

Have central banks reduced volatility in CEECs?

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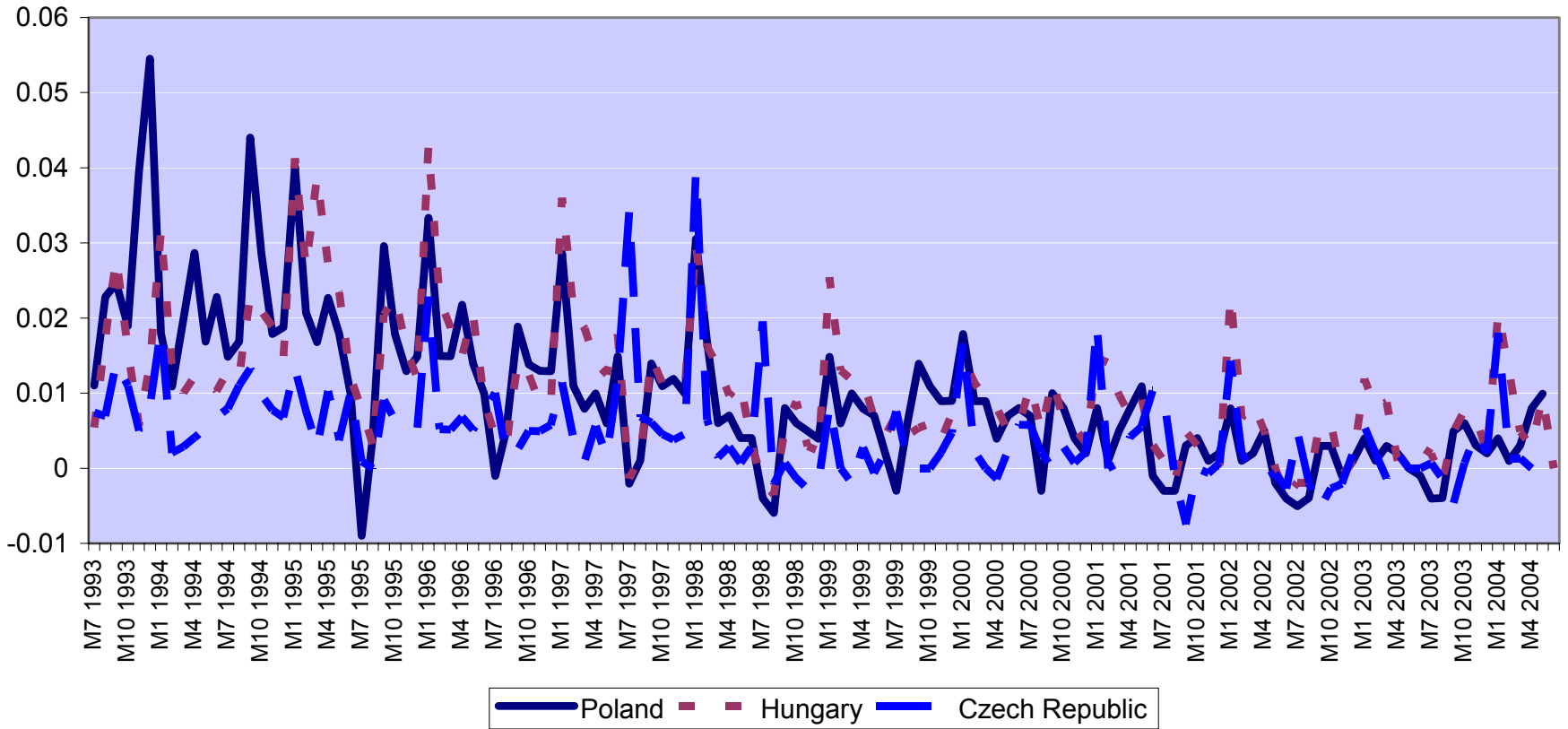
Outline

- Motivation
- Events
- Volatility
- Conclusions

Motivation

- Second moments do matter
- Stability criterion for volatility of exchange rate
- A gap between technical analysis of volatility and financial stability analysis of CBs
- Importance of different volatility trade-offs
exchange rate vs international reserves,
interest rate vs exchange rate (short term),
exchange rate vs inflation rate,
inflation vs production
- Role of CBs

Inflation



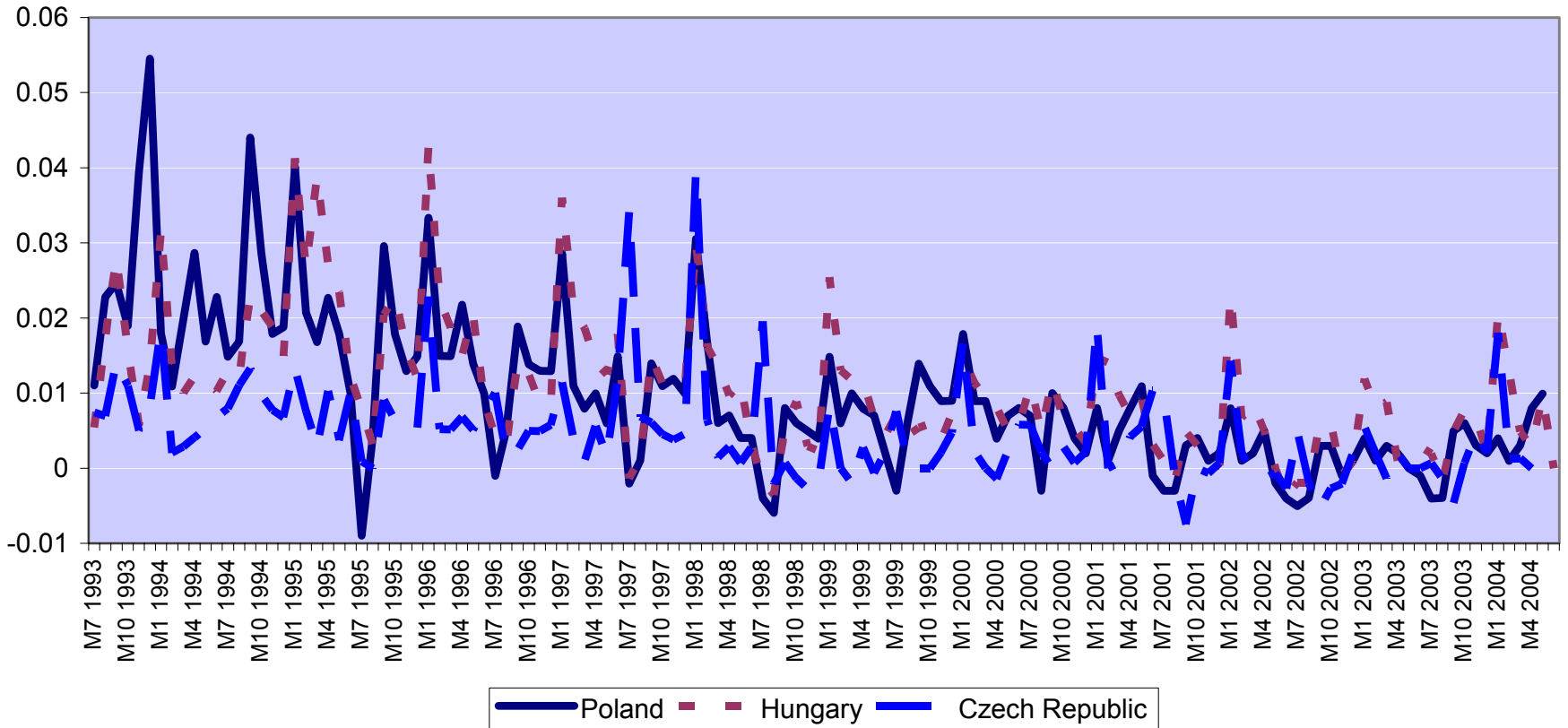
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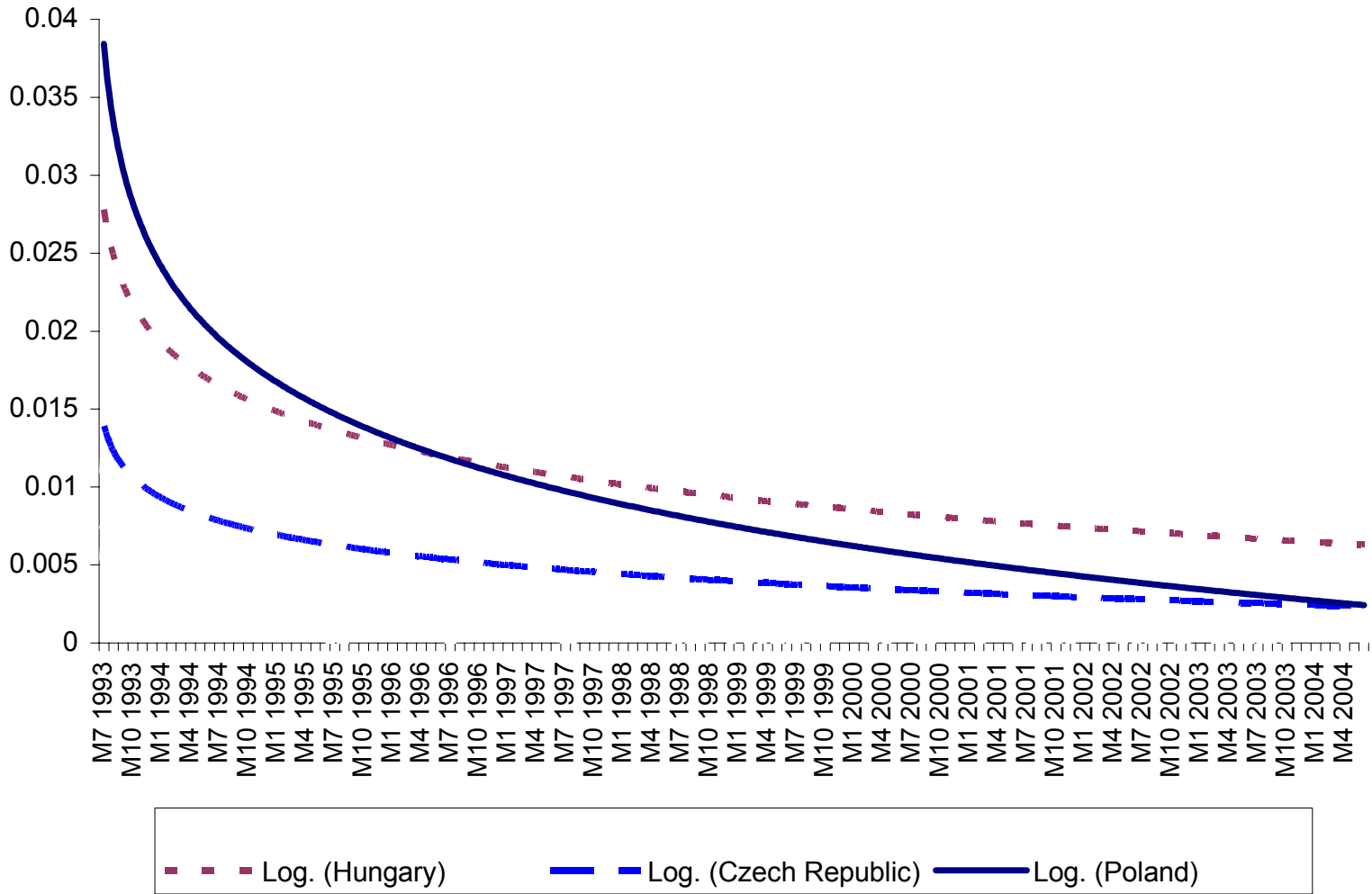
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Inflation



Inflation trend



Events (1)

- **International**
Asia, Russia, Brazil, Argentina,
(EU: NATO membership or Irish referendum)
- **Domestic**
 - **interest rate hike: an increase in the central bank's instrument greater than 25bps**
CZ: 94/10, 95/6, 96/6, 97/6, 97/10;
HU: 93/9, 94/6, 95/2, 02/5, 02/7, 03/6, 03/11;
PL: 95/2, 97/8, 99/11, 00/2, 00/8
 - **major devaluation: an official readjustment of the peg (band) by 3% or more a month (not within band exchange rate movements!)**
CZ: none,
HU: 93/7, 93/9, 95/3;
PL: 93/8, 95/12

Events (2)

- band widening: a significant widening of the exchange rate band or abandonment of the band altogether

**CZ: 96/2 widening to $\pm 7.5\%$, 97/5 managed float,
HU: 94/12 widening to $\pm 2.25\%$, 01/5 widening to $\pm 15\%$;
PL: 95/5 widening to $\pm 7\%$, 98/2 widening to $\pm 10\%$,
(98/10 widening to $\pm 12.5\%$,) 99/3 widening to $\pm 15\%$,
00/4 float**

**- inflation targeting: change in monetary regime,
publication of inflation target and forecast**

CZ: 98/1, HU: 01/6(8), PL: 98/9

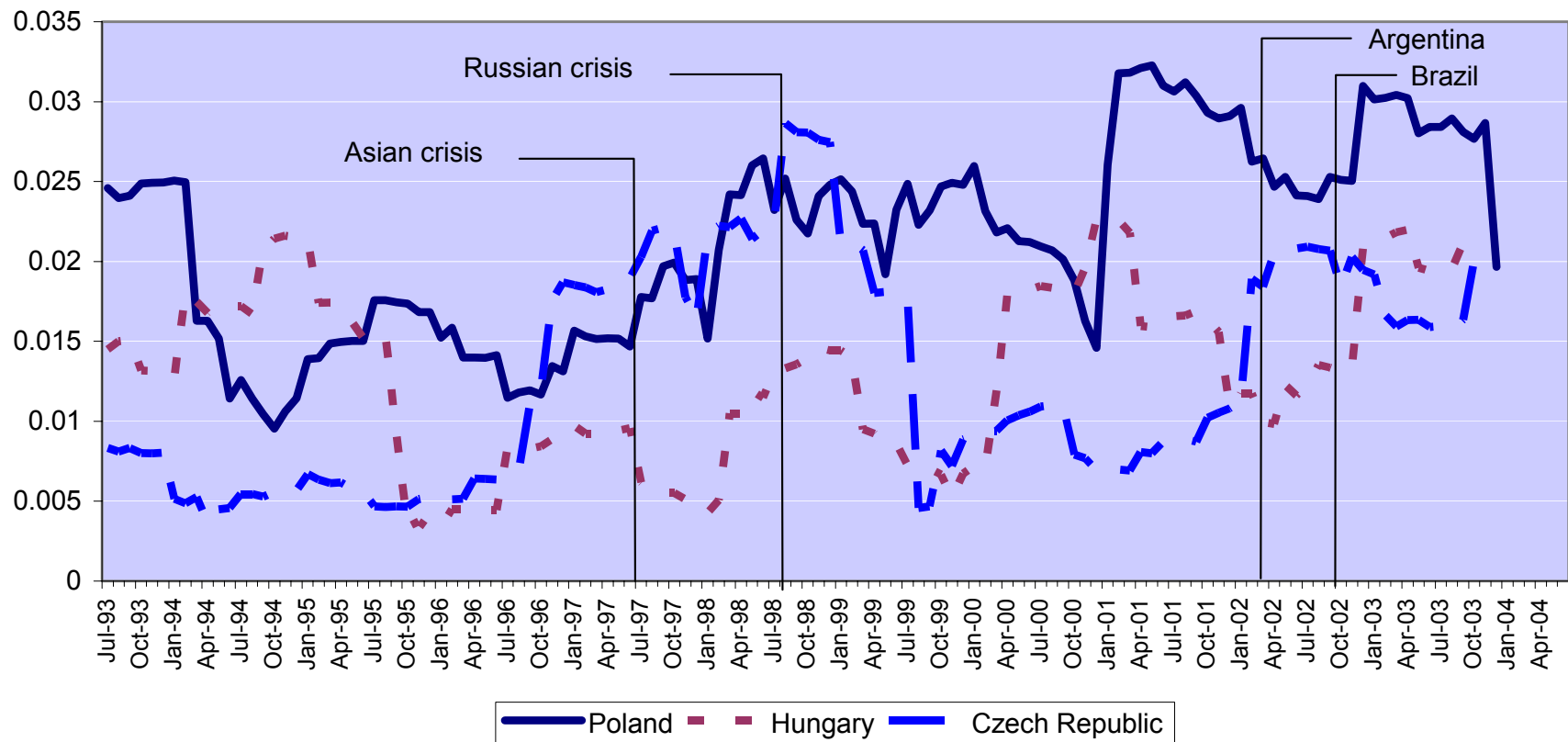
**Before window: 6 months before the event (inclusive),
except for IT, where full sample before the event**

**After window: 6 months after the event (inclusive), except
for IT, where full sample after the event**

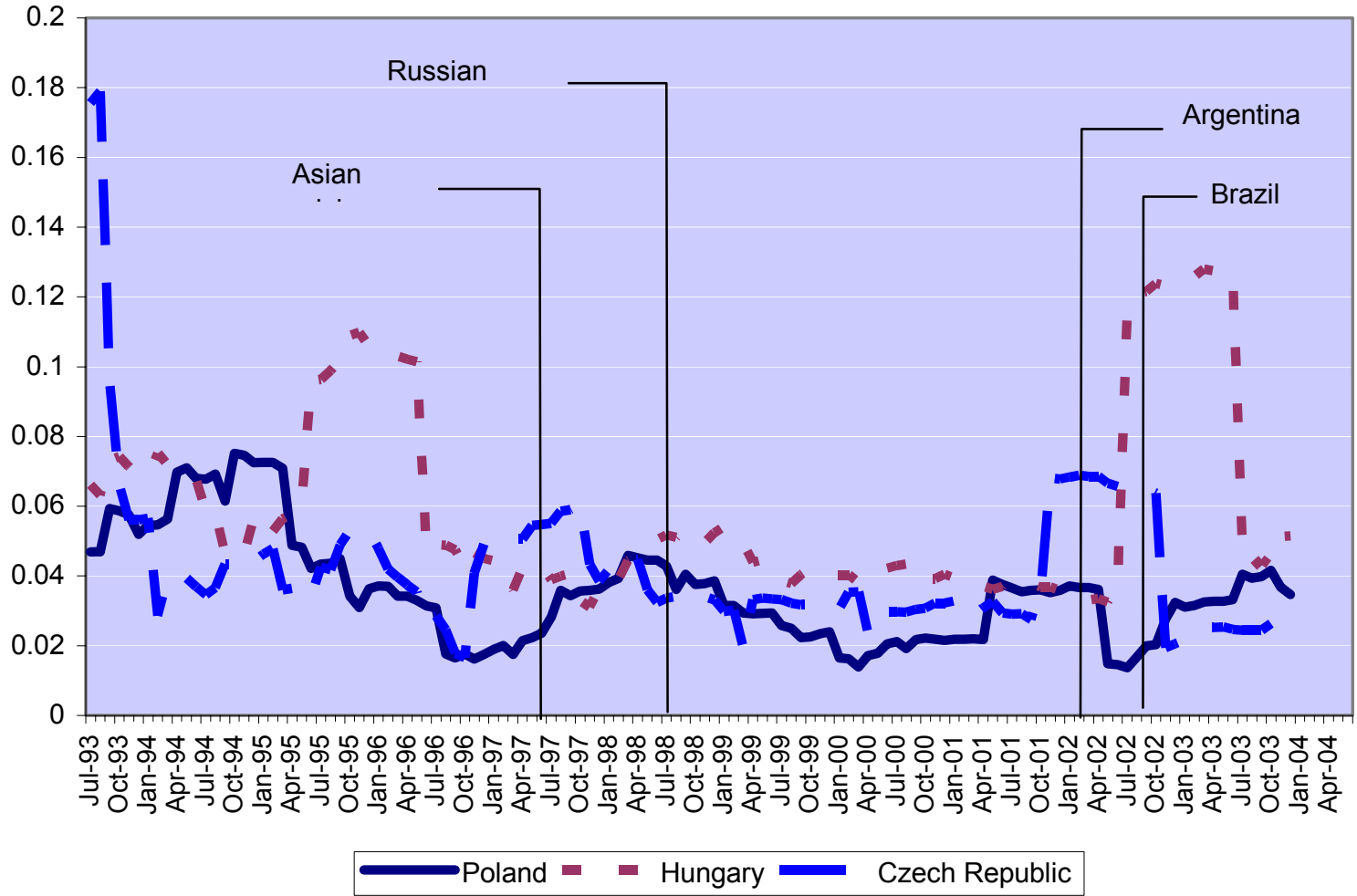
Volatility measures

- **Exchange rate**
standard deviation of log changes in monthly average real effective exchange rate.
- **International reserves**
standard deviation of log monthly changes in total reserves (minus gold).
- **Interest rate**
standard deviation of treasury bill rates (except for Czech Republic, where money market rates).
- **Inflation**
standard deviation of log monthly changes in the CPI.
- **Production**
standard deviation of log monthly changes in industrial production.

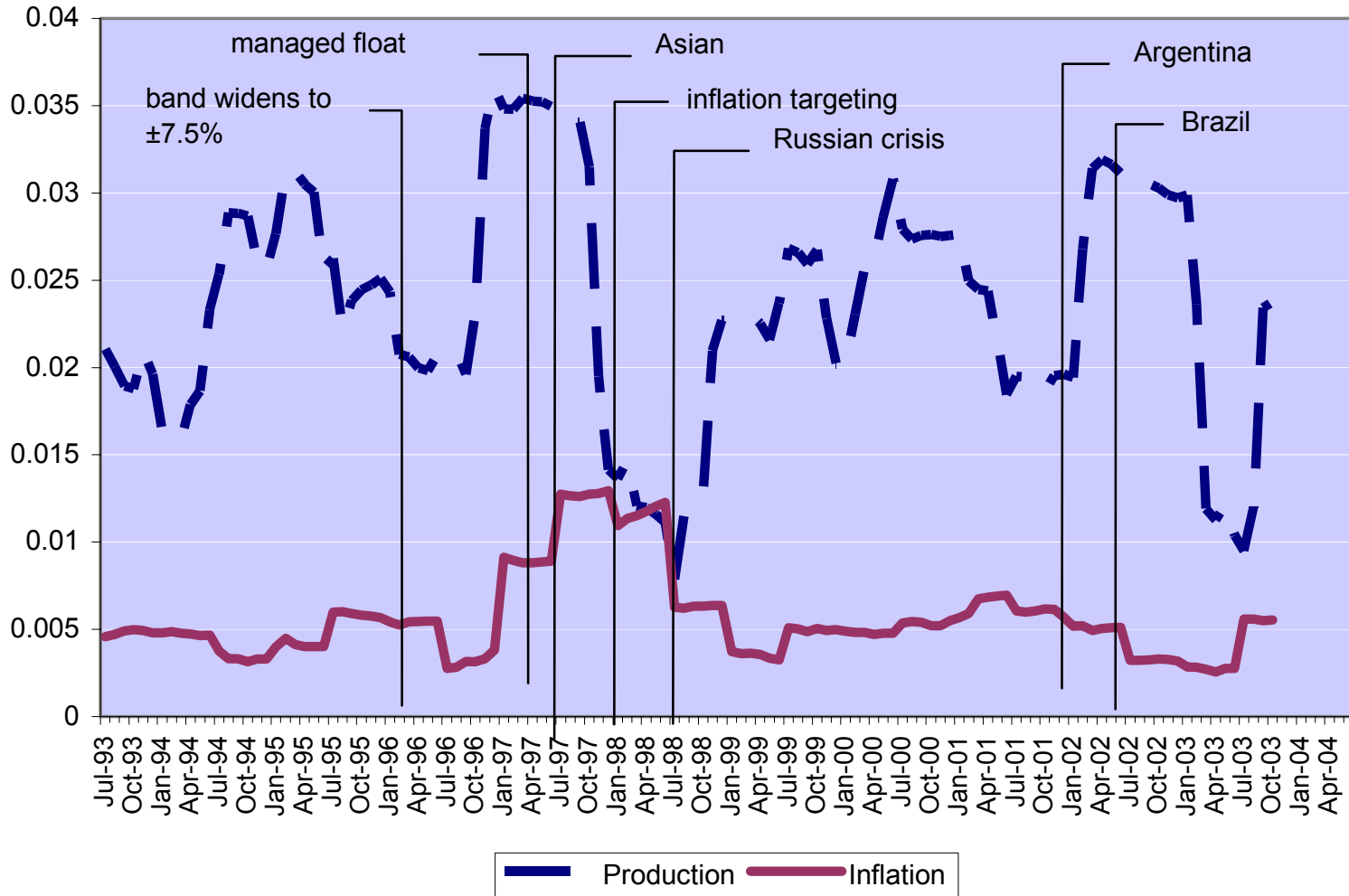
Real exchange rate volatility



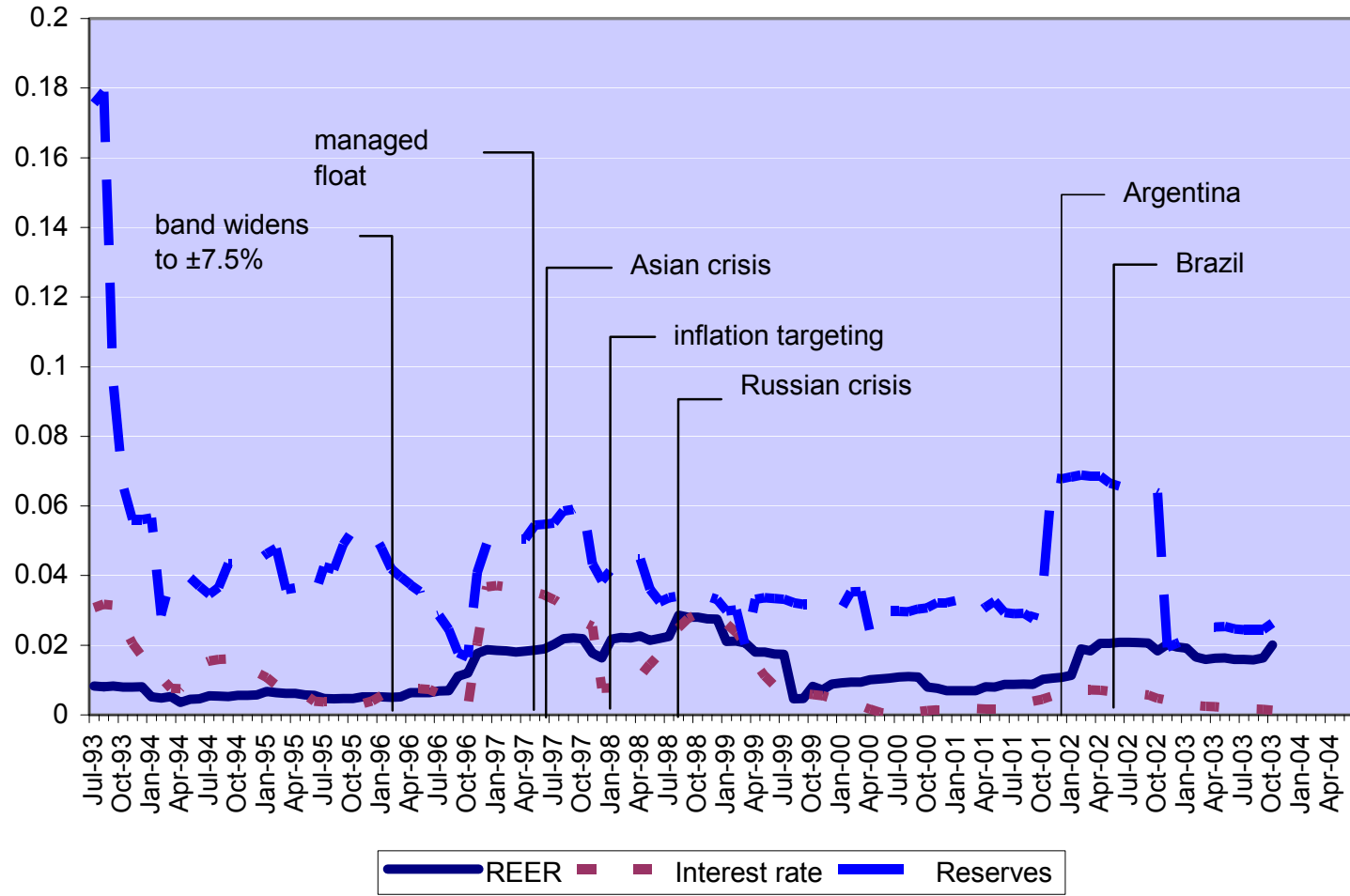
Reserves volatility



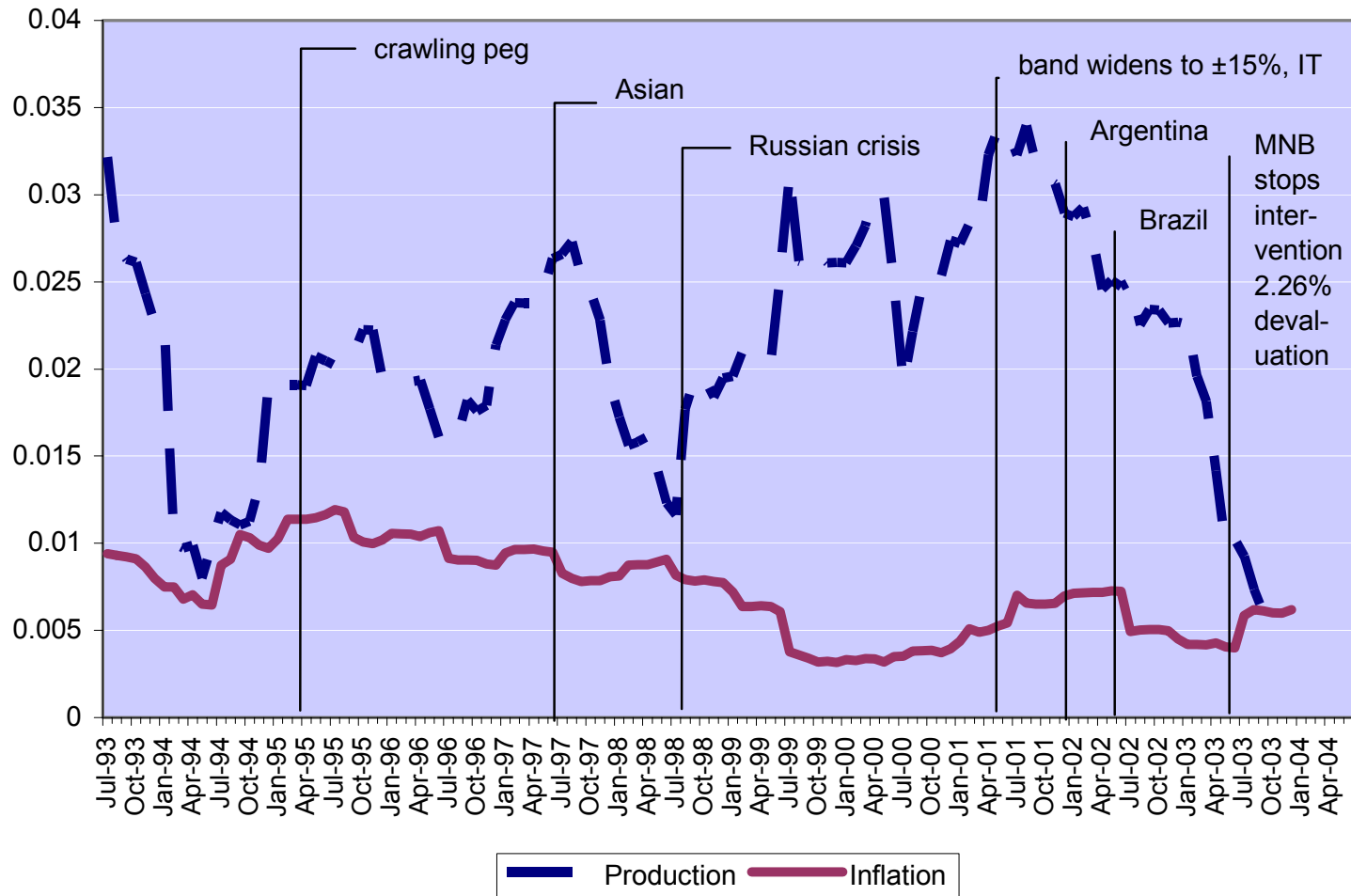
Czech Republic



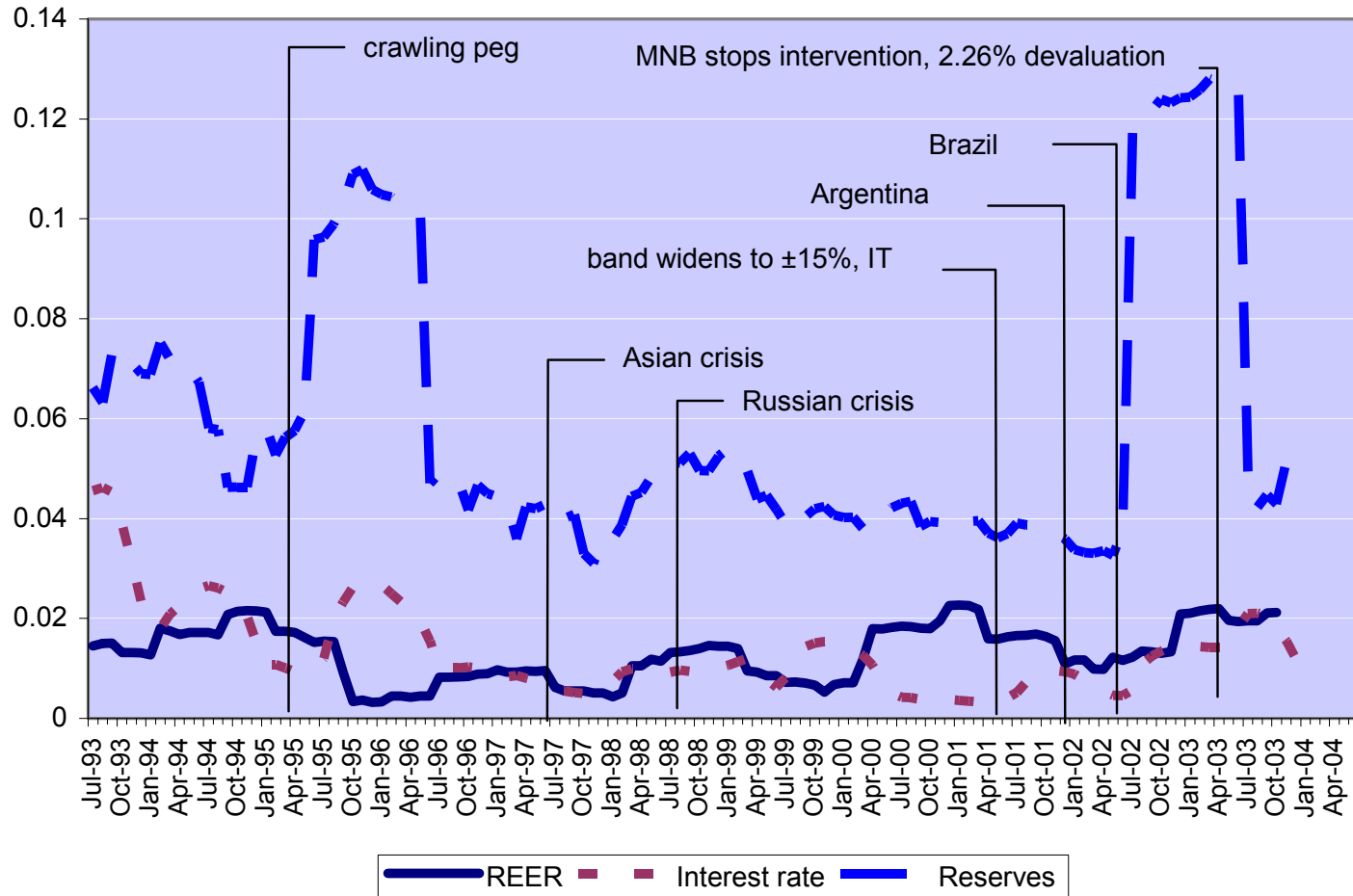
Czech Republic



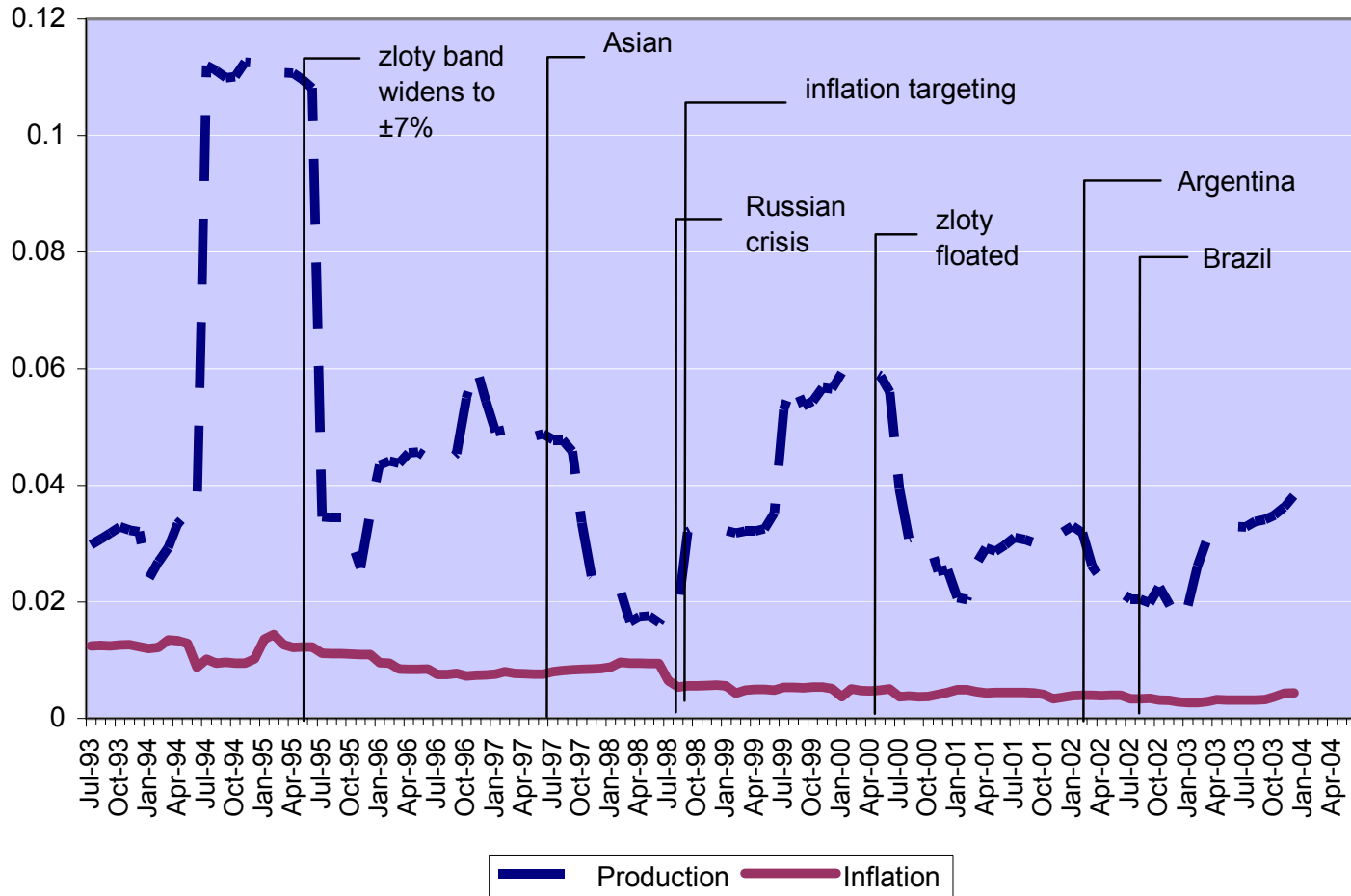
Hungary



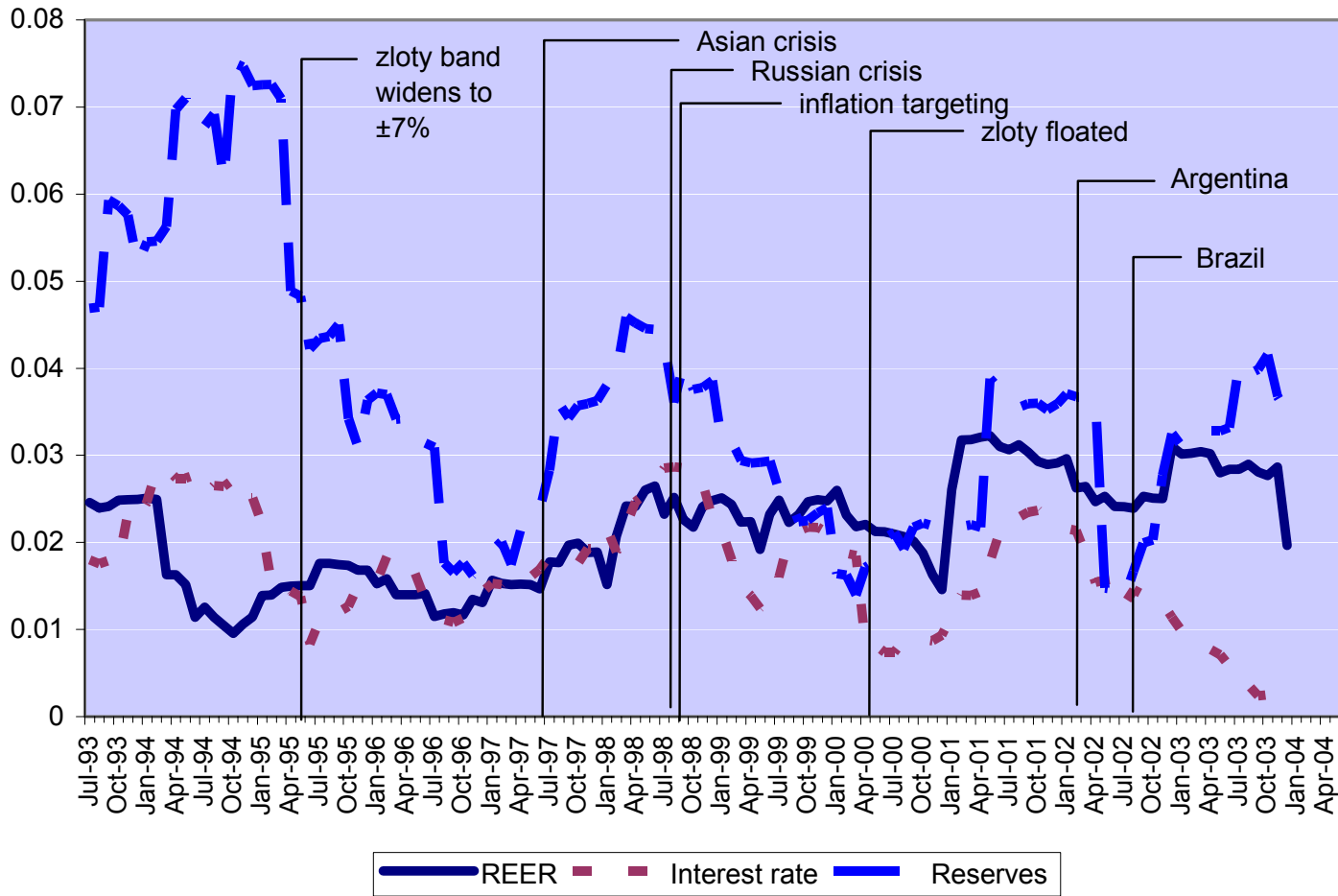
Hungary



Poland



Poland



Czech Republic

Event	Interest hike		Band widening		IT		
	Before	After	Before	After	Before	After	
REER	0.013	0.012	0.016	0.017	0.011	0.017	***
Reserves	0.055	0.048	0.058	0.056	0.111	0.038	***
Interest rates	0.034	0.028	0.024	0.038	0.029	0.038	*
Inflation	0.007	0.009	0.006	0.008	0.006	0.007	
Production	0.029	0.025	0.033	0.034	0.025	0.023	
# of events	5		2		1		

Hungary Event	Interest hike		Major devaluation		Band widening		IT	
	Before	After	Before	After	Before	After	Before	After
REER	0.015	0.019	0.017	0.018	0.017	0.024	0.013	0.017 *
Reserves	0.084	0.052 ***	0.056	0.058	0.055	0.042	0.059	0.079 **
Interest rates	0.077	0.083	0.073	0.049	0.071	0.087	0.058	0.016 ***
Inflation	0.010	0.011	0.012	0.011	0.005	0.013 ***	0.009	0.006 ***
Production	0.018	0.017	0.031	0.025	0.019	0.025	0.022	0.022
# of events	7		3		3		1	

Poland Event	Interest hike		Major devaluation		Band widening		IT	
	Before	After	Before	After	Before	After	Before	After
REER	0.020	0.020	0.013	0.026 **	0.020	0.018	0.017	0.026 ***
Reserves	0.041	0.048	0.048	0.039	0.054	0.044	0.051	0.031 ***
Interest rates	0.037	0.033	0.015	0.019	0.041	0.041	0.023	0.049 ***
Inflation	0.011	0.008 *	0.010	0.012	0.009	0.008	0.011	0.005 ***
Production	0.087	0.044 ***	0.030	0.025	0.088	0.032 ***	0.059	0.034 ***
# of events	5		2		4		1	

Results (1)

- 1) Little co-movement in exchange rate and reserves volatility across countries, these seem to be determined by country-specific events and reactions.**
- 2) Downward long-term trend in inflation variability in Poland and Hungary, decline after IT in Poland and Czech Republic (not in Hungary!).**
- 3) Exchange rate becomes more volatile, reserves less volatile after IT (abandonment of exchange rate objectives), except for Hungary, which tried to manage the forint heavily even after IT.**

Results (2)

- 4) **Band widening has very little effect on REER volatility, possibly because of intra-band central bank interventions. In line with this, reserve volatility does not decline after widening.**
- 5) **Major devaluations in Poland and Hungary have little impact on volatility. In Poland they seem to contribute to higher exchange rate volatility, in Hungary, there is a decrease in interest rate volatility.**
- 6) **Interest rate increases have no robust effect on volatility at the 6-month horizon, they may serve more short-term purposes.**

Conclusions

- **International events do not seem to affect volatility**
- **Why has volatility increased under IT?**
 - external factors
 - inadequate inflation target
 - lack of transparency
 - coordination failure
- **Can volatility affect levels? Yes!**
- **Exchange rate stability should not be achieved at the expense of reserves volatility**
- **Finally, what is the answer to the question in the title?**