The effect of currency board arrangements on inflation performance in European transition countries

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Outline of the presentation

- CBA as a monetary framework
- Inflation in CBA countries
- Sample specifics
- Model specifications
- Results of the empirical analysis
- Discussion of the results

Currency board as a monetary arrangement

- Domestic currency pegged to other country's currency
- 100 percent coverage of its monetary base in foreign reserves
- No discretion of monetary policy
  - No lender of last resort
  - Inability to finance government debt
- Embeddedness of the fixed exchange rate in the legal framework

Inflation in CBA countries

- Lower inflationary expectations ("confidence effect") and the rate of money growth ("discipline effect")
  - increased credibilty of the monetary authority
- Perceptions regarding the monetary authority, the frequency and type of shocks the state of the economy and the specific (political and institutional) circumstances in the country

Choice of sample and sample specifics

- 25 transition countries (CEB, SEE and CIS countries), 12 years period (1998-2009)
- Progress in transition
  - Adoption of more strict monetary and exchange rate regimes and increase in central bank independence as a part of reform process
  - Estonia, Lithuania, Bulgaria and Bosnia and Herzegovina addopted a currency board arrangement (CBA) to achieve macroeconomic stability and credibility during the transition process

Inflation determinants and model specifications

- Static panel model
  - $LnINF_{i,t} = \alpha_0 + \alpha_1 CBA_{i,t} + (\alpha_2 defactoFIX_{i,t} + \alpha_3 CCBI_{i,t-1}) + \alpha_4 GDPG_{i,t} + \alpha_5 MSG_{i,t-1} + \alpha_6 FB_{i,t} + \alpha_7 OPEN_{i,t} + \alpha_8 TOT_{i,t} + \alpha_9 EBRDI_{i,t} + \alpha_{10} EU_{i,t} + \alpha_{11} VAT_{i,t} + \gamma_t + \varepsilon_{i,t}$

- Dynamic panel model
  - $LnINF_{i,t} = \alpha_0 + \lambda_1 lnINF_{i,t-1} + \alpha_1 CBA_{i,t} + (\alpha_2 defactoFIX_{i,t} + \alpha_3 CCBI_{i,t}) + \alpha_4 GDPG_{i,t} + \alpha_5 MSG_{i,t} + \alpha_6 FB_{i,t} + \alpha_7 OPEN_{i,t} + \alpha_8 TOT_{i,t} + \alpha_9 EBRDI_{i,t} + \alpha_{10} EU_{i,t} + \alpha_{11} VAT_{i,t} + \gamma_t + u_i + v_{i,t}$

Choice of techniques

- Fixed effect vector decomposition (FEVD) as a preferred static panel estimator
  - Controls for countries' fixed effects
  - Uses more information than the FE model
  - Allows estimation of time-invariant variables
  - Trade-off between efficiency and consistency
- One-way 'system' GMM as preferred dynamic panel estimator
  - Uses more instruments than 'difference' GMM
  - More appropriate for estimating the random walk variables than 'difference' GMM
  - Allows estimation of time-invariant variables

Selected results from the static and dynamic panel estimations

Estimation technique	FEVD			One-way 'system' GMM		
Variables	CBA	CBA + defactoFIX	CBA + defactoFIX + L1CCBI	CBA	CBA + defactoFIX	CBA + defactoFIX + CCBI
L1. lninf				0.464***	0.466***	0.413***
CBA	-0.704**	-0.601*	-0.614	-0.306*	-0.303*	-0.274**
DefactoFIX		-0.156	0.047		-0.014	0.126
(L1)CCBI			-1.992**			-0.937

Note: ***, **, * donates that variables are statistically significant at the 1%, 5% and 10%, respectively
This is only an extract from the full set of results, which are available as an addition at the end of the presentation

Examining differences in CBAs

Estimation technique	FEVD			One-way 'system' GMM		
Variables	Strong and weak CBA	Strong and weak CBA + defactoFIX	Strong and weak CBA + defactoFIX + L1CCBI	Strong and weak CBA	Strong and weak CBA + defactoFIX	Strong and weak CBA + defactoFIX + CCBI
L1. lninf				0.464***	0.469***	0.413***
StrongCBA	-1.123***	-0.955**	-1.088	-0.536***	-0.548***	-0.597***
WeakCBA	-0.329	-0.233	-0.180	-0.174	-0.187	-0.147
DefactoFIX		-0.211	0.047		0.011	0.123
(L1)CCBI			-1.744**			-0.849

Note: ***, **, * donates that variables are statistically significant at the 1%, 5% and 10%, respectively
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Discussion of the results

- Long-run (overall) effect of CBA on inflation becomes insignificant once we control for central bank independence
  - Central bank independence is 'doing work' of inflation reduction in the long-run
- Short-run (current) effect of CBA on inflation is negative and significant even after controlling for the fixed exchange rate and central bank independence
  - CBA continues to be important for these countries with respect to inflation in the current period
- Degree of 'strictness' of CBA appears to be important in respect to the reduction in inflation

Thank you for your attention

Addition to the presentation

Results of other variables from the estimations

Results from the static and dynamic panel estimations

Estimation technique	FEVD			One-way 'system' GMM		
Variables	CBA	CBA + defactoFIX	CBA + defactoFIX + L1CCBI	CBA	CBA + defactoFIX	CBA + defactoFIX + CCBI
L1. lninf				0.464***	0.466***	0.413***
CBA	-0.704**	-0.601*	-0.614	-0.306*	-0.303*	-0.274**
DefactoFIX		-0.156	0.047		-0.014	0.126
(L1)CCBI			-1.992**			-0.937
GDPG	-0.019	-0.019	-0.055	-0.006	-0.006	-0.013
(L1)MSG	0.008**	0.008**	0.012**	0.009**	0.008**	0.023***
FB	-0.009	-0.009	0.035	0.003	0.004	0.003
OPEN	0.012**	0.012**	0.007	0.003**	0.003**	0.004*
TOT	0.004	0.004	0.023	0.004**	0.004**	0.004
EBRDI	-0.630**	-0.662**	-0.149	-0.223	-0.24	0.292
VAT	0.935*	0.933*	0.895	0.621***	0.619***	0.534***
EU	-0.163	-0.166	-0.284	0.169	0.185	-0.065

Note: ***, **, * donates that variables are statistically significant at the 1%, 5% and 10%, respectively

Examining differences in CBAs

Estimation technique	FEVD			One-way 'system' GMM		
Variables	Strong and weak CBA	Strong and weak CBA + defactoFIX	Strong and weak CBA + defactoFIX + L1CCBI	Strong and weak CBA	Strong and weak CBA + defactoFIX	Strong and weak CBA + defactoFIX + CCBI
L1. lninf				0.464***	0.469***	0.413***
StrongCBA	-1.123***	-0.955**	-1.088	-0.536***	-0.548***	-0.597***
WeakCBA	-0.329	-0.233	-0.180	-0.174	-0.187	-0.147
DefactoFIX		-0.211	0.047		0.011	0.123
(L1)CCBI			-1.744**			-0.849
GDPG	-0.021	-0.021	-0.055	-0.008	-0.008	-0.012
(L1)MSG	0.010***	0.009***	0.012**	0.008**	0.008**	0.020***
FB	-0.010	-0.010	0.035	0.001	0.003	0.005
OPEN	0.013**	0.013**	0.007	0.004***	0.004***	0.005*
TOT	0.005	0.004	0.023	0.005**	0.005**	0.010*
EBRDI	-0.634**	-0.667**	-0.250	-0.268*	-0.281**	0.124
VAT	0.954*	0.953*	0.895	0.675***	0.663***	0.575***
EU	-0.162	-0.167	-0.284	0.170	0.188	-0.058

Note: ***, **, * donates that variables are statistically significant at the 1%, 5% and 10%, respectively