

Determinants of Foreign Currency Borrowing in the New Member States of the EU*



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* Based on IMF Working Paper 08/173, July 2008



Outline

- Introduction & Motivation
- Stylized facts
- Some hypotheses
- Empirical analysis
- Estimation results
- Conclusions



Introduction & Motivation

- *Dollarization* (in fact, *euroization*, and *swissfrancization*) of liabilities has become a familiar feature of the catching-up process in the new member states of the European Union (NMS).
- Such borrowing has drawn warnings from the IMF and others regarding the build-up of vulnerabilities in the private sector.
- A full understanding of what drives FX borrowing and what explains striking differences between the NMS still remains elusive.
- Convergence-related demand for capital seems to play a key role. However, it remains unclear how this interacts with other factors such as individual country's monetary policy, effect of EU and ERM2 membership, regulatory policies, etc.



Introduction & Motivation (continued)

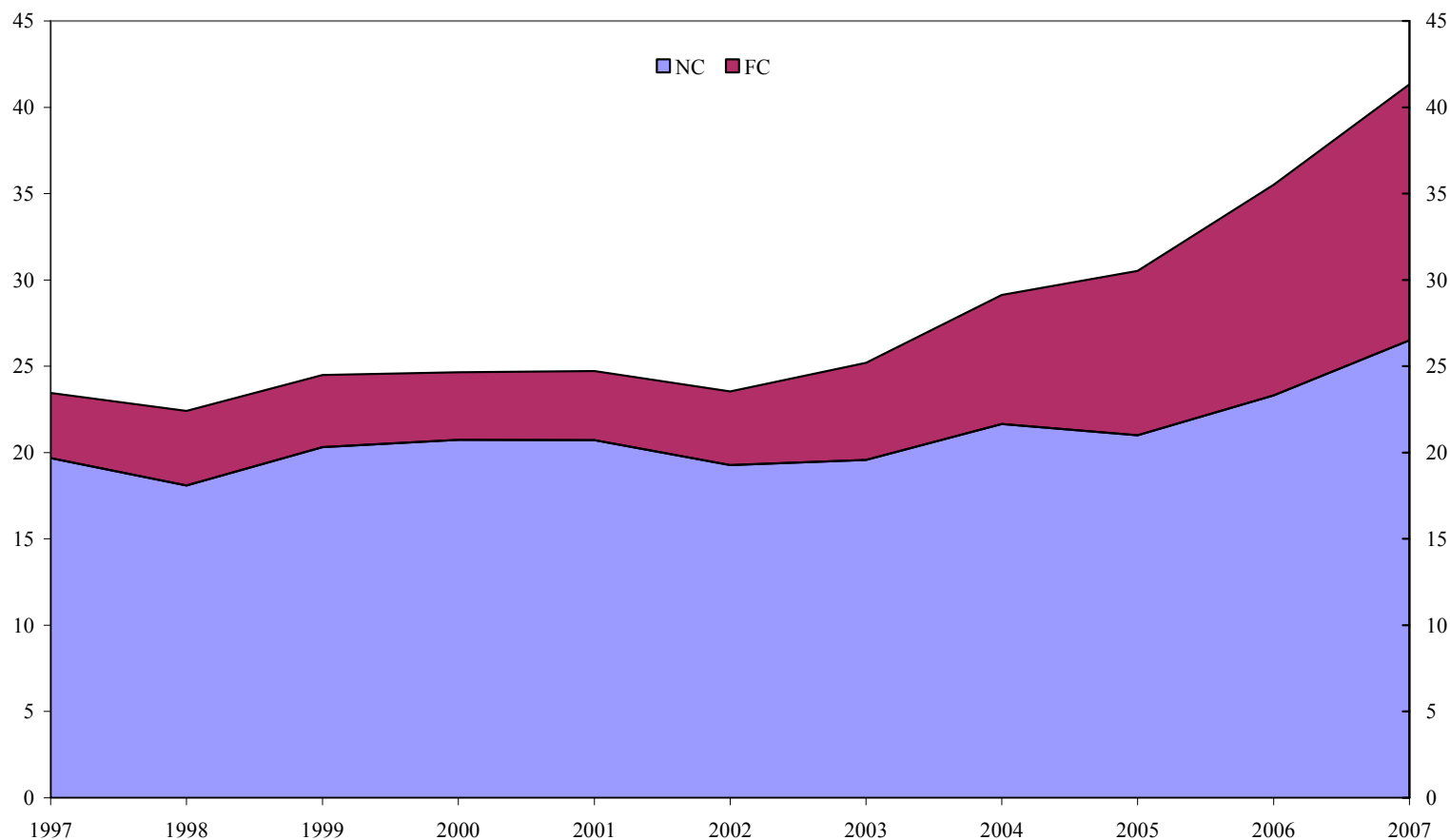
- A few recent studies investigate the determinants of FX borrowing in the NMS (e.g., Basso et al., 2007; Brown et al., 2008; and Brzoza-Brzezina et al., 2007).
- This paper contributes to this literature by also testing the effects of selected policy-related variables on FX borrowing in the NMS.
- Using a newly compiled panel dataset of 9 new member states and Croatia, we focus on the change of currency composition in private sector's liabilities (i.e., between domestic and foreign currency) during 1999-2007.



Stylized facts

Borrowing in the foreign currency has recently accelerated in the NMS,...

NMS: Credit to the private sector (percent of GDP)



Note: The indicator is calculated as total credit to the private sector divided by GDP for the NMS (excl. Slovenia).

All figures were previously transformed to euros.

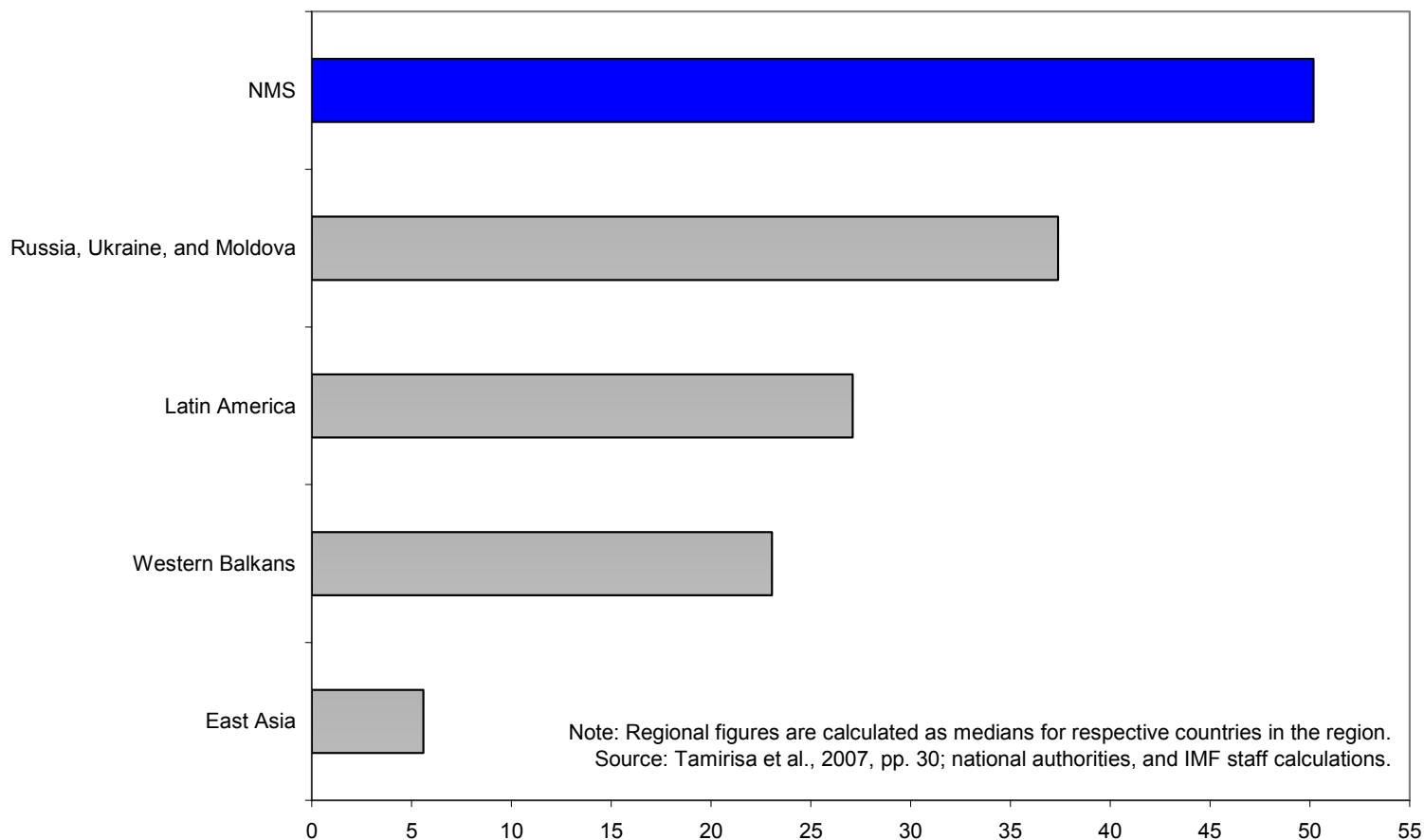
Source: National authorities, Eurostat, IMF staf calculations.



Stylized facts (continued)

...to levels unseen in other emerging markets economies.

Emerging Markets Countries: Foreign exchange borrowing
(2005, as % of total loans to the private sector)

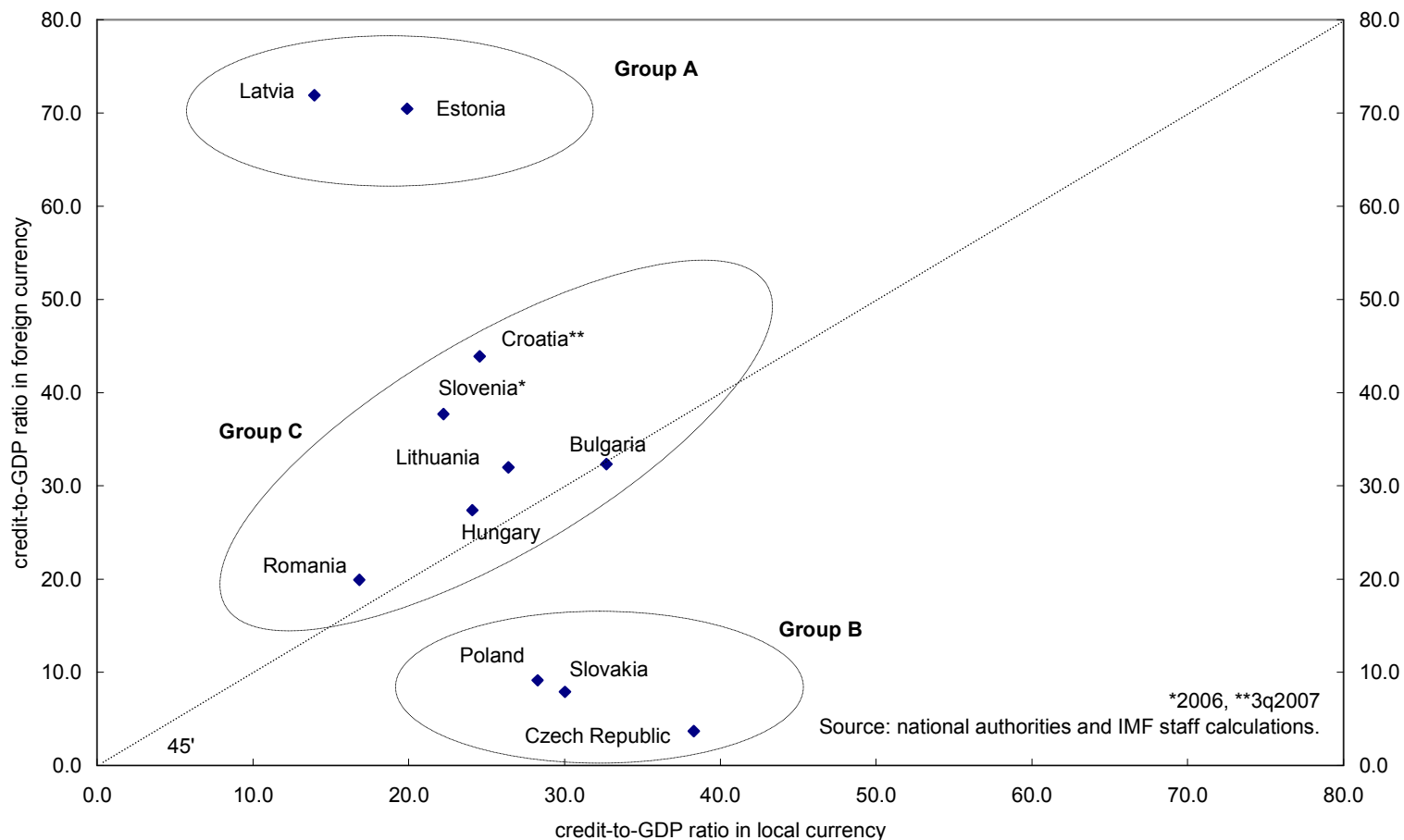




Stylized facts (continued)

There are striking differences between the NMS.

Credit-to-GDP ratio in local currency vs foreign currency (in %, year 2007)

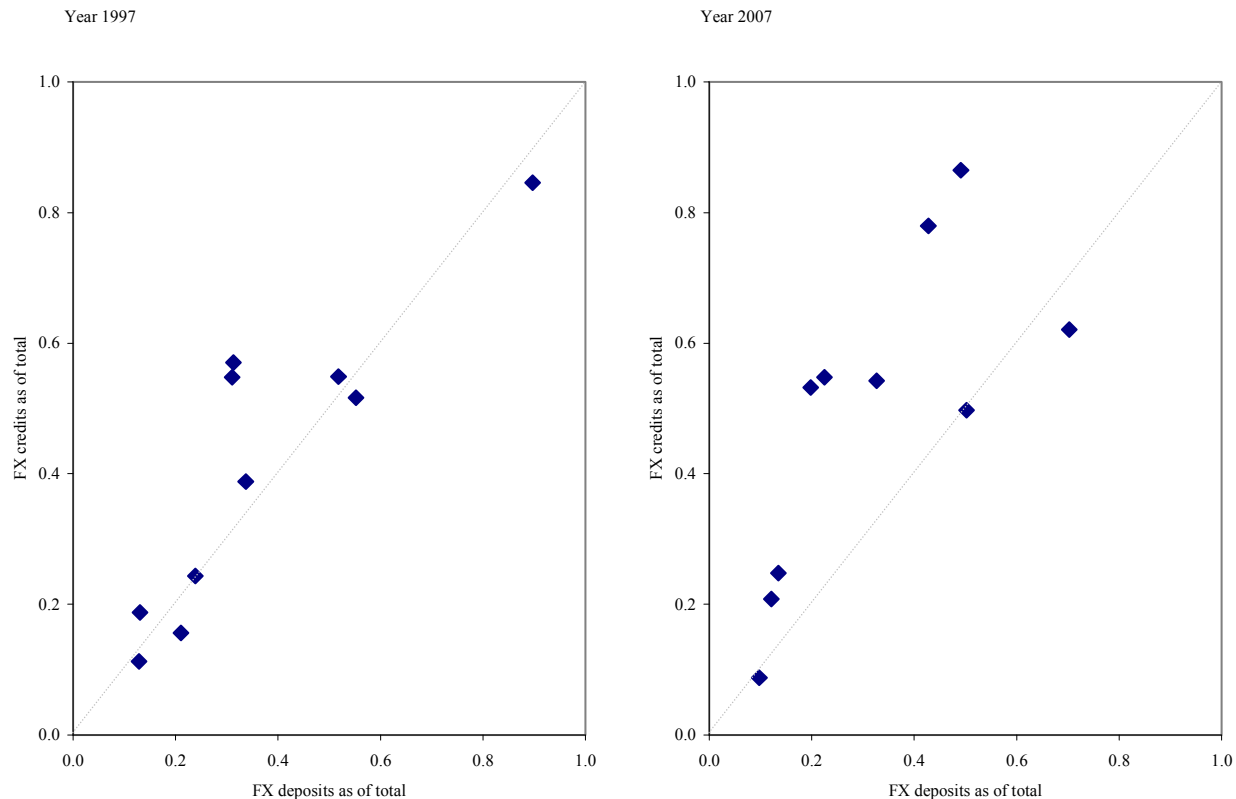




Stylized facts (continued)

In some countries, the gravity of financial dollarization has shifted indicating a growing exposure of the private sector to currency risk.

Financial dollarization in the NMS*



*Country sample: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and Slovakia.

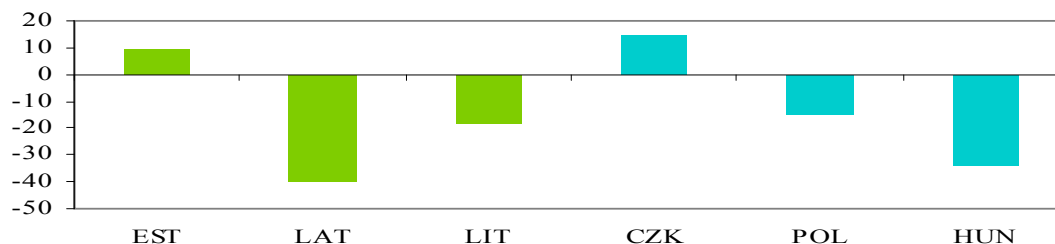
Source: national authorities and IMF staff calculations.



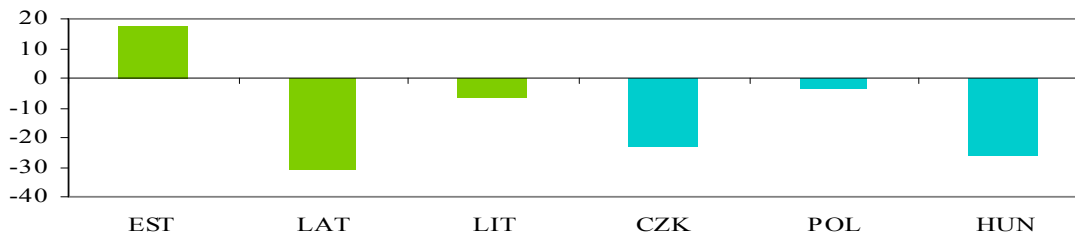
Stylized facts (continued)

This has led to large fx mismatches in the non-financial private sector

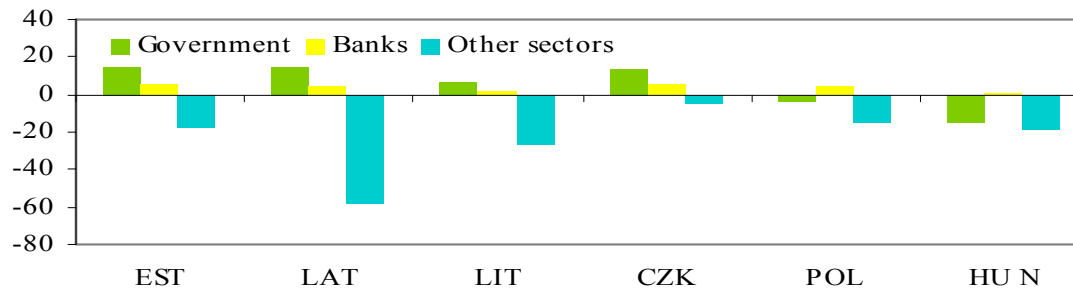
Net FX position, 2007 percent of GDP



Change in net FX position, 2002-2007, percent of GDP



Sectoral net FX position, 2007, percent of GDP





Stylized facts (continued)

Notably in the household sector

Latvia

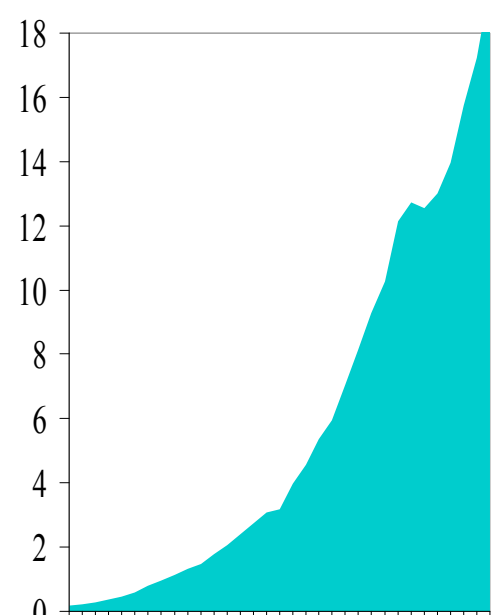
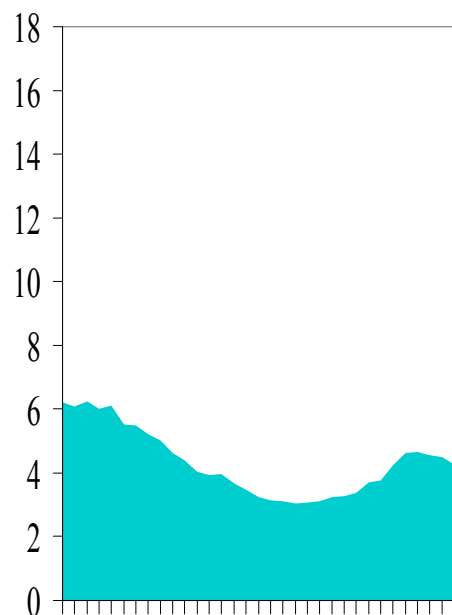
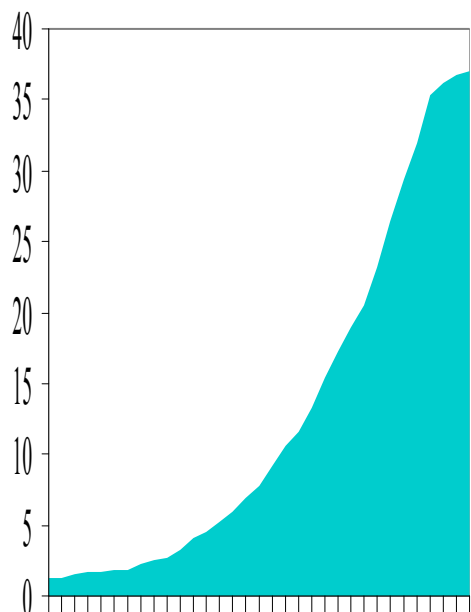
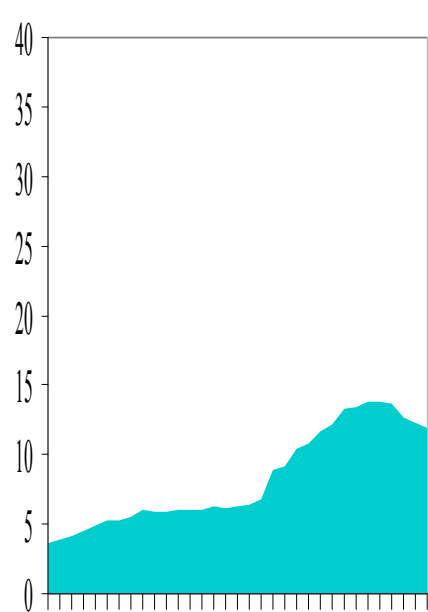
Assets

Liabilities

Hungary

Assets

Liabilities



2 0 0 0 q 0 1
2 0 0 1 q 0 1
2 0 0 2 q 0 1
2 0 0 3 q 0 1
2 0 0 4 q 0 1
2 0 0 5 q 0 1
2 0 0 6 q 0 1
2 0 0 7 q 0 1
2 0 0 8 q 0 1

2 0 0 0 q 0 1
2 0 0 1 q 0 1
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2 0 0 7 q 0 1
2 0 0 8 q 0 1

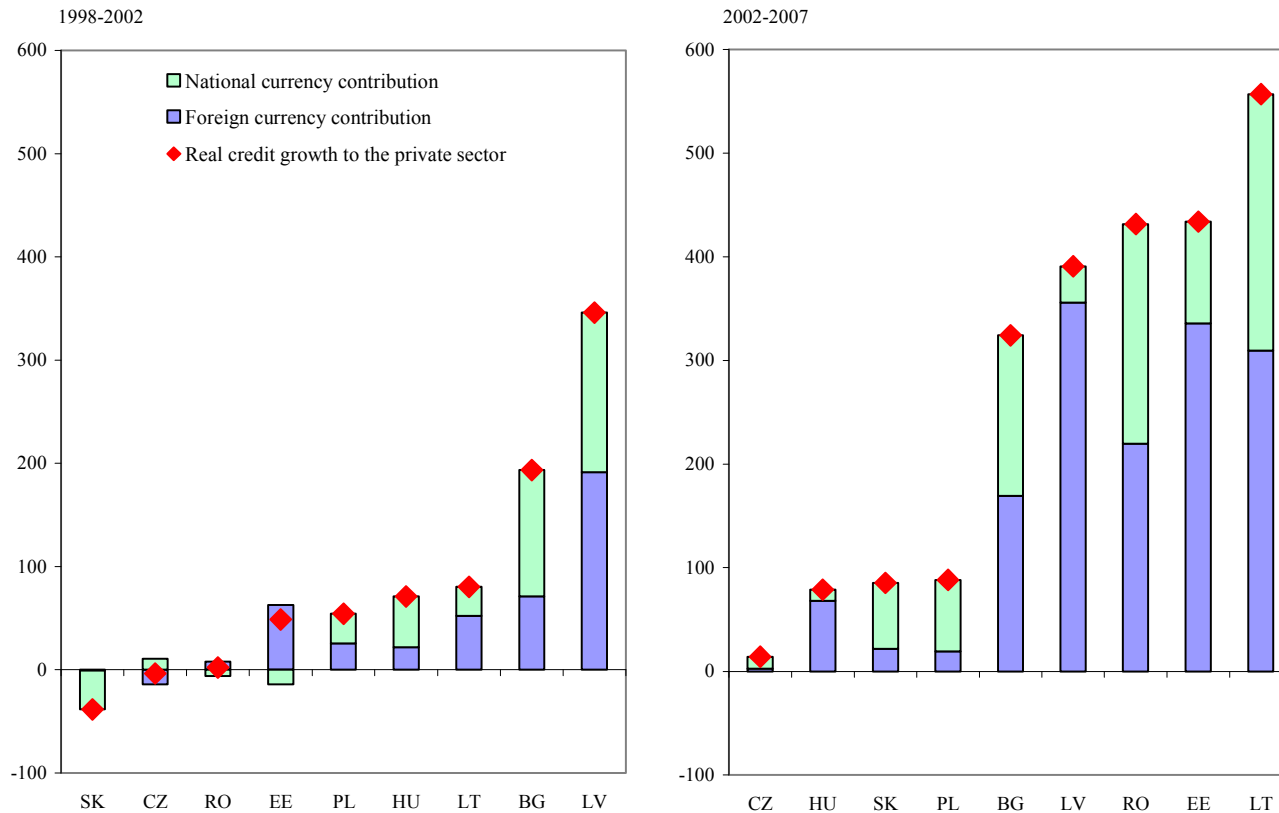
2 0 0 0 q 0 1
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2 0 0 2 q 0 1
2 0 0 3 q 0 1
2 0 0 4 q 0 1
2 0 0 5 q 0 1
2 0 0 6 q 0 1
2 0 0 7 q 0 1
2 0 0 8 q 0 1



Stylized facts (continued)

Overall credit growth and foreign exchange borrowing are closely related.

Contribution to real credit growth (percent)

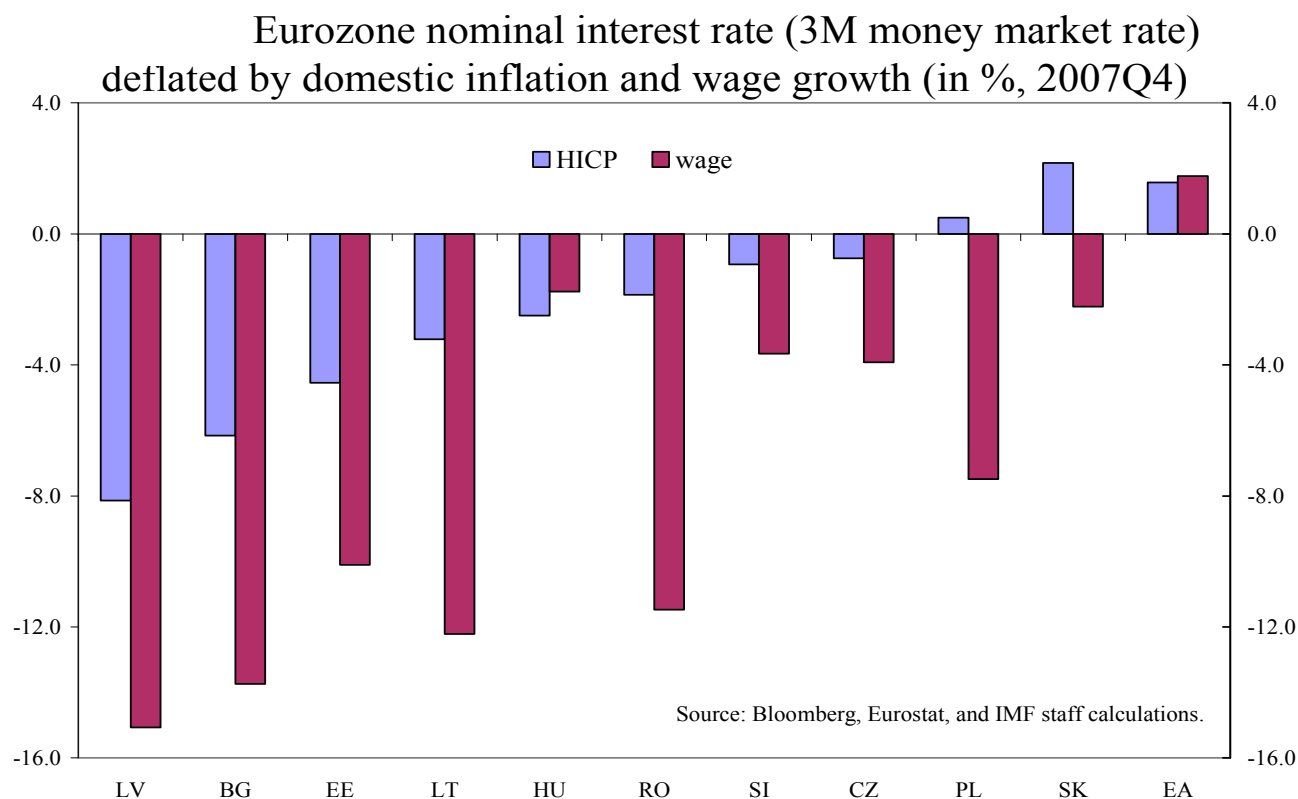


Source: National authorities and IMF staff calculations.



Stylized facts (continued)

This may be related to low perceived real interest rates for fx-denominated loans





Some hypotheses

Factors believed to contribute to FX borrowing:

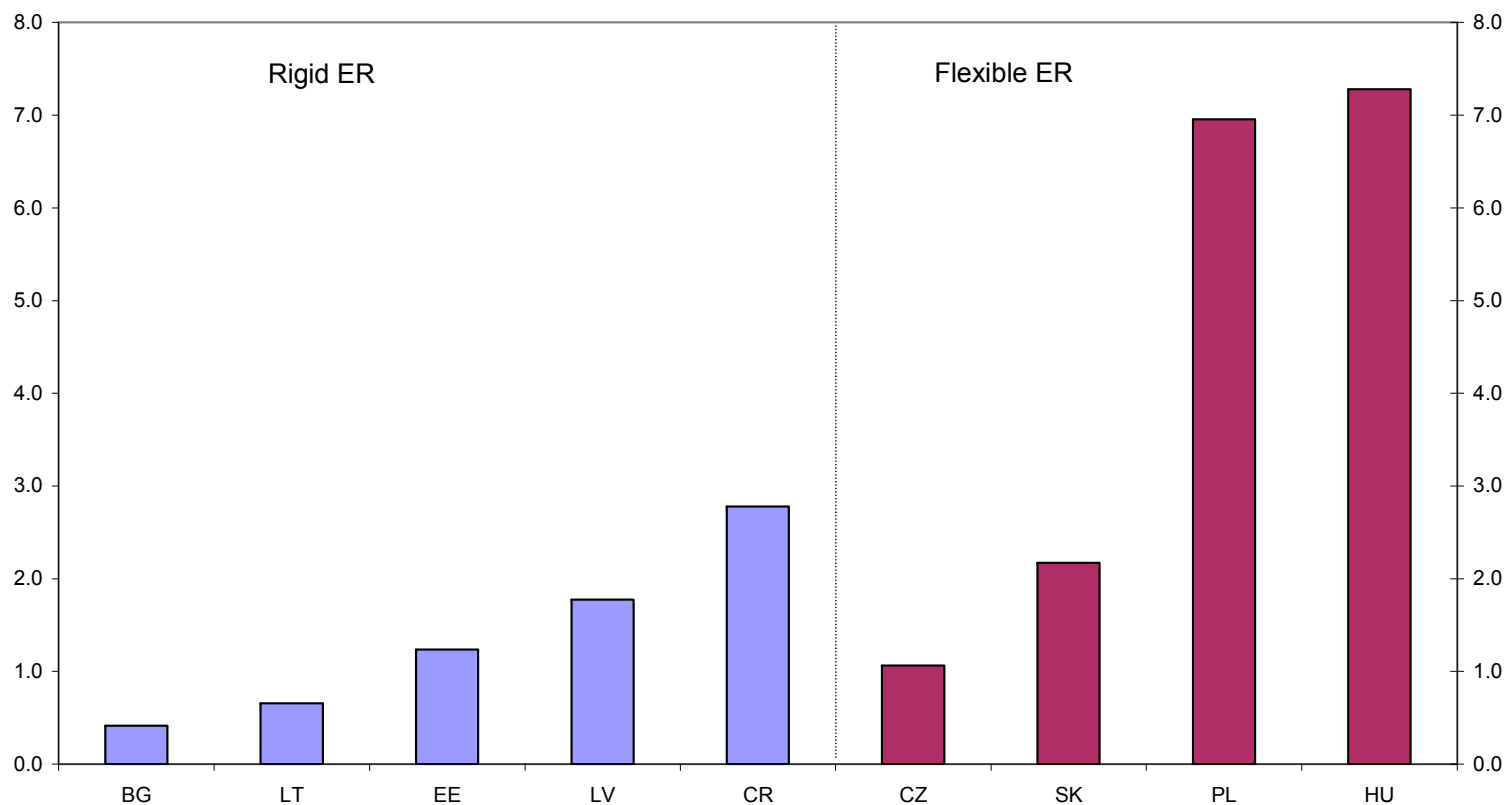
- Jeanne (2003): interest rate differential between domestic and foreign currency loans, reflecting the credibility of the currency regime.
- Backé and Wójcik (2007): fixed vs. flexible currency regimes.
- Basso et al. (2007): availability of foreign funding through the presence of foreign banks.
- Levy Yeyati (2006): imminent euro adoption.
- Countries' economic policies, especially FX regulation.



Some hypotheses (continued)

In a country with rigid exchange rate regime, only a small increase of interest rate differential could induce a shift towards FX borrowing.

Chart 8. Interest rate differential vis-a-vis euro
(in p.p., nominal interest rates, average 4q1998 - 4q2007)



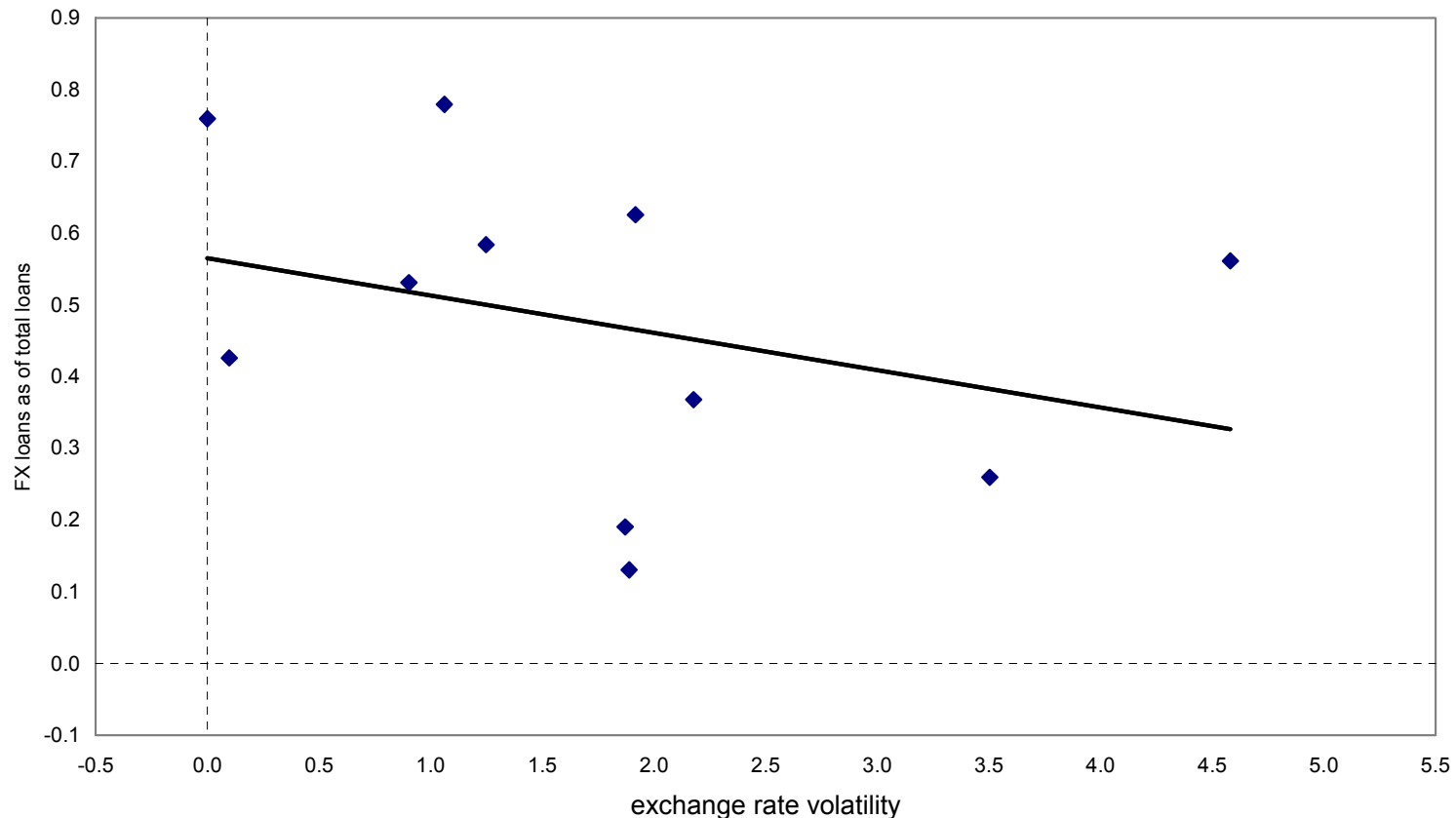
* 3-month money market rate, quarterly data. Data for BG, CR, LT, and SK are of shorter time span.
Source: Bloomberg and IMF staff calculations.



Some hypotheses (continued)

Actual variability of the exchange rate appears to be negatively related to the foreign exchange borrowing.

Chart 13. Exchange rate volatility and foreign currency loans



Note: For both indicators we use their average value over period 2000-2007. Exchange rate volatility is calculated as standard deviation of exchange rate vis-à-vis euro divided by its average over 12 months.

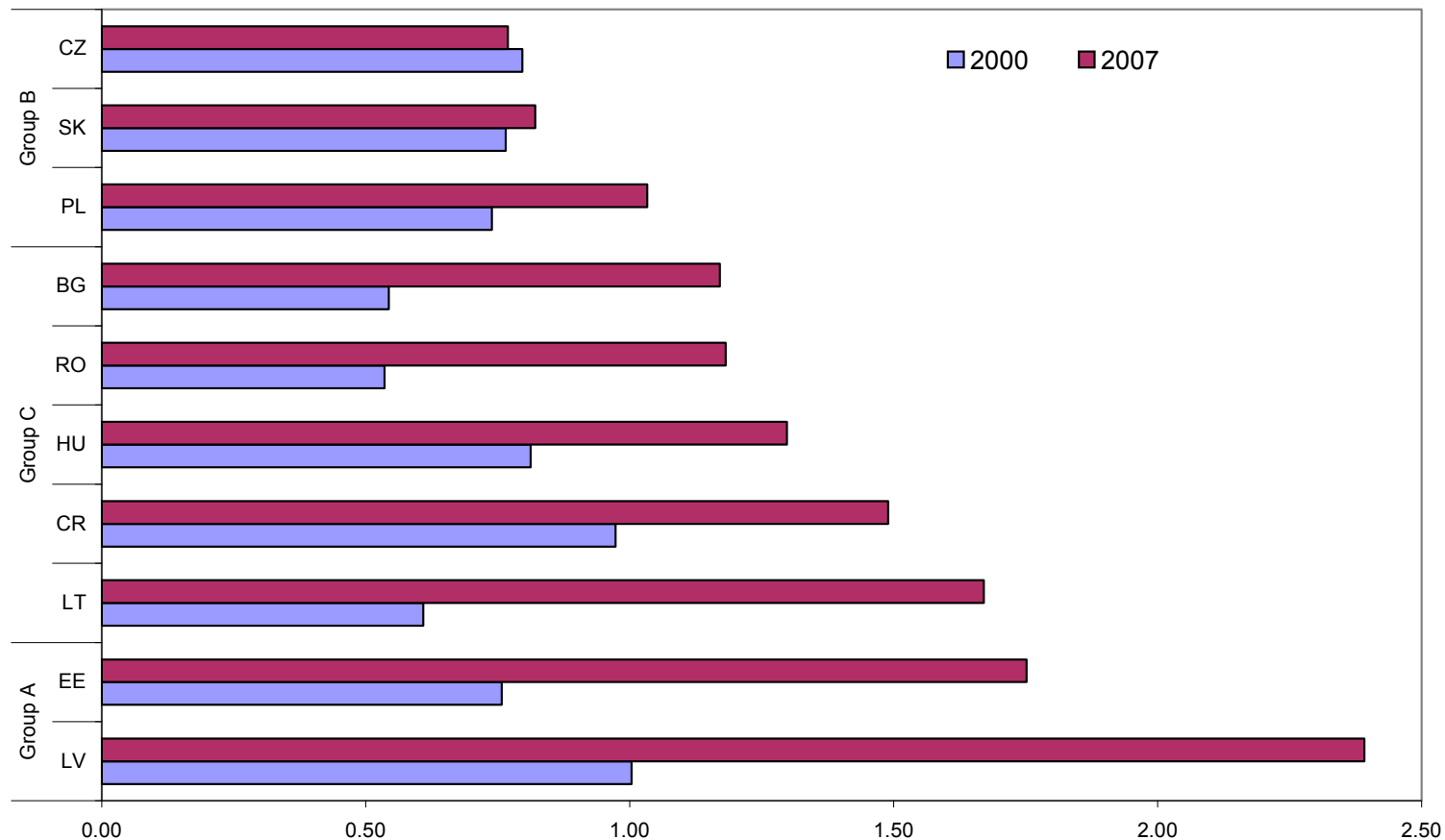
Source: national authorities, European Central Bank, and IMF staff calculations.



Some hypotheses (continued)

As credit expands beyond the level of domestically available resources, banks attract capital from abroad.

Chart 9. Loan-to-deposit ratio in the NMS



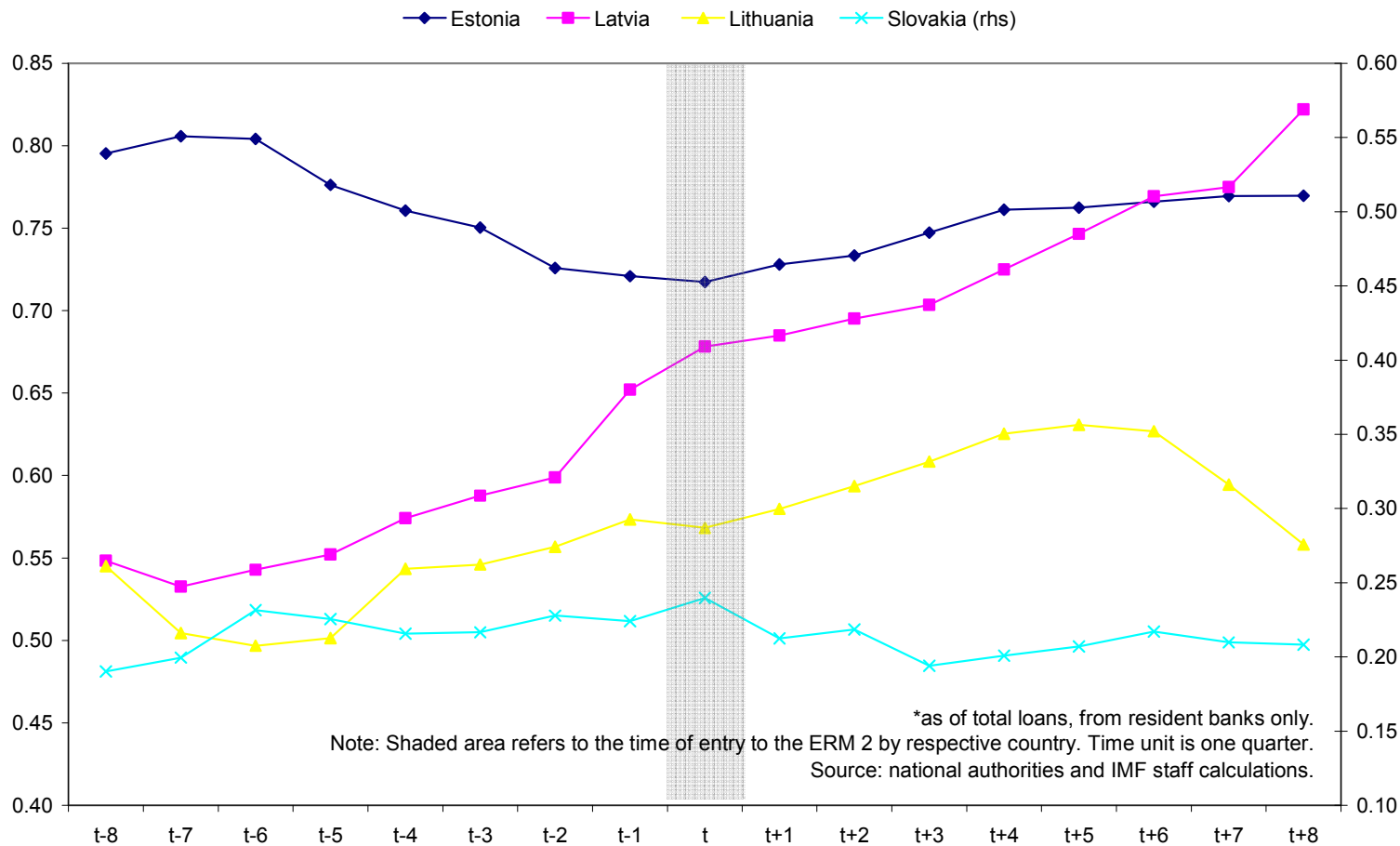
Source: national authorities and IMF staff calculations.



Some hypotheses (continued)

ERM2 membership – an anchor for the private sector’s expectations?

Chart 10. NMS: Share of foreign exchange loans* and ERM 2 entry





Some hypotheses (continued)

Countries are increasingly using regulatory measures to slow down
fx borrowing

Table 2. Policies to discourage foreign currency borrowing

2004Q4

	CZ	EE	HU	LV	LT	PL	SK	SI	BG	RO	CR
Monitor fx risk	X			X							
Disclose fx risks to customers											
Tighten eligibility criteria for fx borrowing											
Higher risk weights, provisioning, reserve requirements depending on banks' fx exposure											X
Ceiling on banks' fx exposure											

2007Q4

	CZ	EE	HU	LV	LT	PL	SK	SI	BG	RO	CR
Monitor fx risk	X			X						X	X
Disclose fx risks to customers			X			X					
Tighten eligibility criteria for fx borrowing				X		X					
Higher risk weights, provisioning, reserve requirements depending on banks' fx exposure			X	X						X	X
Ceiling on banks' fx exposure											

Source: IMF Staff Reports.



Empirical analysis

Preferred model specification

$$fxloans_{i,t} = \alpha + \beta_1 irdiff_{i,t} + \beta_2 loantodep_{i,t} + \beta_3 openness_{i,t} + \beta_4 restrict_{i,t} + X_{i,t} + \varepsilon_{i,t}$$

$fxloans_{i,t}$: loans denominated (or indexed) in fx / total loans
(including or excluding direct borrowing from abroad)

$irdiff_{i,t}$: the difference of nominal interest rates between local and foreign currency;

$loantodep_{i,t}$: the loan-to-deposit ratio (proxy for degree to which funding comes from abroad);

$openness_{i,t}$: the openness of the economy, and

$restrict_{i,t}$: the severity of regulatory measures aimed at discouraging foreign currency borrowing

$X_{i,t}$: variable tested but not included in the preferred model



Empirical analysis (continued)

Data:

- 9 NMS that have not yet adopted the euro (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, and Slovakia, Bulgaria, Romania) plus Croatia
- Quarterly data for 1999-2007. Loans in domestic and foreign currency from national sources, independent variables from Eurostat, IMF, EBRD and BIS.
- Index of regulatory measures: $Index_{i,t} = \sum policy_{i,t}$

Policies to discourage foreign currency borrowing (<i>policy_{i,t}</i>)	Score
Monitoring FX risk	0.2
Disclosure FX risks to customers	0.4
Tightening eligibility criteria for FX borrowing	0.6
Higher risk weights/provisioning/reserve requirements depending on banks' FX exposure	0.8
Ceilings on banks' FX exposure	1.0



Estimation results

Estimated coefficients from our preferred model

	Domestic banks only	Incl. cross-border loans
	A	B
Interest rate differential	0.00136***	0.00194***
Loan-to-deposit ratio	0.17195***	0.07128**
Openness	0.11060*	0.14416**
FX restriction index (lagged)	-0.01317*	-0.00653

Note: *, **, *** refers to significance at 10%, 5%, and 1% level respectively.

Discussion on the model specification is in the Appendix II. Time dummies are included.

Source: Authors' calculations.



Estimation results (continued)

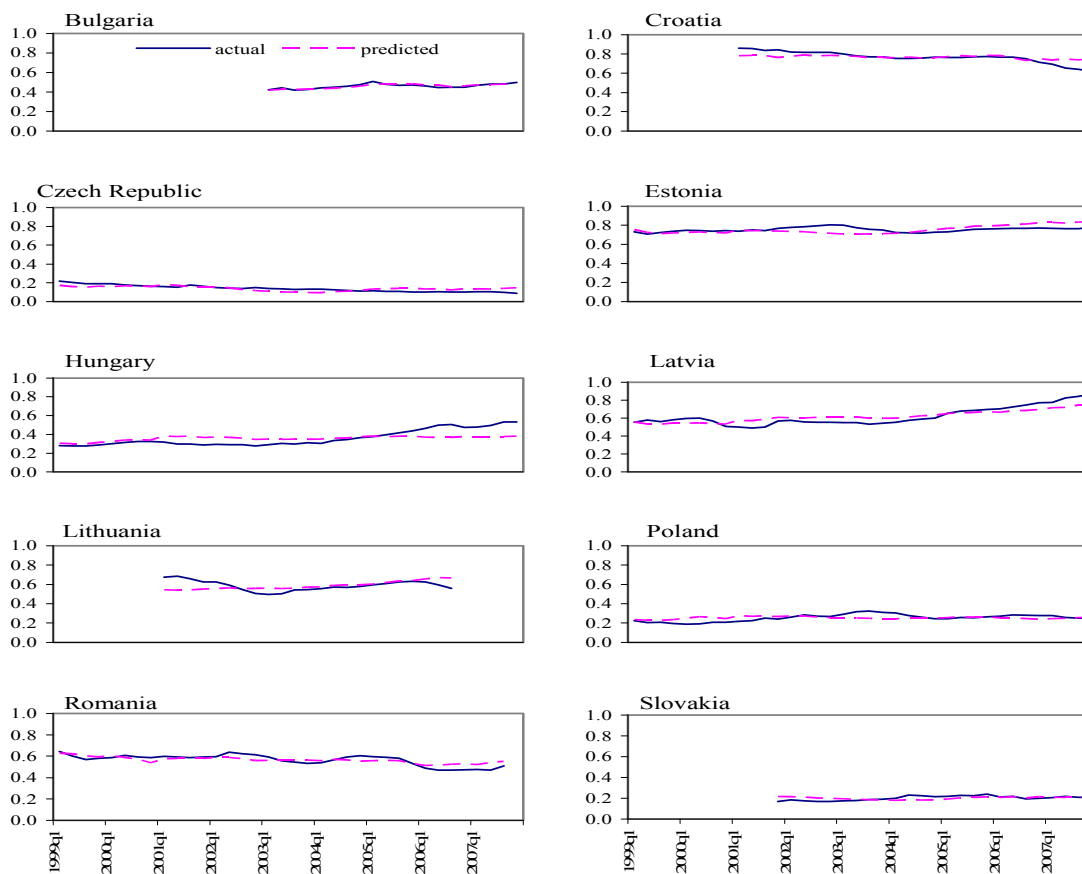
- The **interest rate differential** is an important driver of fx borrowing
- The **loan-to-deposit ratio** is highly significant and has the expected sign
- NMS with **large catch-up potential** tend to prefer fx borrowing
- The effect of **exchange rate volatility** is ambiguous in our model
- **Joining the EU** has no discernable effect in our model
- **Hedging opportunities** increase fx borrowing, at least in the corporate sector
- **Regulatory policies** have only limited effect



Estimation results (continued)

The model tracks well developments in most countries, except Hungary and Latvia recently

Actual and predicted share of FX loans on total loans in the NMS



Source: national authorities and IMF staff estimates.



Conclusions:

- *Euroization* is a byproduct of convergence.
- EU membership boosts foreign exchange borrowing through multiple channels:
 - it offers better access to foreign funds in a fully liberalized environment of capital flows,
 - it provides natural hedging opportunities, through increasing trade openness,
 - it may boost private sector's confidence in exchange rate stability and imminent euro adoption.
- Regulatory measures have limited effectiveness due to opportunities to borrow directly from abroad (i.e., for corporations).



Thank you!

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