



# Interest Rate Pass-through under a Currency Board Regime: Evidence from Bosnia & Herzegovina

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# Motivation and research questions

Understanding the pass through of anchor-currency policy rates to domestic bank rates, and how pass-through is affected by the structure of the domestic banking sector is crucial for policy makers in these countries.

Bosnia & Herzegovina is a prime example of a currency board country with a domestic banking sector dominated by foreign-owned banks.

The pass-through effect of ECB key interest rates on the bank deposit rates is mainly observed in this research, focusing on next research questions:

- a) How do Eurozone policy rates (anchor currency) pass through to bank deposit rates in Bosnia & Herzegovina?
- b) Does interest rate pass-through depend on ownership and market power of banks?
- c) Does interest rate pass-through depend on counterparty (households, non-financial corporations) and contract type (maturity)?

# Monetary policy & exchange rate regime

- CBBH is the monetary authority of BiH (with a mandate of maintaining monetary stability through a currency board of the "convertible mark" to the Euro (1KM=1,95583EUR))
- CBBH implements monetary policy (only) through setting the reserve requirement for banks (currently 10% on all liabilities)
- CBHH does not set a policy rate, refinance banks or conduct open market operations
- Strength of interest rate channel will partly depend on the development of domestic financial market and characteristics of banking sector (market power, ownership..)
- The lack of an active monetary policy does not necessarily mean that the economy in which the currency board system is applied lacks some important transmission mechanism

# Theory: The Monti-Klein model of imperfect bank competition

## Empirical Predictions for Deposit rates

- The equilibrium intermediation spread on deposits is given by:

$$\frac{r(1 - \alpha) - \gamma_D - r_D^*}{r_D^*} = \frac{1}{N \varepsilon_D(r_D^*)}$$

- Sensitivity of  $r_D^*$  to changes in the money market rate  $r$  (Euribor) depends on market power of banks in their “home” market:  $\frac{1}{\varepsilon_D(r_D^*)}$
- Different degrees of competition are the most plausible structural factors to explain the heterogeneity of pass-through (increased competition would improve the effectiveness of monetary policy transmission through the interest rate channel)
- Banks with higher market power react more sluggish to changes in the reference rate  $r$
- Sensitivity of  $r_D^*$  to changes in the money market rate  $r$  (Euribor) depends on the number of competitive banks

# Hypotheses for our Analysis

Pass through of Eurozone policy rates to bank deposit rates in Bosnia & Herzegovina will depend on:

- Access of BiH banks to Eurozone money market

Determines how Eurozone reference rates influence on domestic bank behaviour (regarding the different bank groups and their access to the euro zone money markets)

- Local market power of banks

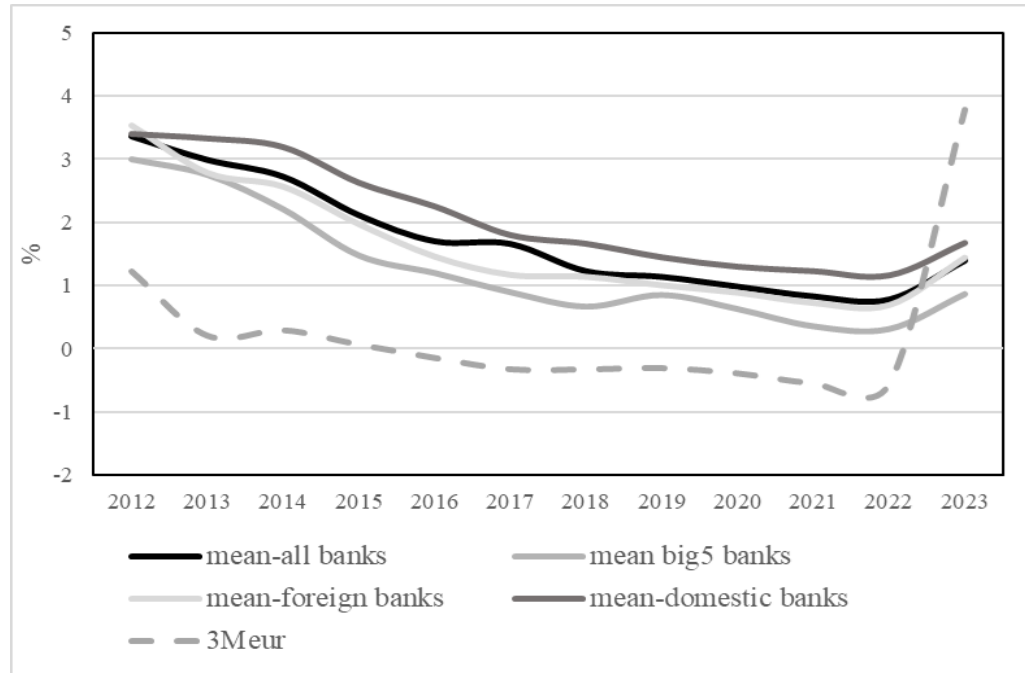
Determines to what extent banks pass on changes in the reference rate to customers (level of bank market power affects the interest rate pass through)

More competitive bank group (foreign banks that are not the biggest banks with highest market shares) improves a monetary policy effectiveness

# Available data

- 21 commercial bank in Bosnia and Herzegovina
- Monthly data of interest rates on deposit with agreed maturity (by different sectors, bank group, maturity and periods)
  - Time deposits only (with agreed maturity)
  - Explanatory variable: 3M Euribor
- Observation period: 2012:01 – 2023:12
- Extension: separate analysis for different sectors, maturity and period of falling reference rates 2012-2015 and period of rising references rates 2021 – 2023

Outcome variable by bank type



- Big 5 banks – banks with the biggest market share (total 50%) – all foreign owned
- Foreign banks– foreign owned banks excluding big 5 (total market share 28%)
- Domestic banks – all domestic owned banks in system (total market share 22%)

# Empirical specifications

Model 1a: First difference regression (aggregated bank rates)	$[1a] \Delta DepositRate_t = \beta \Delta MarketRate_t + year_t + \varepsilon_t$
Model 1b: First difference regression (individual bank rates)	$[1b] \Delta DepositRate_{b,t} = \beta \Delta MarketRate_t + bank_b + year_t + \varepsilon_t$
Model 2a: Error correction Model (aggregated bank rates)	$[2a] \Delta DepositRate_t = \alpha (DepositRate_{t-1} - MarketRate_{t-1}) + \beta \Delta MarketRate_t + \varepsilon_t$
<b>Model 2b: Error correction Model</b> <b>(individual bank rates)</b>	$[2b] \Delta DepositRate_{b,t} = \alpha (DepositRate_{b,t-1} - MarketRate_{t-1}) + \beta \Delta MarketRate_t + bank_b + \varepsilon_t$

# Results: Model 2b

$$\Delta DepositRate_{b,t} = \alpha (DepositRate_{b,t-1} - MarketRate_{t-1}) + \beta \Delta MarketRate_t + bank_b + \varepsilon_t$$

- Error correction approach – individual bank rates
  - Dependent variable is weighted average bank deposit rate (by different bank groups, sectors and sample periods)
  - Independent variable is eurozone market rate – 3Meuribor

Weighted Deposit rate H0	Immediate pass-through $\beta = 0$	ECT $\alpha = 1$	Adjustment speed in months $(1-\beta)/\alpha$	Cointegration relation $\alpha = 0$	Number observation	R-squared
All banks	0,186 (0,017)	-0,430 (0,000)	1,894	Yes*	2982	0,446
Big 5 (foreign owned)	0,127 (0,353)	-0,384 (0,000)	2,275	Yes*	710	0,988
Foreign banks other	0,281 (0,026)	-0,476 (0,000)	1,512	Yes*	1136	0,9287
Domestic banks	0,127 (0,348)	-0,406 (0,000)	2,151	Yes*	1136	0,1606
Restrictive MP	0,019 (0,855)	-0,389 (0,000)	2,518	Yes*	462	0,8179
Expansive MP	-0,236 (0,572)	-0,415 (0,000)	2,978	Yes*	966	0,3710

Note: p-value denotes in brackets

\* Denote significance of the F-statistic at the 1%



# Conclusion

- The evidence seems to be in general fairly weak regarding the bank interest rate channel
- Use of bank level data suggests that bank deposit activity definitely is affected by monetary policy changes but on very slow and low path
- Deposit rates for “Big5” bank group may be less responsive to monetary policy changes than deposit rates for foreign owned banks due to the high market power
- Foreign ownership seems to matter and the reaction of foreign-owned banks is more pronounced to a change in foreign monetary conditions than other specified groups
- In addition, it seems that size of bank is not important for strength and speed of transmission mechanism (regarding that domestic banks group in our analysis are at the same time the smallest banks on B&H market)