# "Tying One's Hands"

# Inflation Convergence in the ERM and in EMU

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# Theory: open economy Barro-Gordon

Aggregate supply and aggregate demand

$y^s = \alpha\left(\pi_t - \pi_t^e\right) - \gamma z_t$

$y^d = m_t - p_t$

where

$z_t = e_t -_t^* - p_t$

Goods market equilibrium

$\alpha\left(\pi_t - \pi_t^e\right) - \gamma z_t = m_t - p_t$

Rational expectations

$\pi_t = \pi_t^e$

The central bank minimizes

$$\min_{\{\pi_t\}} \int_0^\infty L_t e^{-\rho t} dt \text{ where } L_t = .5\left[\pi_t^2 + \sigma\left(y_t - k_t\right)^2\right]$$

# The decision to peg to a low-inflation country

Consider a pegged exchange rate regime with periodic (every $T$ periods) parity realignments (assume $\pi^* = 0$).

Sustainability condition: no net reserves growth across realignments

$$\int_0^T \frac{dR(t)}{dt} dt = 0$$

Values of the central bank loss function under a flexible ER regime ($dE/E = \pi$) and under pegging with realignments every $T$ periods:

$$\int_0^T L'_{PEG}(t)dt - \int_0^T L'_{FLEX}(t)dt$$

# When is pegging with periodic realignments "optimal"?

$$\int_0^T L'_{PEG}(t)dt - \int_0^T L'_{FLEX}(t)dt = k^2 F(T) < 0$$

always for $T > 0$ ( $F(0) = 0$).

- Pegging to a low inflation country is "optimal" if the country cannot control $T$ and for $T > 0$, that is if changing the parity is costly
- This is why the ERM institutional mechanism, where a realignment required the prior agreement by the partners in the mechanism, was important.

# Inflation convergence in the ERM and in EMU

**Nominal Unit Labor Costs (% increase, period average)**

| | Germany | France | Italy | Portugal |
|---|---|---|---|---|
| 1980-97 | 2,6 | 7,7 | 16 | 29,4 |
| 1988-92 | 2,3 | 2,1 | 7,4 | 16,4 |
| 1999-2006 | 0,5 | 1,6 | 2,8 | 3,9 |

# Portugal in EMU

**EMU and Competitiveness: Portugal (% increase, period average)**

| | 1995-98 | 1999-2001 | 2002-05 |
|---|---|---|---|
| Nominal wage growth | 6,0 | 5,4 | 3,3 |
| Productivity growth | 3,6 | 1,7 | 0,1 |
| Unit labor cost growth | 2,4 | 3,6 | 3,3 |
| (relative to euro) | 1,8 | 2,3 | 2,0 |

# Portugal in EMU

**Financial Liberalization and National Saving (% of national income)**

| | 1985-91 | 2000-01 | Delta |
|---|---|---|---|
| Current account | 0,6 | 10,0 | - 10,0 |
| Investment | 25,3 | 28,1 | + 2,8 |
| National saving | 25,9 | 18,1 | - 7,8 |
| Private saving | 21,3 | 15,7 | - 5,6 |
| Household saving | 9,2 | 5,4 | - 3,8 |
| Public saving | 4,6 | 2,6 | - 2,0 |

# Integration and current accounts

A basic model. n countries. Two periods. Produce one good, consume world composite good. Then

$$ca_t = \frac{1}{2}\left(1 - \frac{Y_{t+1}}{Y_t}\frac{1}{R(1+x)}\frac{P_{t+1}}{P_t}\right)$$

Three determinants of the current account balance:

- The (expected) rate of growth of output
- The interest rate
- The (expected) change in the terms of trade

# Integration and current accounts

Also, goods and financial market integration determine the extent to which a higher expected growth rate at home, relative to that abroad, is reflected in $ca$

$$ca_t = \tfrac{1}{2}\left[1 - \tfrac{1}{1+x}\left(\tfrac{1+g}{1+g^*}\right)^{1-1/\sigma}\right]$$

where $\sigma$ is the elasticity of substitution between home and foreign goods.

# Integration and current accounts: Should governments intervene?

- The standard intertemporal open economy model, with $T$ and $NT$ and Fixed ER: a decrease in the world interest rate, or an increase in productivity growth leads to an increase in consumption and investment, and so to a current account deficit
- If labor supply is inelastic $W$, and with it $P(NT)$ will increase
- Later on, as the country pays interest on accumulated debt, $W$ will decrease, and with it $P(NT)$
- There is no reason for the government to intervene.

# Integration and current accounts: Should governments intervene?

- Suppose however that W adjust slowly to labor market conditions
- Then, the increase in demand will lead not only to a current account deficit, but also to an increase in output above its natural level
- Suppose the government can use fiscal policy to affect demand
- Should it maintain output at the natural level, and in the process eliminate the (partly desirable) current account deficit?
- Or should it allow for some increase in output and some current account deficit?

# Options for Portugal

- raise productivity
- cut unit labor costs
  - cut $W$
  - constant $W$ long enough
- E ?

## References


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