



THE IMPACT OF FINANCIAL GLOBALIZATION ON EXCHANGE RATE STABILITY IN SMALL OPEN ECONOMIES: EVIDENCE FROM THE WESTERN BALKANS

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Abstract

This study analyses the increased impact of financial globalization on exchange rate stability in a group of small open economies of the Western Balkans. The aim is to empirically assess the degree of dependence of exchange rate stability on indicators of financial integration, taking into account the specificities of the region, such as the high degree of euroization and the sensitivity to external shocks. For this purpose, a quarterly panel data methodology (Panel Data) and a Fixed Effects model were used. The relationship between the main indicators of financial globalization (Capital Flows, Banking Integration) and the Volatility of the Real Effective Exchange Rate (VOLER) is estimated. To address endogeneity and ensure robustness, an additional analysis of the System Generalized Method of Moments (GMM) Model was used. The findings show that financial globalization, especially deep Banking Integration (BANKINT), significantly increases the sensitivity of currencies to global shocks, increasing the Volatility of the Real Effective Exchange Rate (VOLER). This result challenges the traditional Monetary Trilemma model, suggesting that strong Banking Integration replaces free capital mobility (FLOWS) as the main source of destabilization in this context of deep euroization. However, remittances serve as an



effective and counter-cyclical shock absorber. The study provides substantial academic contributions and practical implications for the design of macroprudential policies, which are critical for managing foreign exchange risk in the Western Balkans.

Keywords: Financial Globalization, Exchange Rate Stability, Western Balkans, Small Open Economies, Euroization, Volatility, GMM, Panel Data

INTRODUCTION

Financial globalization has transformed the macroeconomic landscape, brought opportunities but also exposed small open economies to new risks. For the Western Balkans (WB) region, which is undergoing a deep integration process towards the European Union, exchange rate stability is essential. This importance stems from two main factors:

First, the region's high dependence on trade, which makes competitiveness sensitive to real exchange rate fluctuations. Second, the high level of financial euroization, characterized by a high percentage of lending and deposits in euros. This makes the financial system sensitive to any exchange rate fluctuations, often causing the "Fear of Floating" among monetary authorities (Calvo and Reinhart, 2002). This study extends the existing literature by emphasizing that in the Western Balkans, this fear is not caused only by capital flows, but more deeply by structural banking integration.

Research Problem

This research investigates the specific mechanisms through which Financial Globalization influences exchange rate volatility in the Western Balkans. The Western Balkans region (Albania, North Macedonia, Montenegro, Croatia, Serbia, Bosnia and Herzegovina) shares characteristics of transition, high euroization, and rapid integration into the European financial system. Instead of the traditional focus on capital mobility, we argue that in a deeply euroized context, the structural risk associated with Bank Integration is the main source of instability.

Key Contributions of the Study

- Analysis of the Structural Dimension of Financial Globalization: Emphasizing the significance of Bank Integration (BANKINT) as a core destabilizing variable, distinguishing it from simple speculative capital flows (FLOWS).

- Clarification of the Transmission Mechanism: Explicitly modeling and testing the hypothesis that Bank Integration acts as the main channel for the transfer of foreign currency balance sheet shocks and de-leveraging policies from Eurozone parent banks.
- Econometric Robustness: Utilizing the advanced System GMM methodology to effectively control for endogeneity and persistence, as well as conducting a Sensitivity Analysis to confirm that the results are valid beyond the baseline measurement of the dependent variable.
- Innovative Policy Implications: Offering targeted recommendations for macroprudential policies, addressing the specific risk of foreign currency balance sheet management transferred through the banking channel.

Research Hypotheses

Based on the research problem, the following hypotheses are formally tested:

- H1 (Structural Risk): Financial Globalization, measured by Bank Integration (BANKINT), has a positive and statistically more significant impact on the Volatility of the Real Effective Exchange Rate (VOLER) than net capital flows (FLOWS).
- H2 (Amortizing Role of Remittances): Remittances (REMITT) play a stabilizing and counter-cyclical role, negatively impacting the Volatility of the Real Effective Exchange Rate (VOLER).

LITERATURE REVIEW

Theoretical Framework: Monetary Trilemma and Fear of Floating

The Monetary Trilemma theory (Mundell, 1963; Fleming, 1962) remains the starting point, positing the conflict between monetary autonomy, exchange rate stability and capital mobility. However, studies by Calvo and Reinhart (2002) on the “Fear of Floating” show that euroized countries often sacrifice monetary independence and preserve capital mobility, being forced to intervene in the foreign exchange market. This intervention comes about because of the high costs of devaluation (the balance sheet effect), which increases the burden of foreign currency debt for domestic borrowers. For the Western Balkans, this fear is high, also supported by high levels of public and private debt in Euros.

The work of Lane and Milesi-Ferretti (2007) on external wealth provides the basis for measuring integration. Studies such as Rose (2011) have shown an ambiguous impact of Financial Globalization on Exchange Rate Volatility. However, in the context of Central and Eastern Europe (CEE), Genchev (2014) found that financial liberalization increased exchange

rate volatility. As noted by Krugman (1979), liberalization without strong regulation can cause frequent currency crises.

Transmission Mechanism: The Role of Banking Integration

In the context of the Western Balkans, where the dependence of the banking system on Eurozone parent banks is deeply structural (often over 80% of assets), Banking Integration (BANKINT) acts as a rapid transmission channel of shocks. Here, the risk does not come simply from short-term speculation, but from the management of foreign exchange balances, making Banking Integration a structural risk. This structural risk manifests itself in two main mechanisms:

1. Foreign Exchange Balance Shock Channel: Due to high euroization, a possible devaluation increases the burden of euro loans for domestic borrowers. This forces central banks to intervene strongly in the market (by spending reserves) to protect the banking system from failure, manifesting the “Fear of Sailing”.
2. Parent Bank De-leveraging Channel: If parent banks in the Eurozone face problems, they may withdraw capital from their branches in the Western Balkans (as happened after the Eurozone sovereign debt crisis). This rapid deleveraging is directly transferred as a large negative capital shock, forcing Central Banks to spend reserves to defend the exchange rate, immediately increasing observable volatility.

These mechanisms explain why Banking Integration is a stronger predictor of Real Effective Exchange Rate Volatility (VOLER) than purely speculative capital flows (FLOWS).

However, the region enjoys a source of stability: Remittances (REMITT). Migrant remittances provide a stable and often counter-cyclical foreign exchange flow that cushions the destabilizing pressures of speculative capital and external shocks (World Bank, 2021). This supports hypothesis H2.

RESEARCH METHODOLOGY

Dynamic Panel Econometric Model

We estimate a dynamic panel data model, which includes the lag of the dependent variable to capture the persistence of volatility:

$$VOLER_{i,t} = \beta_0 + \beta_1 VOLER_{i,t-1} + \beta_2 BANKINT_{i,t} + \beta_3 FLOWS_{i,t} + \beta_4 REMITT_{i,t} + \beta_5 X_{i,t} + \mu_i + \epsilon_{i,t}$$

- $VOLER_{i,t}$ is the Real Effective Exchange Rate Volatility for country i at time t (Dependent Variable).
- $VOLER_{i,t-1}$ addresses the dynamics and persistence of volatility.

- $BANKINT_{i,t}$, $FLOWS_{i,t}$, and $REMITT_{i,t}$ are indicators of Financial Globalization (Key Explanatory Variables).
- $X_{i,t}$ is a vector of macroeconomic control variables (e.g., Inflation, GDP Growth, Interest Rate, Dummy Variable for Global Crises).
- μ_i are country Fixed Effects that capture unobserved country-specific heterogeneity.
- $\epsilon_{i,t}$ is the error term.

Definition, Source and Measurement of Variables

The panel includes 7 economies of the Western Balkans and the wider region (including those with high euroization): Albania, North Macedonia, Montenegro, Croatia, Serbia, Bosnia and Herzegovina and Kosovo. These countries share a similar transition history and high dependence on European capital.

Analysis Period: 2005Q1 – 2024Q3, resulting in a balanced panel with $N=7$ and $T=79$ (for a total of $N \times T \approx 550$ observations). This increase in the number of countries and the extension of the time period significantly increases the power of the model.

Table 1: Definition and Explanation of Variables

Variables	Description	Measurement	Source
VOLER	Real Effective Exchange Rate Volatility	Standard Deviation of Quarterly Returns of the Natural Logarithm (ln) of the Real Effective Exchange Rate, calculated using an 8-Quarter Rolling Window.	BIS, ACB, IMF (IFS).
BANKINT	Banking Integration (Structural Risk)	Foreign-Owned Banking Assets Ratio (in % of Total Assets).	IMF (IFS), ACB (Annual Reports).
FLOWS	Capital Mobility	Net Capital Flows (includes FDI, Portfolio Investment, Lending) (in % of GDP).	IMF (BOPS).
REMITT	Counter-cyclical shock absorber	Remittances (emigrants' remittances) (in % of GDP).	IMF (BOPS).
INFL	Inflation Rate	Annual Change in the Consumer Price Index.	IMF (IFS).
GDP Growth	Economic Growth	Quarterly Change in Real GDP.	IMF (WEO).
CRISIS	Variabël Dummy	1 for the periods of the Global Crisis 2008Q4-2010Q2 and the Eurozone Crisis 2011Q3-2012Q4; 0 otherwise.	Authors' Rating.

Explanation of the VOLER Measurement: The choice of an 8-quarter (two-year) window for calculating the standard deviation provides a more stable measure of underlying volatility, smoothing out volatile fluctuations caused by short-term shocks. This choice is standard in the volatility literature to capture structural volatility.

Estimation Strategy and Addressing Endogeneity

Due to the presence of the lagged dependent variable ($VOLER_{i,t-1}$) and the endogeneity concern between the main variables (BANKINT, FLOWS) and the Real Effective Exchange Rate Volatility (VOLER), the System Generalized Method of Moments (System GMM) estimator is used. This approach (Arellano and Bover, 1995; Blundell and Bond, 1998) is more suitable for dynamic panel models.

Endogeneity Treatment:

- Use of Two Equations: System GMM estimates a system with two equations (the equation of levels and the equation of differences) and uses additional lag instruments (Arellano and Bover, 1995; Blundell and Bond, 1998).
- Main Endogeneity: It is assumed that FLOWS (Capital Flows) and the Real Effective Exchange Rate Volatility (VOLER) are mutually endogenous. To be rigorous, Banking Integration (BANKINT) is also treated as endogenous.
- Extended Instrumentation: For $VOLER_{i,t-1}$, FLOWS and BANKINT, lags from t-2 to t-4 are used as instruments. This limitation on lags helps to reduce the number of instruments.
- Exogenous/Pre-determining Variables: REMITT (Remittances) and macroeconomic control variables are assumed to be exogenous/pre-determining. This assumption is supported by the counter-cyclical and stable nature of remittances.
- Instrument Validity Tests: The assessment is based on two key tests: the Hansen Test (which tests the validity of the general instruments, with a p-value above 0.10 indicating validity) and the AR(2) Test (which tests the presence of second-order autocorrelation in the error terms, where a p-value above 0.10 confirms the adequacy of the model).

ANALYSIS AND RESULTS

Descriptive Statistics

Statistical Analysis: The high average of BANKINT (79.2%) highlights the deep level of banking integration and dependence in the Western Balkans region. This level serves as a structural basis for the argument of the study. The high standard deviation of FLOWS (4.90) indicates that capital flows are highly volatile, demonstrating their pro-cyclical nature.

Table 2: Descriptive Statistics of Variables (Panel Data, 2005Q1 – 2024Q3)

Variables	Description	Observations (N)	Average (Mean)	Standard Deviation (Std. Dev.)	Minimum (Min)	Maximum (Max)
VOLER	Real Effective Exchange Rate Volatility	553	0.854	0.421	0.210	2.112
BANKINT	Banking Integration	553	0.792	0.115	0.550	0.950
FLAWS	Net Capital Flows (% of GDP)	553	5.12	4.90	-15.20	28.50
REMITT	Remittances (% of GDP)	553	7.95	4.35	3.10	18.90
INFL	Inflation Rate (y/y)	553	3.51	2.88	-0.50	12.50
CRISIS	Global Financial Crisis Dummy Variable	553	0.080	0.271	0	1

Discussion of Findings and Comparison with Literature

Verification of H1: Dominance of Banking Integration

The VOLER_{t-1} coefficient (0.325 ***) indicates that exchange rate volatility has a high degree of persistence. In the absence of new friends, about 32.5% of the volatility of the previous quarter is transferred to the current quarter.

- **Verification of H1:** The Banking Integration Coefficient (BANKINT) of 0.335 *** (Column 3) is statistically significant and almost twice as high as the Capital Flows coefficient (FLAWS) of 0.170 **. This result confirms hypothesis H1 and is the main contribution of the study.
- **Implication of Significance:** This finding suggests that the risk transferred from foreign banks' foreign exchange balance sheets – i.e. the structural risk of the banking sector – is the strongest and most persistent source of foreign exchange volatility. This transmission mechanism through Banking Integration is the dominant factor, reinforcing the literature on “Fear of Sailing”.
- **Academic Comparison:** This finding is in line with the work of Genchev (2014), who found an increase in volatility after financial liberalization in CEE. However, our study goes further by distinguishing between speculative risk (FLAWS) and structural risk (BANKINT). The finding highlights that Banking Integration turns the shock transmission channel from a market concern

(liquidity) to a systemic problem (balance sheet stability), explaining why Central Banks in the Western Balkans attach importance to preventing large exchange rate movements.

Verification of H2: The Stabilizing Role of Remittances

- **Verification of H2:** The negative coefficient of REMITT (-0.093 **) confirms that remittances provide an important source of foreign exchange liquidity, smoothing out volatility.
- **Interaction Effect:** The negative and significant coefficient of the interaction term (BANKINT x REMITT) (-0.008 **) indicates that the stabilizing effect of remittances is more pronounced in countries with a higher level of Banking Integration. This proves that remittances act as an essential foreign exchange "counterweight" to the structural risk transferred from abroad.

Table 3: Regression Results: Determinants of Exchange Rate Volatility (VOLER)

Explanatory Variables	(1) Fixed Effects (FE)	(2) GMM System (Robust)	(3) GMM System (Limited Robustness)
VOLER _{t-1}	0.215 *** (0.045)	0.301 *** (0.052)	0.325 *** (0.061)
BANKINT	0.291 *** (0.068)	0.322 *** (0.075)	0.335 *** (0.080)
FLAWS	0.184 ** (0.081)	0.165 ** (0.088)	0.170 ** (0.091)
REMITT	-0.076 ** (0.033)	-0.089 ** (0.041)	-0.093 ** (0.045)
BANKINT x REMITT	N/A	N/A	-0.008 ** (0.004)
INFL	0.055 * (0.030)	0.048 (0.035)	0.050 (0.038)
GDP Growth	-0.012 (0.025)	-0.021 (0.031)	-0.025 (0.033)
CRISIS (Dummy)	0.355 *** (0.092)	0.410 *** (0.110)	0.415 *** (0.115)
AR(2) test (p-value)	N/A	0.452	0.481
Hansen test (p-value)	N/A	0.310	0.295
Number of Observations	533	553	553

Notes: Standard errors are in parentheses. **, *, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. GMM tests confirm the validity of the instruments (Hansen p-value > 0.10) and the absence of second-order autocorrelation (AR(2) p-value > 0.10).

THE ALBANIAN CASE: GLOBALIZATION, BANKS AND THE EXCHANGE RATE

To illustrate the empirical findings in a practical context, the case of Albania, a key country in the Western Balkans, characterized by a high level of euroization and banking integration, is considered.

The Albanian banking sector, managed by the Bank of Albania (BQS), is a typical example of deep banking integration (BANKINT) in the Western Balkans. The vast majority of banking assets are controlled by foreign parent banks, mainly based in the Eurozone (such as Italy, Austria, etc.).

The degree of Banking Integration (BANKINT) in Albania has historically been among the highest, often over 80% of banking assets in foreign ownership. This deep integration makes branch banks in Albania act as channels for the transmission of risk management and liquidity policies from parent banks.

Lending in euro remains essential (due to the lack of a deep financial market in lek). This increases domestic exposure to foreign exchange risk, making the Volatility of the Real Effective Exchange Rate (VOLER) a key factor for the stability of banks' balance sheets.

For Albania, remittances are an important source of euro inflows, often reaching over 8% of GDP. The Albanian case serves as a clear example of the negative coefficient of REMITT (-0.093 **).

- **Stability and Counter-Cyclical:** Remittance flows in Albania have proven to be relatively stable and often counter-cyclical. When the global economy (and consequently, speculative FLOWS) contract, remittances often fall less or increase (if migrants send additional savings to their families during crises), ensuring a continuous foreign exchange flow.
- **Damping:** This stable flow cushions the destabilizing pressures of speculative capital and external shocks, injecting liquidity in euros directly into the foreign exchange market and helping the Bank of Albania (BQS) in maintaining stability, especially when the risk of Banking Integration BANKINT is high (as confirmed by the interaction term BANKINT x REMITT). Thus, during major crises, remittance flows in Albania have proven to be more stable than trade flows or direct investment. This stable flow ensured a continuous supply of foreign exchange that helped reduce the depreciation pressure (decrease in VOLER) caused by the flight of speculative capital or the reduction in lending by parent banks.
- **Policy Implication:** The Albanian case demonstrates the validity of the negative coefficient of REMITT (-0.093 **), suggesting that policies that encourage the formalization of emigrant remittances can be an essential tool for macroeconomic stability, by supplementing foreign exchange reserves.

CONCLUSIONS AND POLICY IMPLICATIONS

This study empirically confirmed that financial globalization has exposed the Western Balkans to an increased risk of exchange rate volatility. This risk is driven by Banking Integration and not by transitory capital flows. The findings highlight that:

- 1. Structural Risk Dominates:** Structural risk transferred through the banking channel (BANKINT) is the dominant driver of volatility, leaving behind FLOWS.
- 2. Destabilizing Factors:** BANKINT and FLOWS turned out to be destabilizing factors, amplifying global shocks.
- 3. Stabilizing Role of Remittances:** Migrant remittances were identified as an important stabilizing counterweight, especially in the presence of high BANKINT.

For Central Banks and Governments, maintaining stability requires a broader portfolio of policy tools beyond traditional monetary instruments, including macroprudential ones. These policies should specifically target the risk transferred by Banking Integration.

The use of Targeted Macroprudential Measures (as in the Albanian Case) imposes lower Loan-to-Value (LTV) and Debt Service-to-Income (DTI) ratios for euro-denominated loans. These policies directly reduce the potential for a Foreign Exchange Balance Sheet Shock caused by exchange rate fluctuations, thereby mitigating the “Fear of Sailing”.

The requirement for additional capital or the reserve requirement (the capital conservation buffer) (e.g., higher capital requirements for foreign exchange risk exposure) for banks that are more dependent on funding from parent banks. This measure acts as a protective buffer against Eurozone de-leveraging policies, thereby mitigating the transmission channel of the shock. The active development of domestic financial markets and financial instruments in domestic currency to reduce corporate reliance on euro borrowing, thereby weakening the balance sheet effect and implementing policies to integrate remittance flows into the banking system.

LIMITATIONS AND FUTURE RESEARCH

The primary limitation of this study stems from the impossibility of utilizing daily or monthly data due to the inherent structural nature of Banking Integration (BANKINT), which does not exhibit high-frequency variation.

Future research endeavors should primarily concentrate on two main directions, placing greater emphasis on applied research:

- **Modeling Volatility with Time Series (GARCH/VAR):** Employing sophisticated Time Series models, such as **GARCH** or **VAR**, to estimate exchange rate volatility (using daily or monthly data) and the impact of specific Central Bank interventions.

- **Effectiveness of Macroprudential Policies and Banking Integration:** Conducting a more detailed analysis to empirically assess how Banking Integration influences the effectiveness (or cost-effectiveness) of targeted macroprudential measures (e.g., LTV/DTI ratios) in mitigating exchange rate risk across the Western Balkans.

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