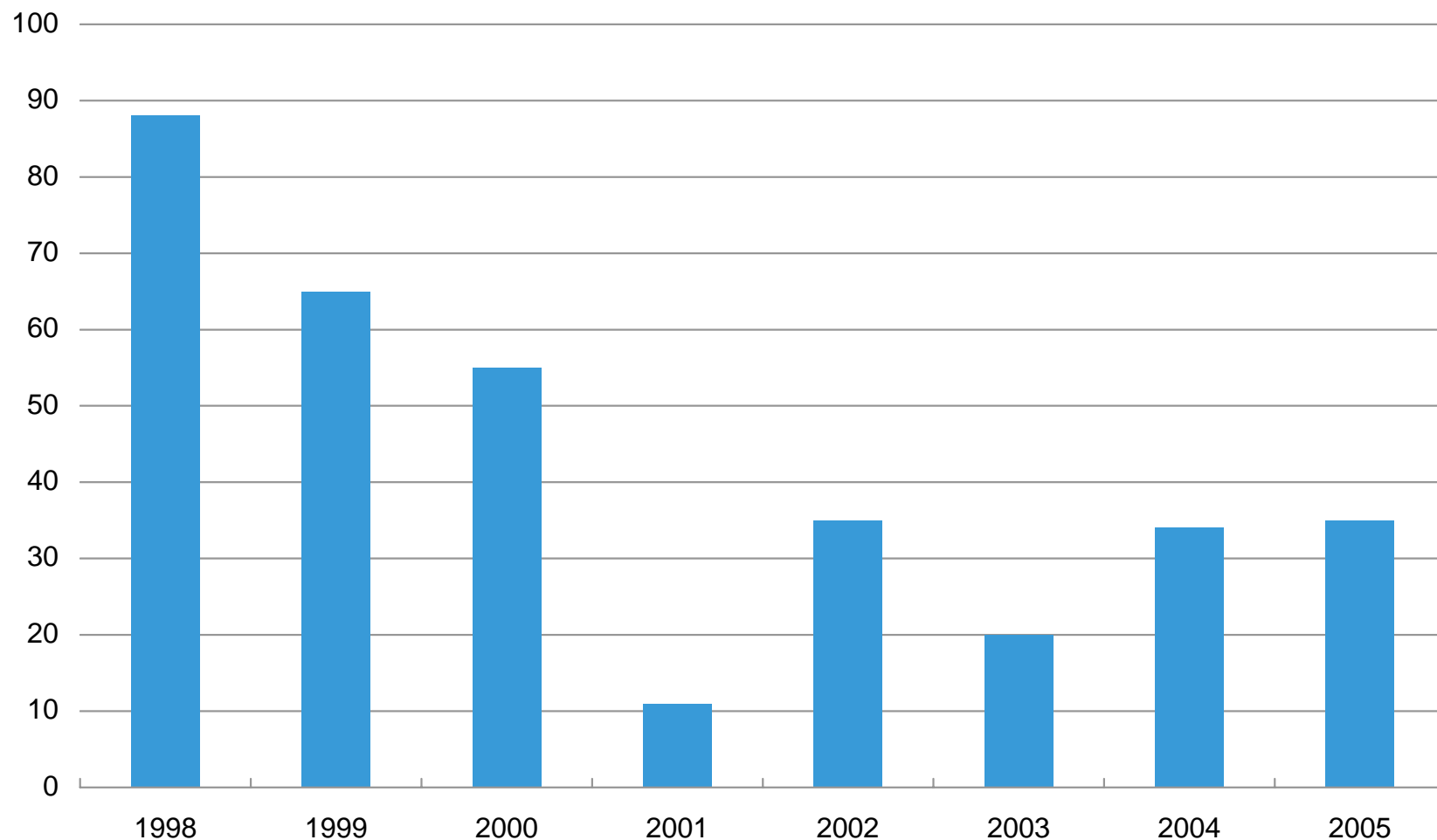
INTERVENTION 1999-2006



Source: Danmarks Nationalbank.



NUMBER OF DAYS WITH INTERVENTION 1998-2005



Source: Danmarks Nationalbank.

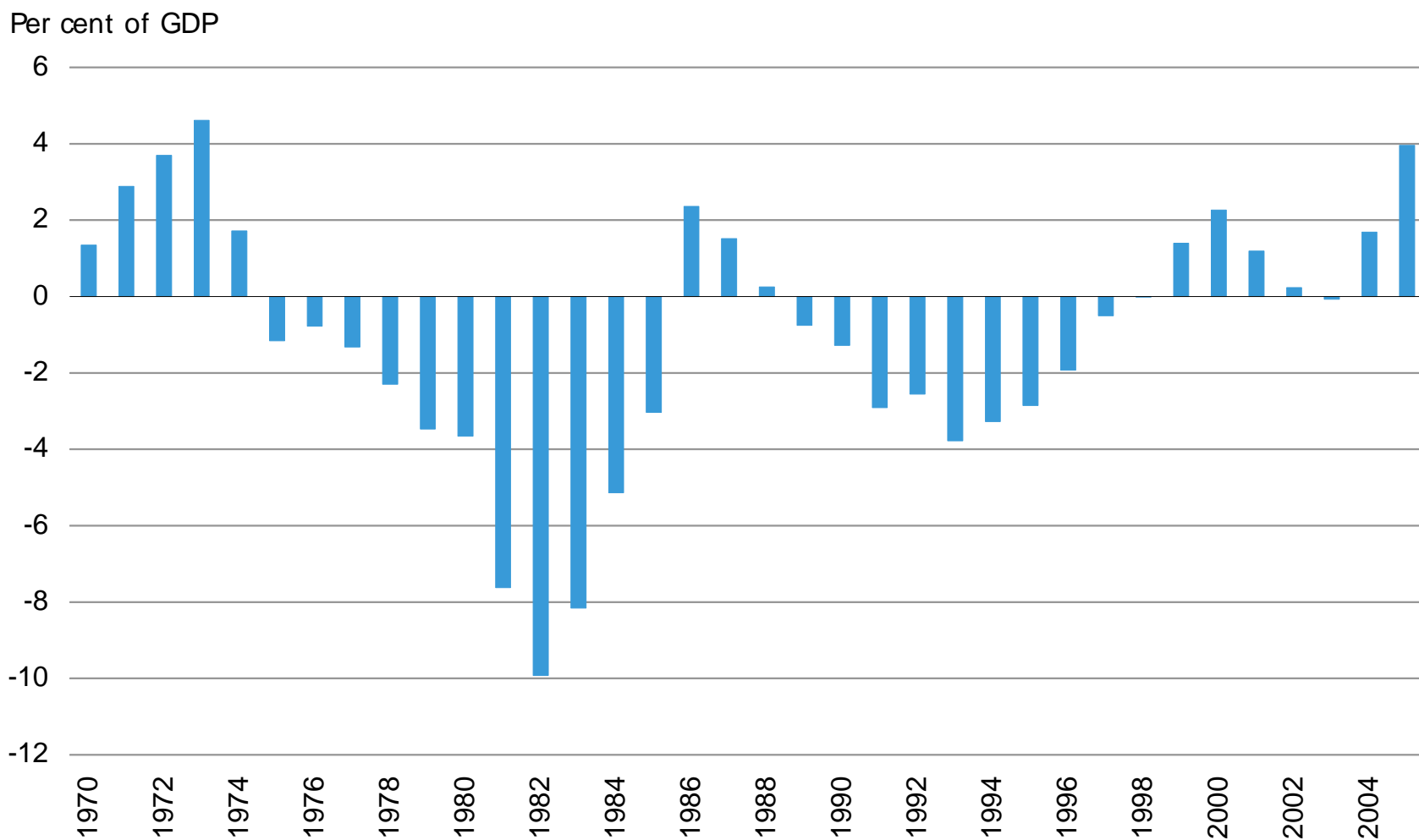


THE ORIGIN OF THE FIXED-EXCHANGE-RATE POLICY IN DENMARK

- ◆ Today commitment to a fixed-exchange-rate policy and stability oriented economic policies in Denmark.
- ◆ Historical background:
 - ◆ After World War II fixed-exchange-rate policy within the Bretton Woods System.
 - ◆ 1970s: Poorly managed macroeconomic policy and poor economic performance. Frequent devaluations.
 - ◆ Fundamental change in 1982: Incoming government declared that devaluation would no longer be an instrument in economic policy.
 - ◆ Since January 1987 there has been no change in the central rate of the krone vis-à-vis the D-mark and subsequently the euro.



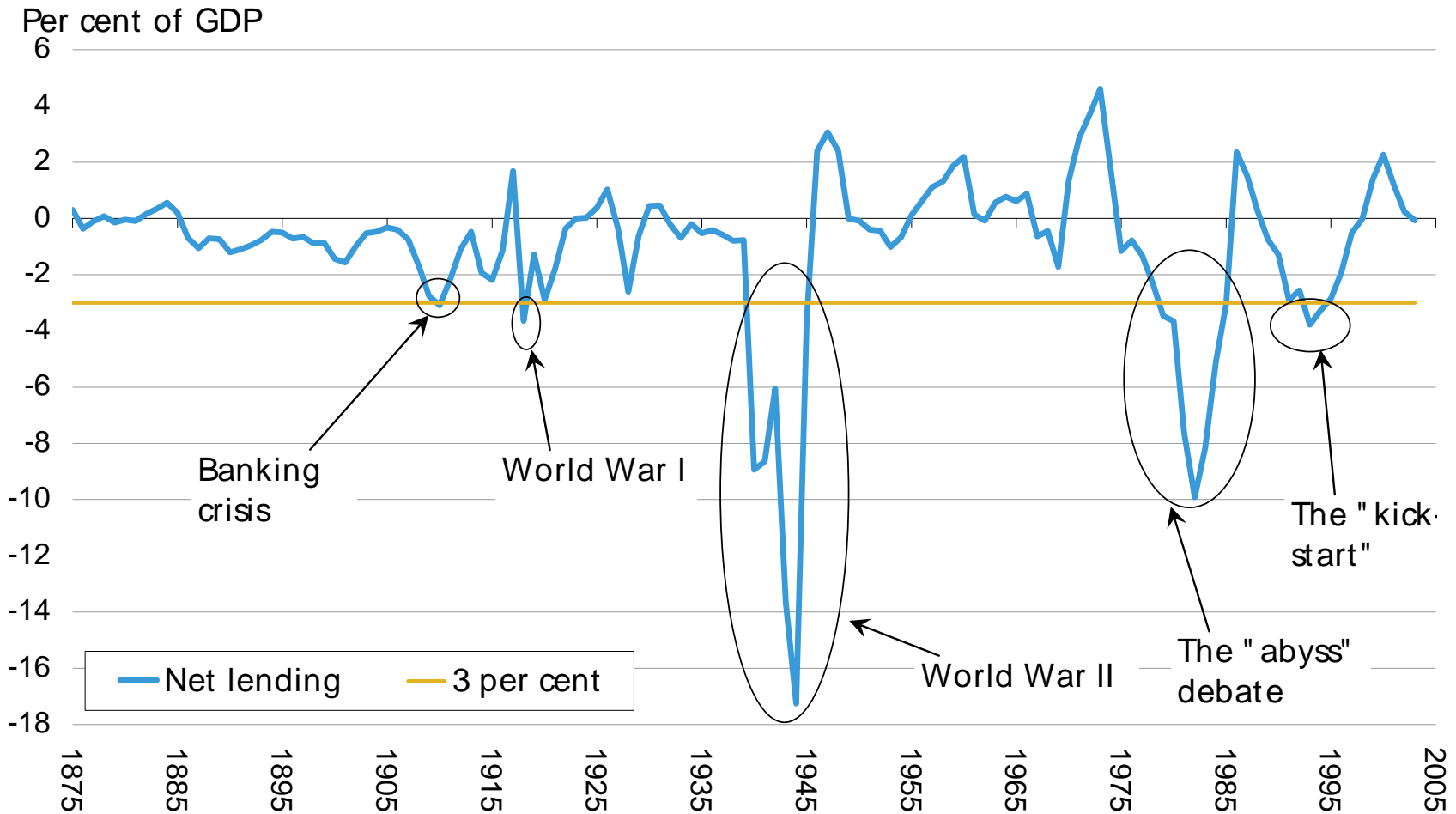
GENERAL GOVERNMENT BUDGET BALANCE IN DENMARK 1970-2005



Source: Statistics Denmark.



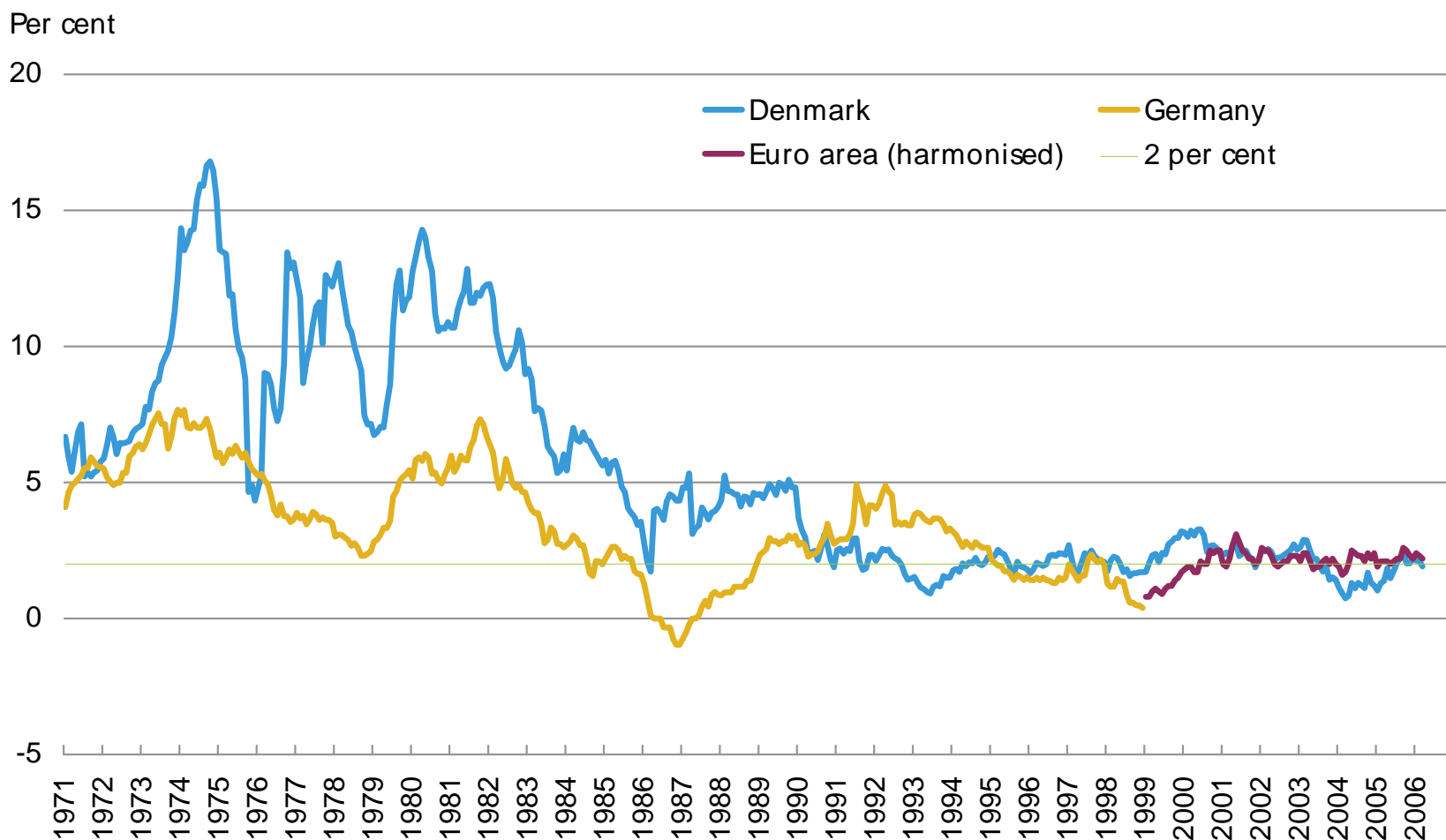
GOVERNMENT BUDGET BALANCE IN DENMARK 1875-2005



Source: Abildgren, K. (2005), Estimates of the government budget balance since 1875, Danmarks Nationalbank Working Paper, No. 30; and Statistics Denmark.



ANNUAL GROWTH IN CONSUMER PRICES IN DENMARK, GERMANY AND THE EURO AREA 1971-2006

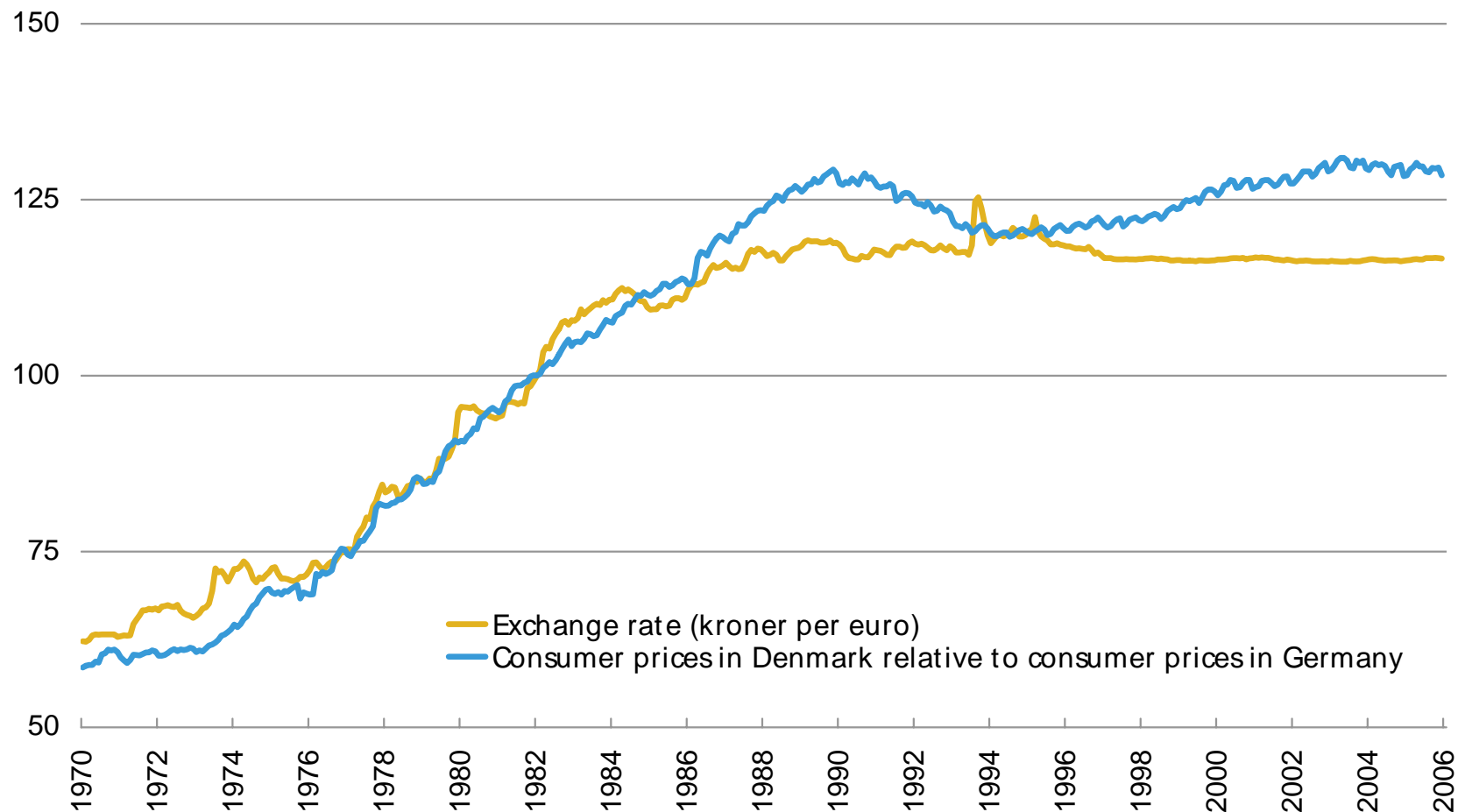


Sources: Statistics Denmark, OECD and ECB.



BILATERAL EXCHANGE RATE AND RELATIVE PRICES BETWEEN DENMARK AND GERMANY 1970-2005

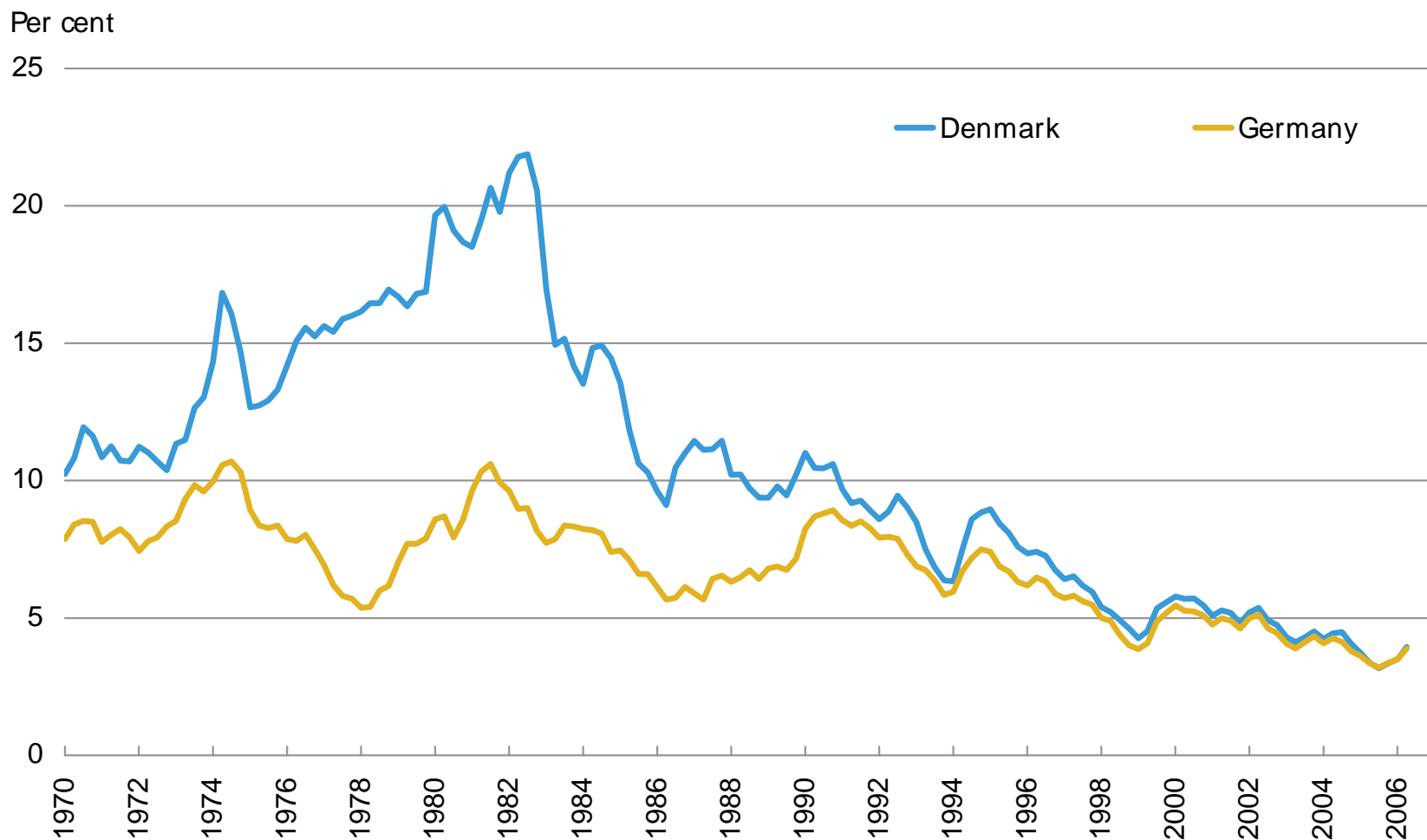
Index January 1982=100



Source: Danmarks Nationalbank, OECD, ECB and Statistics Denmark.



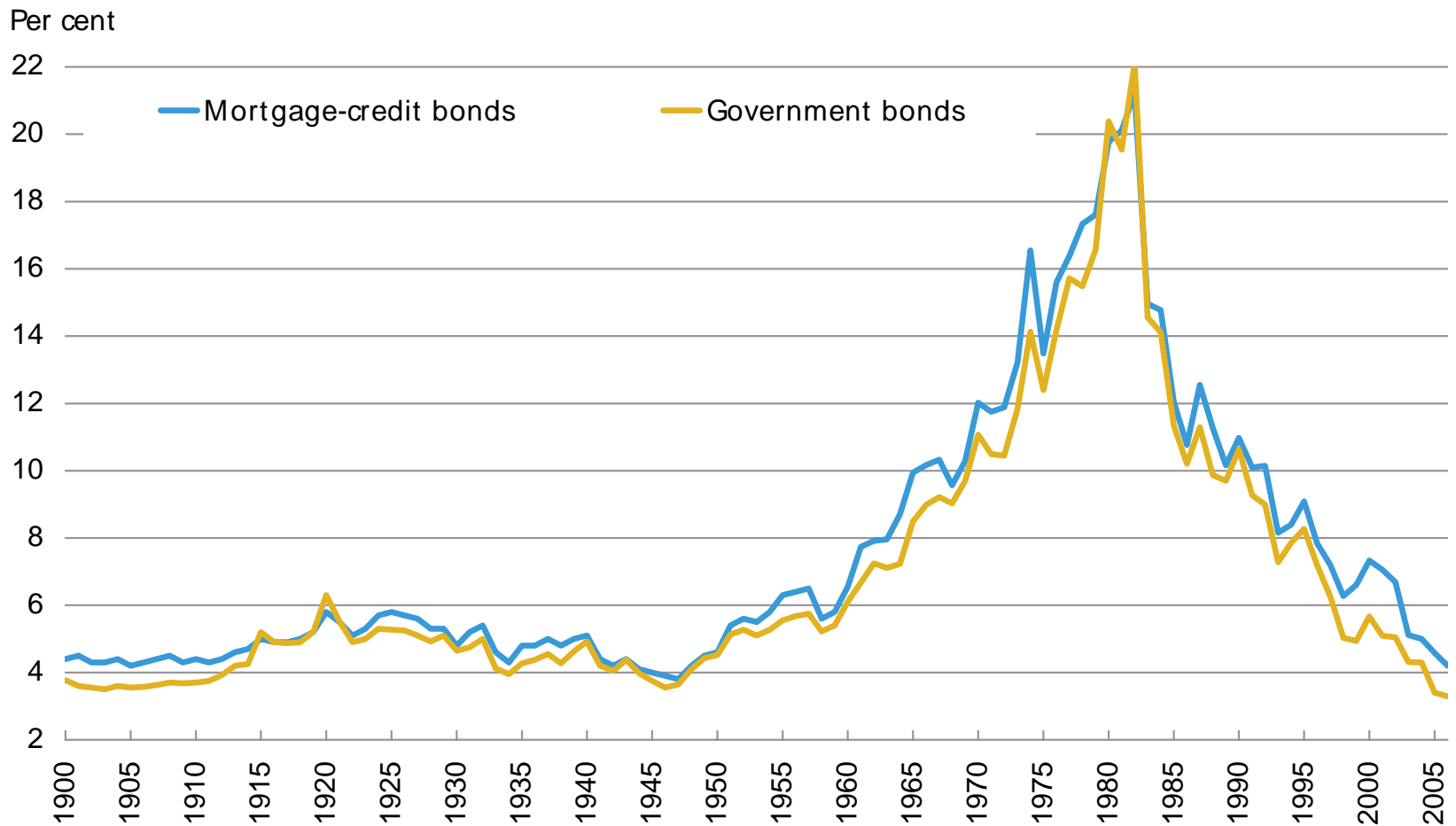
10-YEAR BOND YIELD IN DENMARK AND GERMANY 1970-2006



Source: Danmarks Nationalbank.



YIELD ON GOVERNMENT BONDS AND MORTGAGE-CREDIT BONDS IN DENMARK 1900-2006

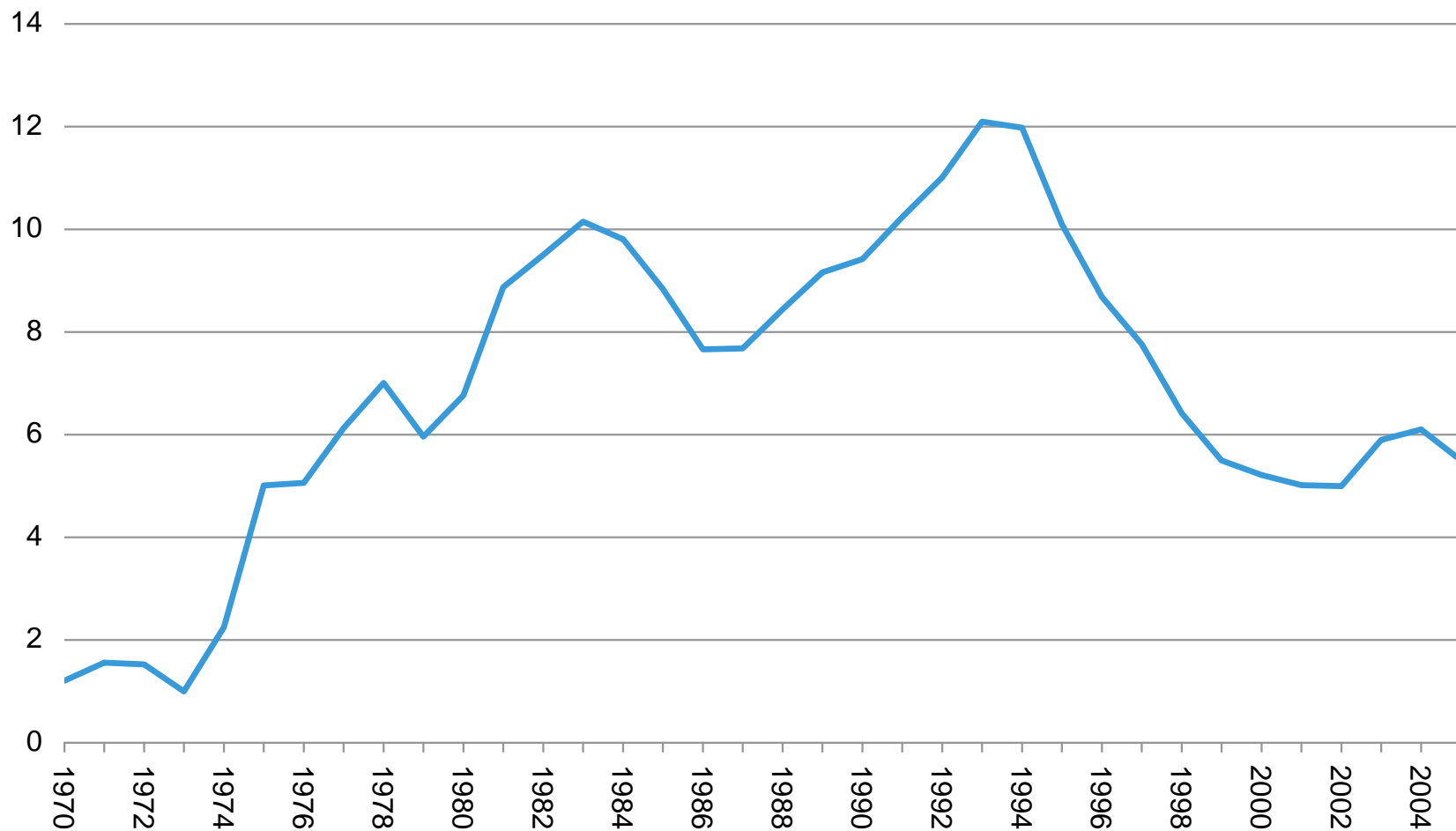


Source: Abildgren, K. (2005), A historical perspective on interest rates in Denmark 1875-2003, Danmarks Nationalbank Working Paper, No. 24; and Danmarks Nationalbank.



UNEMPLOYMENT IN DENMARK 1970-2005

Per cent of labour force

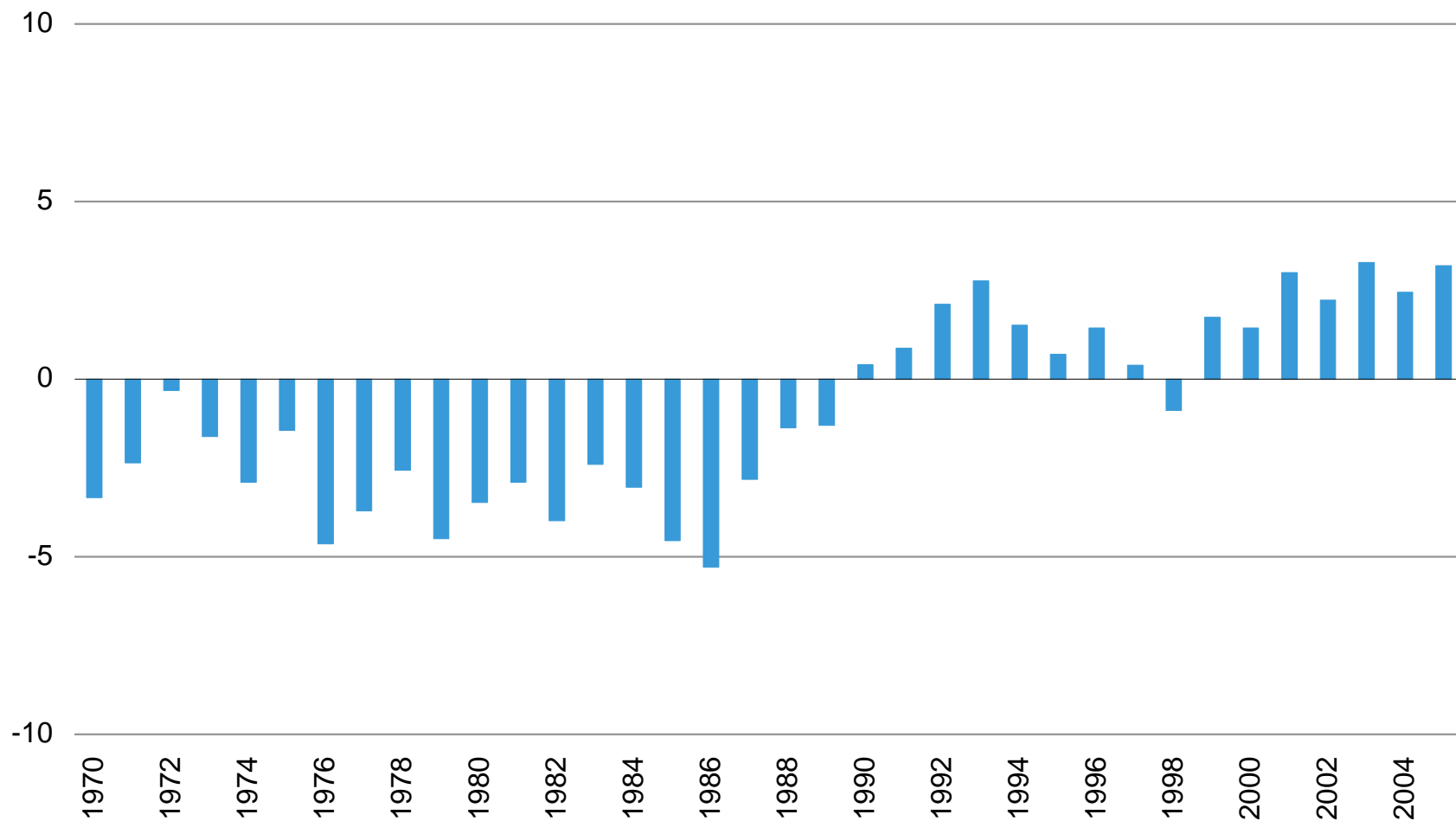


Source: Statistics Denmark.



BALANCE ON DENMARK'S CURRENT ACCOUNT 1970-2005

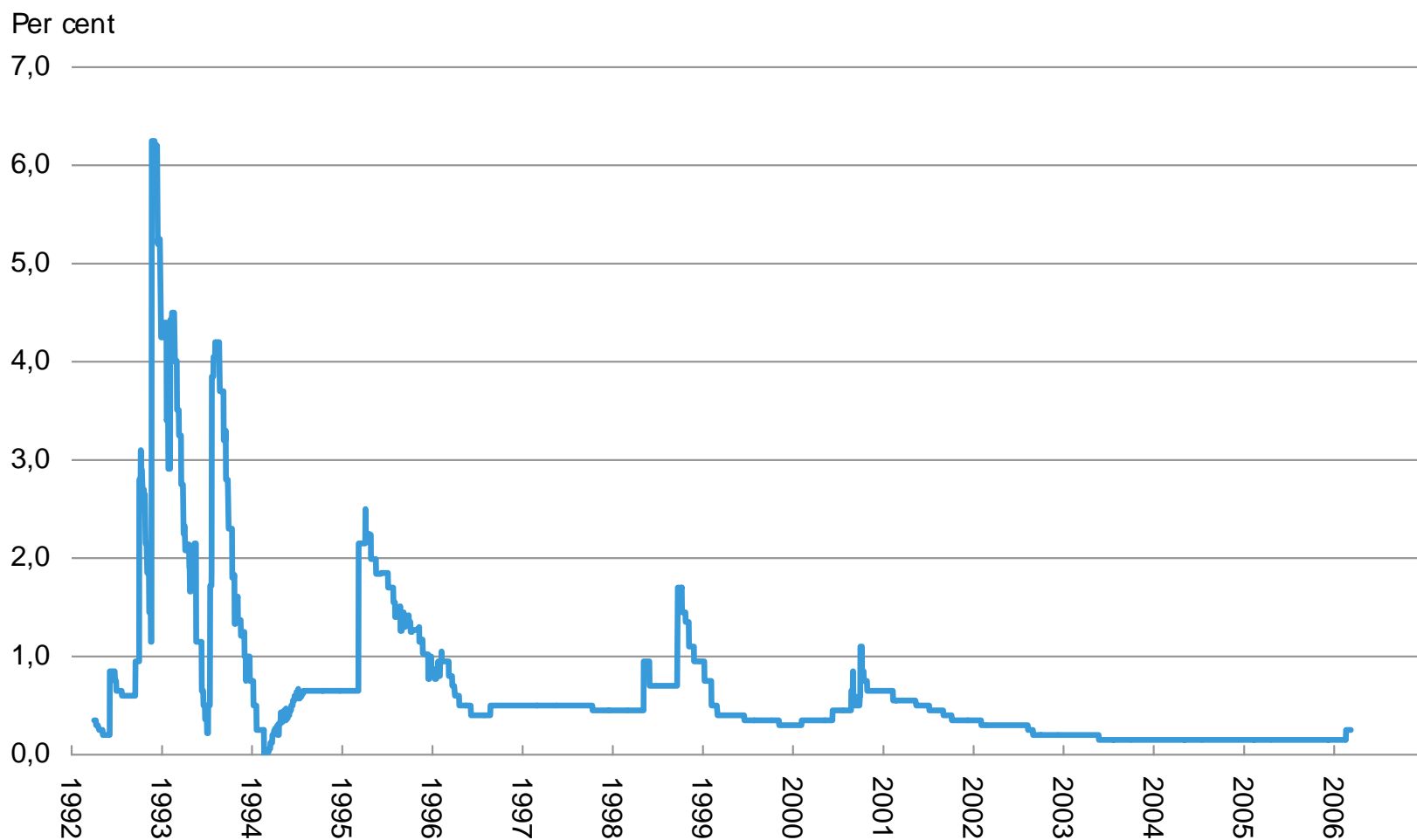
Per cent of GDP



Source: Statistics Denmark.



SPREAD BETWEEN MONETARY-POLICY INTEREST RATES IN DENMARK AND IN GERMANY/THE EURO AREA 1992-2006



Source: Danmarks Nationalbank, ECB and Deutsche Bundesbank.



THE REQUIREMENTS FOR FISCAL POLICY IN A FIXED-EXCHANGE-RATE REGIME

- ◆ In a fixed-exchange-rate regime monetary policy is not available as a tool of stabilisation.
- ◆ The government must conduct its fiscal policy and economic policy in general so as to achieve stable economic development.
- ◆ Denmark are subject to the objectives and requirements of the Stability and Growth Pact on equal terms with euro area member states (although no sanctions if non-compliance).



TRANSPARENCY

- ◆ In a firm fixed-exchange-rate regime the central bank needs to be ready to take interest-rate decisions at more or less any time. The structure of the decision-making process is thus quite different from that of a central bank pursuing an inflation target.
- ◆ Moreover, the possibility of more or less real-time evaluation of the success of a fixed-exchange rate implies that there is no ambiguity with regard to fulfilment of the target.
- ◆ Accordingly the word transparency implies something different under a fixed-exchange-rate system and an inflation-targeting regime.

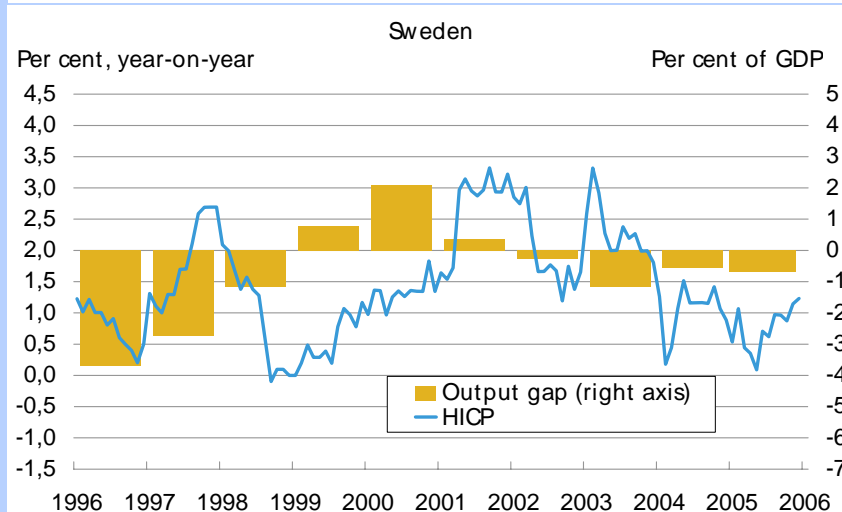
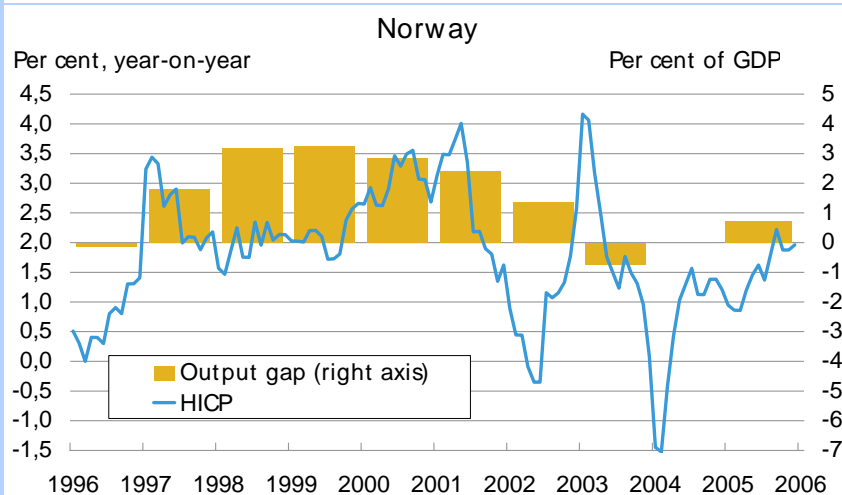
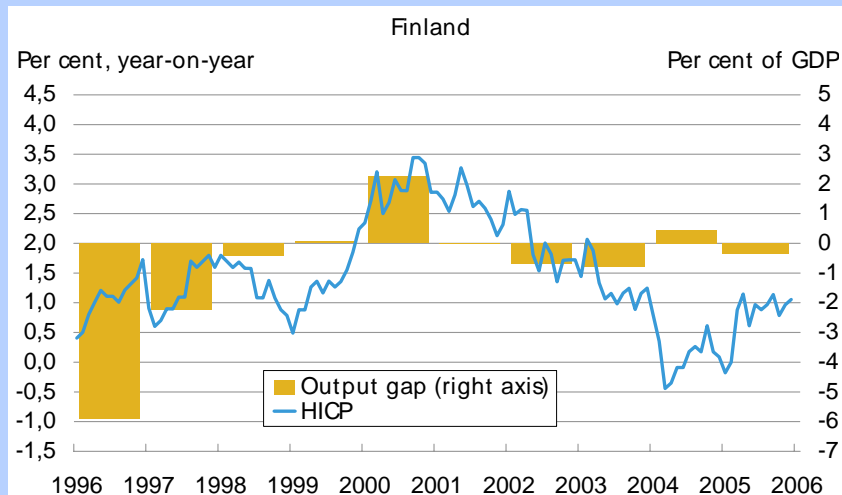
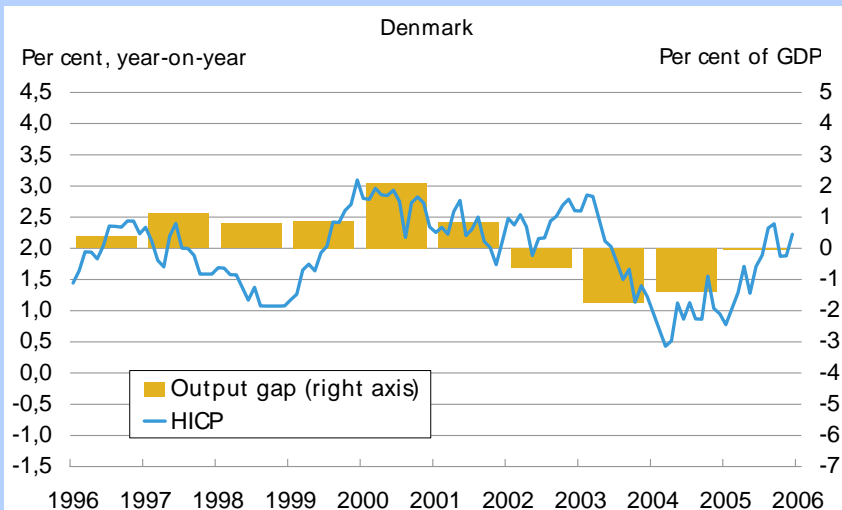


MACROECONOMIC PERFORMANCE AND VOLATILITY IN COUNTRIES WITH DIFFERENT REGIMES - THEORY

- ◆ Is the volatility in inflation and economic activity larger in a fixed exchange rate regime without monetary policy as a tool of stabilisation?
- ◆ Theory:
 - ◆ A flexible exchange rate is often considered useful in order to insulate an economy from asymmetric shocks in a world with nominal wage rigidity and/or limited labour mobility.
 - ◆ A fixed-exchange-rate policy can lead to excessive volatility and periods of protracted unemployment.



INFLATION (HICP) AND OUTPUT GAP 1996-2005



Note: Output gap measures actual GDP less potential GDP in per cent of potential GDP.
Sources: OECD and ECOWIN.



STANDARD DEVIATION 1996-2005

Standard deviation 1996-2005				
	Denmark	Finland	Norway	Sweden
Inflation (HICP), per cent year-on-year	0,63	0,89	1,09	0,86
Output gap, per cent of GDP	1,19	2,13	1,46	1,67

Source: ECOWIN and OECD.



Regime shifts and macroeconomic volatility

- ◆ Christensen and Hansen (2005)
- ◆ OECD 1970-2003 - Regime shifts are rare events
 - ◆ Ocurrred once or not at all in any individual country
- ◆ Difference-in-difference estimation

$$y_{it} = \alpha_i + \beta_t + \gamma_{FK} \text{regime_FK}_{it} + \gamma_{IT} \text{regime_IT}_{it} + \varepsilon_{it}$$

- ◆ Fixed time- and country effects
- ◆ Used by Giavazzi og Tabellini (2004) og Persson (2005) – effects of political and economic liberalisations



Inflation level

Inflation level

Estimated common trend across countries

Per cent year-year

Per cent year-year

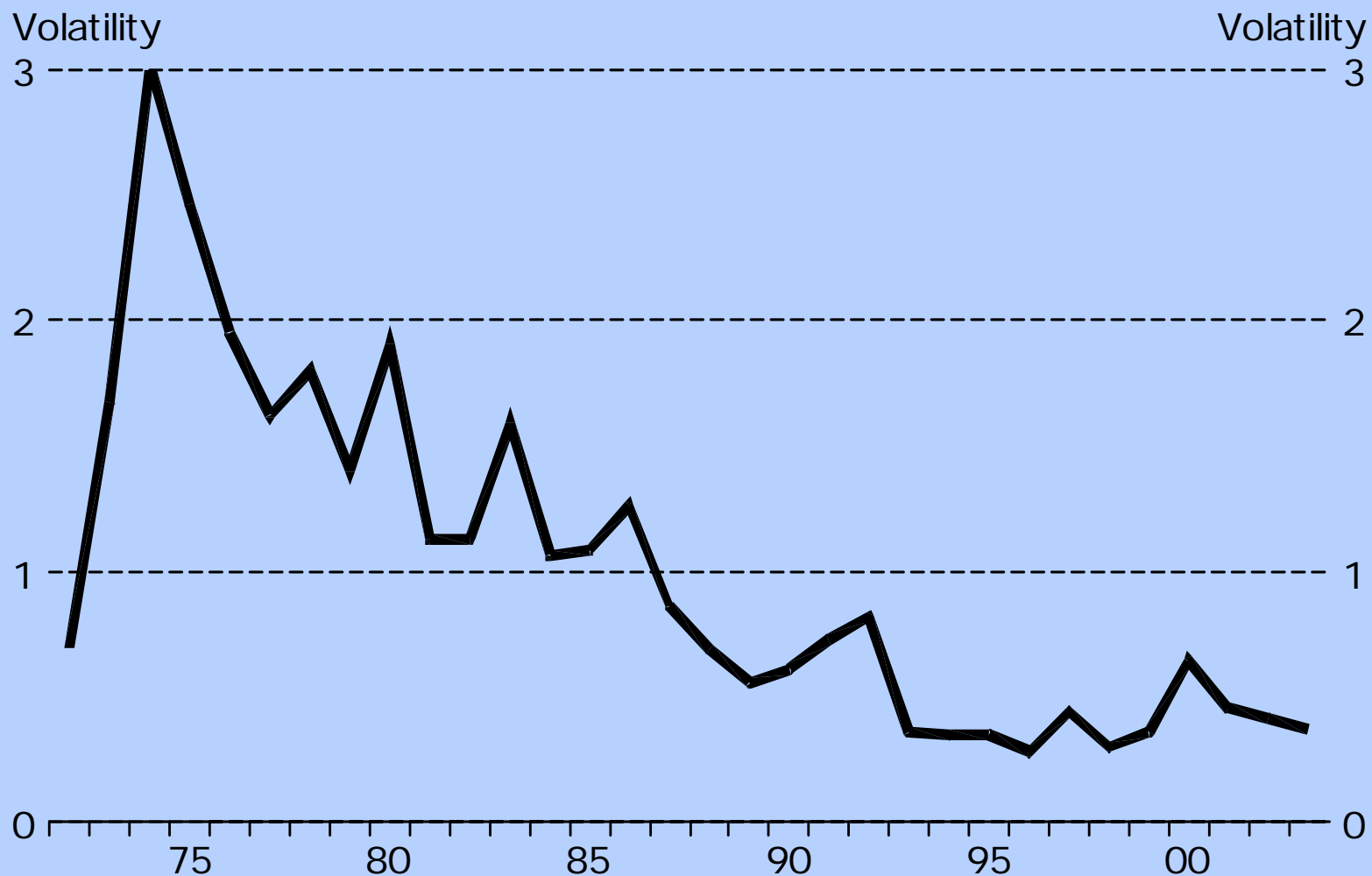




Inflation volatility

Inflation volatility

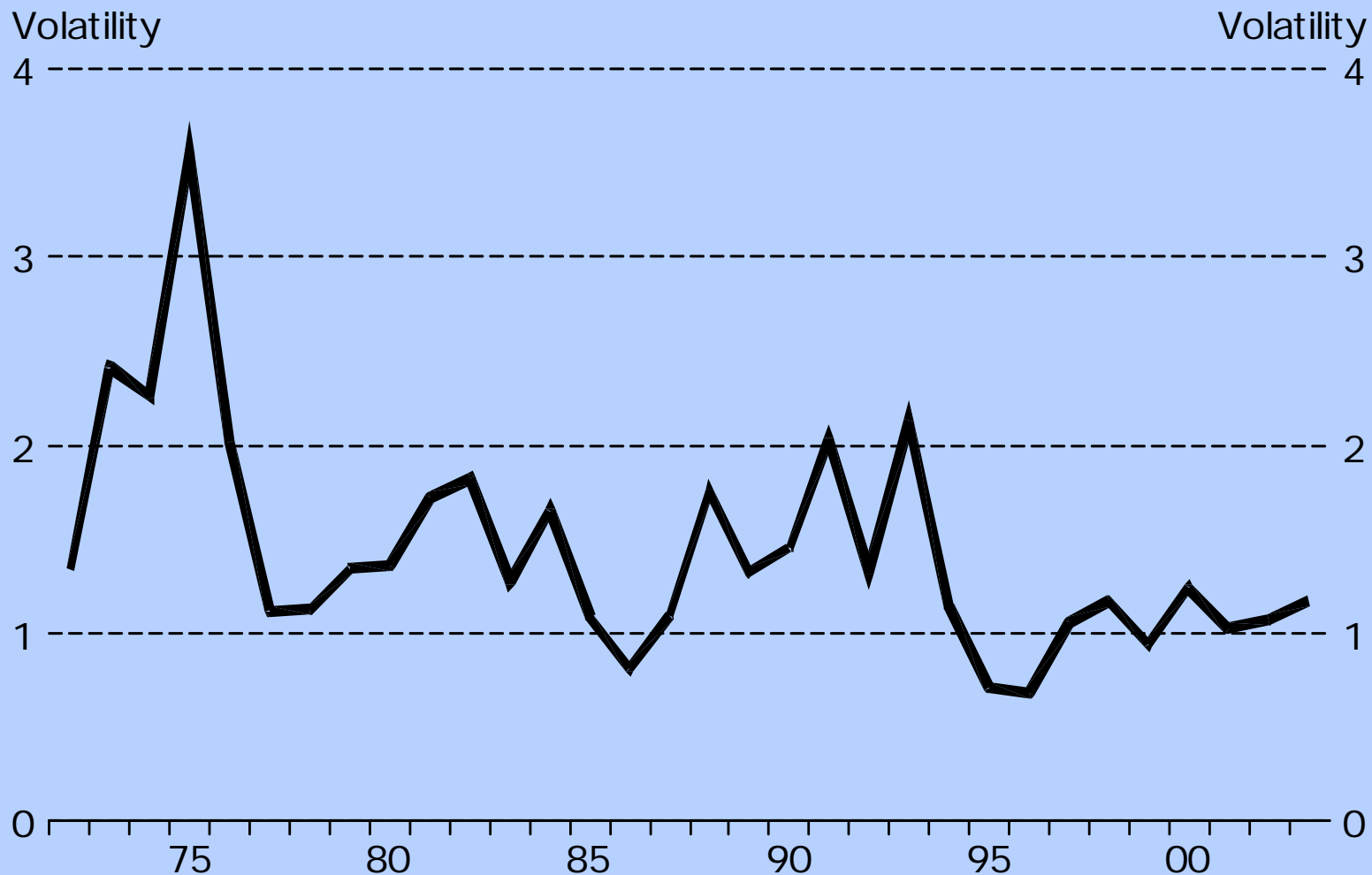
Estimated common trend across countries





Output gap volatility

Output gap volatility
Estimated common trend across countries





Results: Regime shift and level of inflation

FER	-2,75 (-3,06)	-4,02 (-3,32)
IT	-1,78 (-1,84)	-2,31 (-2,78)
FER 5Y before		-3,41 (-3,32)
IT 5Y before		0,47 (0,49)

- ◆ Shifts to inflation targeting (IT) as well as fixed-exchange-rate (FER) policy are associated with lower inflation
- ◆ Inflation low (high) prior to shift to FER (IT)



Results: Regime shift and inflation volatility

FER	-0,44 (-2,18)	-0,60 (-1,98)
IT	0,01 (0,03)	0,11 (0,41)
FER 5Y før		-0,60 (-2,02)
IT 5Y før		0,70 (1,69)

- ◆ Shift to FER associated with delining volatility
- ◆ Shift to IT not associated with changes in volatility
- ◆ Estimates robust to introduction of dummies for the years prior to regime shift – no inverse causality
- ◆ Low (high) volatility prior to shift to FER (IT)



Results: regime shift and volatility in output gap

FER	-0,24 (-1,51)	-0,31 (-1,64)
IT	-0,12 (-0,51)	-0,12 (-0,47)
FER 5Y før		-0,18 (-0,77)
IT 5Y før		0,08 (0,32)

- ◆ No significant changes associated with regime shifts
- ◆ Coefficients – level of significance



Summary

- ◆ Shift to FER associated with a positive development
 - ◆ Lower inflation, lower volatility in inflation
 - ◆ Decline in volatility in output gap – almost significant

- ◆ Shift to IT less favourable in our sample
 - ◆ Lower inflation – and that's it
 - ◆ In accordance with some previous studies

- ◆ Results are not in accordance with last decades literature on IT – to put it mildly

- ◆ Explanations?



Possible explanations

- ◆ IT-literature's modeling of exchange rate is (too) simple – UIP, empirically unfounded?
- ◆ Exchange rate as shock creator, not shock absorber
- ◆ Monetary policy is considered the only instrument for stabilization in much of the literature
- ◆ Is fiscal policy more disciplined under FER?
- ◆ Is the need for active stabilization policy grossly overestimated in small open economies?
- ◆ Economic policy as a source for shocks?
- ◆ Are structural reforms regime dependent?
- ◆ Optimality vs. robustness



Concluding remarks

- ◆ Anchoring inflation expectations is central to inflation stabilisation
- ◆ A consistent fixed-exchange-rate policy can provide a transparent nominal anchor for a small open economy