Non-Euro EU Member States and ECB-Originating Monetary Shocks: A Macroeconomic Policy Trilemma Question

Robert Jacek Wlodarski¹

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Post-crisis events following the 2008 Great Recession prompted researchers to question macroeconomic modelling and rethink the presence of the Mundellian policy trilemma. This conjecture posits that among monetary policy independence, fixed exchange rates and unrestricted capital flow, only two can be attained. Citing the central position of the U.S. dollar in global financial markets and its role in shaping worldwide credit conditions, Rey (*International Monetary Fund (IMF) Economic Review*, 2016) postulated that the trinity presents a dilemma. A small open economy (SOE) has to choose between unlimited participation in the financial system and autonomous monetary policy. Similarly, Edwards (*The World Economy*, 2015) inspected co-movements of the Federal Reserve and Latin American banks' policy rates, discovering a strong relationship due to the role of the U.S. dollar as the main trade currency.

Globally, given the steadily integrating European Union (EU), the remaining non-Euro member states must consider whether and when to fulfil the Maastricht Treaty obligation of adopting the common currency. Unbound by any deadline, Czechia, Hungary, Poland, Romania, and Sweden clung to their national currencies in the hopes of utilising monetary independence in economic downturns. Nonetheless, with the dominance of intra-EU trade and the gradual assimilation of European financial markets, the findings of Rey (*IMF Economic Review*, 2016) and Edwards

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✉ Robert Jacek Wlodarski
r.j.wlodarsky@gmail.com

¹ The University of Edinburgh, Edinburgh EH8 9YL, UK

(*The World Economy*, 2015) could potentially translate into a similar interdependence between the European Central Bank (ECB) and the supposedly independent central banks in the EU. If true, this means that unexpected events, such as ECB communication not expected by the markets, could ripple across the EU, influencing monetary policymaking of European central banks. As a result, this paper sought to assess two research questions: whether and how ECB-originating shocks caused policy rate changes in non-Euro member states.

As a contribution to the existing literature, this study was designed to provide further perspective on the ECB's role in the EU, employ corner-solution and non-linear econometric models, include high frequency financial variables, focus on both immediate short-term and medium-term perspectives, and control for all international policy transmission channels. The dataset, including information from Czechia, Hungary, Romania, and Poland, also included a range of macroeconomic, trade, and financial variables to control for monetary policy determinants and international transmission channels (a summary of all variables is in Online Supplemental Appendix Table 1). An analysis of binary variables was conducted based on a random effects (RE) logit model. The corner solution method centred around the correlated random effects (CRE) Tobit specification was also utilized.

The RE logit models separately studied binary measures of policy rate increases and decreases (regression results are in Online Supplemental Appendix Table 2). Similar to the estimated impact of the Chicago Board Options Exchange (CBOE) Volatility Index (VIX) on the key financial statistics in Miranda-Agrippino and Rey (*The Review of Economic Studies*, 2020) and of the U.S. synthetic rate on Czech and Polish policy rates in Takats and Vela (*BIS Working Papers*, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2498133, 2014), the coefficients of the monetary shock variable (MSV) measuring ECB-originating shocks, represented by the first column for specifications (1) and (2), indicated the significant impact of the ECB-originating shocks on monetary policymaking in the non-Euro member states. Combined dynamics of coefficients of MSV with export and import shares of Euro invoicing followed an inconsistent pattern across both models. The results were generally not significant for the specification investigating dips in policy rates (both columns of specification (2)). The dynamics of ECB monetary shocks coupled with variations in global economic uncertainty painted a similar picture. The CRE Tobit analysis generated underwhelming results and, thus, is not reported.

The impact of ECB-originating monetary shocks on estimated probabilities of policy rate changes in non-Euro EU member states remains unclear. An attempt to study financial and currency channels of international transition indicated a stronger effect of the MSV on policy rate hikes (model (1)) than on their slumps (model (2)). The coefficient estimation echoed the findings of Han and Wei (*Journal of International Economics*, 2018). However, modelling the relationship between monetary shocks and key global transmission media led to more complex conclusions in the same regressions. Clearly, the strong relationship between the estimated probabilities of policy rate changes and ECB-induced monetary shocks, represented by coefficients of MSV in both models, meant the study could not reject the hypotheses of Rey (*IMF Economic Review*, 2016) and Edwards (*The World Economy*, 2015), who conjectured that SOEs, especially emerging market economics (EMEs), traded

full monetary autonomy for free capital flows and flexible exchange rate regimes. The complex results for the transmission channels, limited statistical significance of model (2), and underwhelming results of the CRE Tobit specification imply the need for more research to fully understand the limitations of the Mundellian Trilemma in policymaking.

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