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MACROECONOMIC FUNDAMENTALS, CAPITAL INFLOWS AND EXCHANGE RATE DYNAMICS: AN EMPIRICAL INVESTIGATION OF THE ALBANIAN ECONOMY, 2010–2025

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ABSTRACT

Background. The lek appreciated by 30% against the euro between 2011 and 2025, from 140.41 to 97.94 lek per euro on an annual-average basis, while the Bank of Albania bought a record €933 million of foreign currency in 2024 and €1,027 million in 2025. The appreciation coincided with a near-tripling of foreign-currency inflows from tourism, remittances and foreign direct investment (FDI), but also with a narrowing interest-rate differential with the euro area, a shrinking trade deficit and persistent unrecorded inflows in the balance of payments.

Objective. The paper asks whether the EUR/ALL exchange rate is explained by macroeconomic fundamentals—the trade balance and the policy-rate differential with the euro area—or by capital and income inflows, and it measures the role of informal foreign-currency flows.

Methodology. Annual data for 2010–2025 (n = 16) combine official EUR/ALL averages, World Bank remittance, FDI and tourism series, Bank of Albania travel credits and intervention data, and Bank of Albania and ECB policy rates. Informal flows are proxied by net errors and omissions in the balance of payments. Flows are converted to euro. Four OLS specifications are estimated—fundamentals only, fundamentals plus aggregate inflows, the same with a 2020 pandemic dummy, and first differences—followed by a composition model and robustness checks. Diagnostics include Durbin–Watson, Breusch–Godfrey, Breusch–Pagan, Jarque–Bera, variance-inflation factors and an Engle–Granger residual test.

Results. Foreign-currency inflows dominate. In the preferred model ($R^2 = 0.98$) a 10% rise in combined tourism, remittance and FDI inflows lowers EUR/ALL by 2.9% ($p = 0.001$), which accounts for about 90% of the 2010–2025 appreciation. The trade balance is significant only when inflows are omitted; the policy-rate differential and informal flows are not significant in any specification. In first differences the inflow elasticity is −0.22 ($p = 0.02$). The three inflows are jointly significant ($F = 6.68$, $p = 0.014$) but cannot be separated, because their pairwise correlations exceed 0.92. Unrecorded inflows totalled about €2.1 billion over 2010–2025, positive in 14 of 16 years, and fell from 1.35% of GDP in 2010–2017 to 0.73% in 2018–2025. A counterfactual test shows that, on published estimates, criminal proceeds hidden in recorded inflows explain at most 2–9% of the appreciation; to be the main driver they would have to reach about €4.2 billion in 2025, or 16% of GDP.

Conclusion. The appreciation of the lek is an inflow phenomenon rather than the result of interest-rate carry trade, criminal proceeds or the trade position, although money laundering through real estate is documented and contributes at the margin. Foreign-exchange intervention can slow but not reverse it. Policy should focus on absorbing the stronger lek through tradable-sector productivity, on further de-euroisation, and on better measurement of tourism and remittance flows.

Keywords:
Exchange rate; EUR/ALL; capital inflows; foreign direct investment; remittances; tourism; interest-rate differential; informal flows; foreign-exchange intervention; 249uroized249on
JEL classification: F31; F32; F21; F24; E52; E58

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INTRODUCTION

The lek has been one of the strongest currencies in emerging Europe over the past decade. The euro traded at 137–140 lek between 2010 and 2016; the annual average then fell to 127.49 in 2018, 108.68 in 2023 and 97.94 in 2025, and to about 90.7 lek by November 2026. The Bank of Albania (BoA) responded with the largest foreign-exchange purchases in its history: about €933 million in 2024 and €1,027 million in 2025, equivalent to roughly 3.7–3.8% of GDP in each year. The appreciation continued, although at a slower pace.

Over the same period the external accounts were transformed. Combined inflows from tourism, emigrant remittances and FDI rose from €3.4 billion in 2010 to €9.6 billion in 2025. The deficit on goods and services fell from about 20% of GDP to 5.5%. At the same time, the policy-rate differential with the euro area, the classic driver of carry-trade inflows, narrowed from 4.75 percentage points in 2010 to zero and turned negative in 2023–2024 as the ECB tightened faster than the BoA. A third element is less visible: the balance of payments has recorded positive net errors and omissions in almost every year, a sign of foreign currency entering the economy through channels that official statistics do not capture.

These developments support three competing explanations of the appreciation. The first attributes it to macroeconomic fundamentals—an improving external balance and real convergence—as argued by the BoA and the IMF. The second points to the surge in capital and income inflows, especially tourism and real-estate FDI. The third 250uroized250o informal cash inflows and speculative positioning. The distinction matters for policy: fundamental appreciation should be accommodated, whereas appreciation driven by volatile or informal flows may justify intervention or macroprudential measures.

The central research question is: **what explains the movement of the EUR/ALL exchange rate over 2010–2025—macroeconomic fundamentals or capital and income inflows?** Four subquestions follow: (RQ1) how much of the appreciation is explained by tourism, remittance and FDI inflows; (RQ2) do the trade balance and the interest-rate differential affect the exchange rate as theory predicts; (RQ3) what role do informal foreign-currency flows, central-bank intervention and 250uroized250on play; and (RQ4) what do the results imply for exchange-rate policy in 2026? With 16 annual observations, the results are interpreted as evidence on the direction and relative weight of each channel rather than as precise elasticities.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Exchange-rate theory relates the value of a currency to relative prices, relative monetary conditions and the net supply of foreign currency. The behavioural equilibrium exchange rate (BEER) framework estimates a reduced-form relationship between the exchange rate and medium-term fundamentals such as net foreign assets, the terms of trade and productivity differentials (Clark and MacDonald 1998). In converging economies, faster productivity growth in tradables raises non-tradable prices and appreciates the real exchange rate (Balassa 1964; Samuelson 1964). An improving trade balance raises net foreign-currency supply and appreciates the currency.

The monetary channel works through the interest-rate differential. Under uncovered interest parity, a higher domestic rate attracts portfolio and banking inflows and appreciates the currency in the short run; a narrowing differential should therefore weaken it. In a highly 250uroized economy this channel is weaker, because a large part of deposits and loans is priced off euro rates rather than the domestic policy rate.

The capital-flow literature shows that surges of inflows appreciate the real exchange rate of emerging economies (Calvo, Leiderman and Reinhart 1993). FDI raises demand for non-tradables—especially in construction and real estate—and appreciates the currency through a spending effect, although its supply-side effect may offset this over time (Lartey 2007). Remittances produce a “Dutch disease” effect, raising household demand for non-tradables and appreciating the real exchange rate (Amuedo-Dorantes and Pozo 2004; Lopez, Molina and Bussolo 2007). Tourism receipts act in the same way: they are an export of services paid in foreign currency and spent largely on non-tradables. Informal inflows—cash remittances, unrecorded tourism spending and undeclared property purchases—add to foreign-currency supply without appearing in the recorded accounts and are reflected in net errors and omissions.

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Table 1. Selected Literature on Exchange-Rate Determinants and Capital Inflows

Author/Study	Sample	Main Finding
Calvo, Leiderman & Reinhart (1993)	Latin America, 1990–1991	Capital-inflow surges, driven partly by external factors, appreciate the real exchange rate
Clark & MacDonald (1998)	Methodological, IMF	BEER framework relates the exchange rate to fundamentals including net foreign assets and terms of trade
Amuedo-Dorantes & Pozo (2004)	13 Latin American and Caribbean countries	Workers' remittances appreciate the real exchange rate
Lartey (2007)	Sub-Saharan Africa, panel	FDI inflows appreciate the real exchange rate through a spending effect
Vika & Luçi (2011)	Albania, stock-flow model	Little evidence of significant misalignment of the lek against the euro
Hoda (2012)	Albania, BEER	Real exchange rate linked to a Balassa–Samuelson indicator, terms of trade and net foreign assets
Tanku & Vika (2019)	Albania, structural VAR	Monetary shocks explain about 28% of real exchange-rate fluctuations; recent appreciation driven by real factors
Kozmai (2023)	Albania, 2008 Q1–2022 Q2	Remittances significant; BoA interventions not significant
Karma (2024)	Albania, 2008 Q1–2023 Q3	ARDL: remittances and GDP significant; conventional variables weak; informality suspected
IMF (2025a, 2025b)	Albania, 2009–2024	Appreciation driven largely by fundamentals; speculative flows play a modest role

Three gaps follow, which this article addresses. First, Albanian studies model remittances or tourism separately but not the full set of foreign-currency inflows, including FDI, which has become concentrated in real estate. Second, the interest-rate differential is rarely tested against the inflow channel over a period in which it turned negative. Third, informal flows are often invoked to explain the appreciation (Karma 2024) but have not been measured and tested directly.

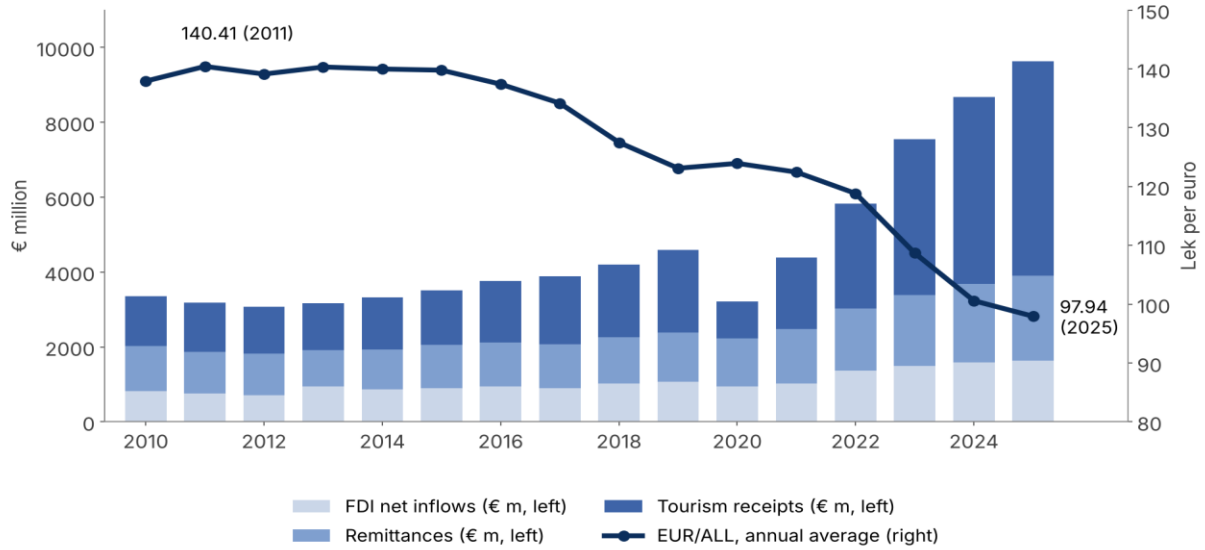
INFLOWS, FUNDAMENTALS AND POLICY, 2010–2025

The sample splits into two phases: near-stability at 137–140 lek per euro in 2010–2016, then sustained appreciation from 2017 that accelerated in 2023 (−8.5%) and 2024 (−7.5%) (Figure 1). Combined foreign-currency inflows were flat at €3.1–3.5 billion in 2010–2015, rose to €4.6 billion in 2019, collapsed to €3.2 billion in 2020 and then grew to €9.6 billion in 2025. Tourism accounts for most of the increase: €1.3 billion in 2010 and €5.7 billion in 2025. Remittances doubled to €2.3 billion and FDI net inflows to €1.6 billion, with real estate the largest destination of FDI (37% of the total, according to the Bank of Albania).

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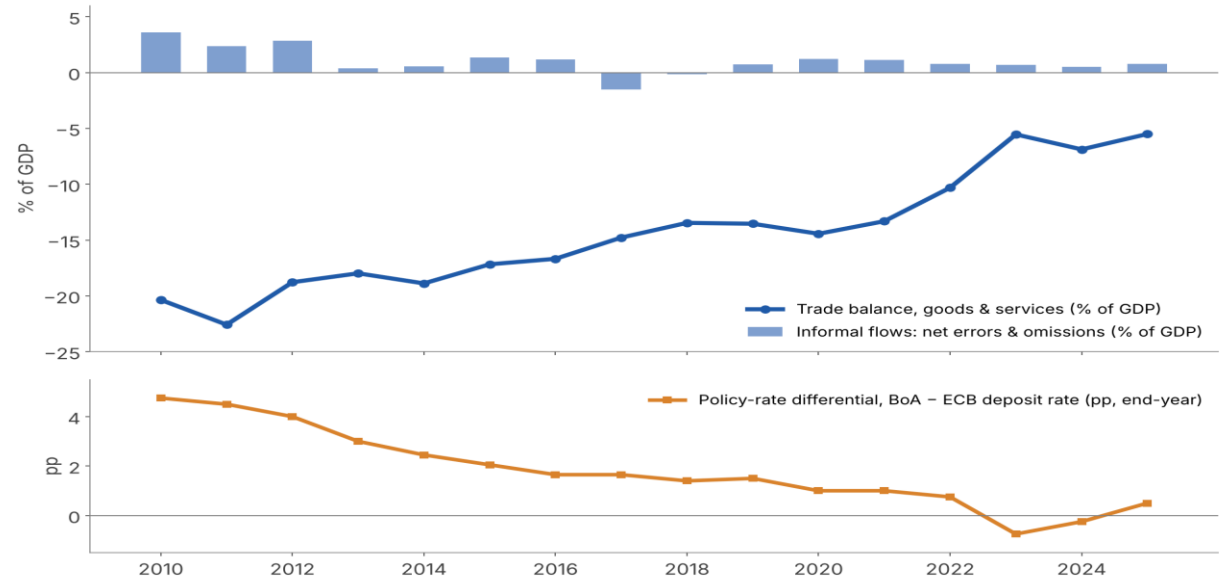
Figure 1. EUR/ALL Exchange Rate and Foreign-Currency Inflows, 2010–2025



Sources: EUR/ALL official annual averages from the authors' exchange-rate dataset; remittances and FDI net inflows from the World Bank (World Development Indicators), converted to euro at annual average USD/EUR rates (FRED, AEXUSEU); tourism receipts from the World Bank for 2010–2019 and Bank of Albania travel credits for 2020–2025.

The fundamentals moved in opposite directions (Figure 2). The trade balance in goods and services improved from −20.4% of GDP in 2010 to −5.5% in 2025, mostly because tourism is recorded as a services export. The policy-rate differential (BoA policy rate minus ECB deposit-facility rate, end-year) fell from 4.75 percentage points in 2010 to 0.75 in 2022 and −0.75 in 2023, before recovering to 0.50 in 2025 after the ECB cut its deposit rate to 2.00%. If carry trade drove the lek, the currency should have weakened as the differential narrowed; it did the opposite.

Figure 2. Trade Balance, Informal Flows and the Policy-Rate Differential, 2010–2025



Sources: trade balance of goods and services (USD, converted to euro) from the authors' trade-balance dataset; net errors and omissions from the World Bank balance-of-payments series; GDP derived from the remittance dataset (remittances ÷ remittances-to-GDP ratio); BoA policy rate from Bank of Albania decisions; ECB deposit-facility rate from the ECB.

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Informal Foreign-Currency Flows

Net errors and omissions are the residual that reconciles the recorded current, capital and financial accounts with the change in reserves. A persistently positive value means more foreign currency entered the economy than recorded transactions explain. Albania recorded positive values in 14 of 16 years; the cumulative total for 2010–2025 is about €2.07 billion, or 2.7% of recorded tourism, remittance and FDI inflows (Table 2). Their weight declined sharply: from an average of 1.35% of GDP in 2010–2017 to 0.73% in 2018–2025, precisely the period in which the lek appreciated. Informal flows are therefore unlikely to explain the appreciation; the econometric results below confirm this.

Table 2. Informal Foreign-Currency Flows (Net Errors and Omissions), 2010–2025

Indicator	2010–2025	2010–2017	2018–2025	2022–2025
Total informal flows (€ million)	2,068	1,001	1,067	641
Average per year (€ million)	129	125	133	160
Average, % of GDP	1.04%	1.35%	0.73%	0.70%
% of recorded inflows (tourism + remittances + FDI)	2.7%	3.7%	2.2%	2.0%
Years with net unrecorded inflow	14 of 16	7 of 8	7 of 8	4 of 4
Change in EUR/ALL over the period	−29.0%	−2.7%	−23.2%	−17.6%

Note: net errors and omissions also contain statistical errors and timing differences, and part of informal remittances and tourism is already estimated inside the current account by the Bank of Albania; the series is therefore a lower-bound indicator of unrecorded inflows. Change in EUR/ALL is measured between the annual averages of the first and last year of each period.

CENTRAL-BANK INTERVENTION AND EUROIZATION

BoA foreign-exchange purchases were modest until 2023—€91 million in 2021 and about €267 million in 2023—and then rose to €933 million in 2024, of which €649 million were direct purchases to slow the appreciation, and €1,027 million in 2025. The lek still appreciated by 7.5% in 2024 and 2.6% in 2025. Financial euroization has declined but remains high: foreign-currency loans fell from about 69% of total loans in 2011 to 44.2% at end-2025, while foreign-currency deposits rose from about 50% in 2011–2013 to 56.8% in 2022 before falling to 52.1% in 2024. A high deposit share means that a large part of inflows is held in euro rather than converted, which weakens the transmission of the policy rate but also limits the immediate pressure of inflows on the lek.

Research Methodology

The analysis uses annual data for 2010–2025, giving 16 observations. The dependent variable is the annual average EUR/ALL rate, so a fall means a stronger lek. All flows are converted to euro at annual average USD/EUR rates, so that movements of the dollar do not distort them. Ratios to GDP are computed from series in the same currency, so the conversion cancels out (Table 3).

Table 3. Variables, Definitions and Sources

Variable	Definition	Expected Sign	Source
EUR/ALL	Annual average official rate, lek per euro; entered as ln	Dependent	Authors' exchange-rate dataset (Bank of Albania official rates)
Inflows (INF)	Tourism receipts + remittances + FDI net inflows, € million; ln	− (appreciation)	World Bank; Bank of Albania; FRED (USD/EUR)
Trade balance (TB)	Balance of goods and services, % of GDP (negative = deficit)	− (appreciation when it improves)	Authors' trade-balance dataset; World Bank
Interest-rate differential (IRD)	BoA policy rate minus ECB deposit-facility rate, end-year, percentage points	− (appreciation)	Bank of Albania; ECB

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Variable	Definition	Expected Sign	Source
Informal flows (NEO)	Net errors and omissions, % of GDP	− (appreciation)	World Bank balance-of-payments data
COVID-19 dummy (D2020)	1 in 2020, 0 otherwise	−	Constructed
Composition (Model 5)	ln of tourism, remittances and FDI entered separately	−	As above

DATA TREATMENT

Tourism receipts for 2010–2019 are the World Bank series, which includes passenger transport; from 2020 the Bank of Albania travel-credit series is used. The two series differ in level (by about 10% in 2020), so tourism values before 2020 are somewhat higher than the travel credits used in some other studies. The remittance series is the World Bank's personal remittances received, which also includes compensation of seasonal workers and therefore exceeds the BoA's emigrant-remittance series (€1,045 million in 2024). FDI for 2021 is derived from the reported 2022 growth rate, and tourism for 2023 from the reported 2024 growth rate. BoA intervention data are available only from 2021 and are therefore used descriptively rather than in estimation. GDP is derived from the remittance dataset as remittances divided by their ratio to GDP; using the ratio of two series in the same currency avoids placing the exchange rate on both sides of the equation.

Econometric Specification

The fundamentals-only model (Model 1) is estimated by ordinary least squares in log-levels:

$$ln(EUR/ALL)t = \beta 0 + \beta 1 \cdot IRDt + \beta 2 \cdot TBt + \beta 3 \cdot NEOt + \varepsilon t$$

Model 2 adds the log of combined inflows, so that its coefficient γ is the elasticity of the exchange rate with respect to foreign-currency inflows:

$$ln(EUR/ALL)t = \beta 0 + \gamma \cdot ln(INF)t + \beta 1 \cdot IRDt + \beta 2 \cdot TBt + \beta 3 \cdot NEOt + \varepsilon t$$

Model 3 adds a dummy for 2020, when tourism collapsed while the exchange rate barely moved. Because trending series can produce spurious correlation, Model 4 re-estimates Model 3 in first differences. Model 5 replaces aggregate inflows with tourism, remittances and FDI entered separately. Standard errors are conventional; heteroskedasticity-robust (HC1) p-values are reported where they differ materially. Collinearity is assessed with variance-inflation factors (VIF), and cointegration with the Engle–Granger test on the levels residuals.

FINDINGS: FUNDAMENTALS VERSUS CAPITAL INFLOWS

Fundamentals Alone

Without inflows, the trade balance appears to explain the exchange rate. A one-point improvement in the trade balance relative to GDP is associated with a 2.8% fall in EUR/ALL ($p < 0.001$), and the model explains 92% of the variation (Table 4). The interest-rate differential and informal flows are not significant. The trade-balance result, however, partly reflects inflows: tourism is recorded as a services export, so the improvement in the trade balance after 2017 is largely the tourism boom itself.

Table 4. Model 1: Fundamentals Only, ln(EUR/ALL), Levels, 2010–2025

Variable	Coefficient	Std. Error	p-value
Interest-rate differential (pp)	−0.018	0.017	0.315
Trade balance (% of GDP)	−0.028	0.005	< 0.001
Informal flows, NEO (% of GDP)	−0.015	0.011	0.207
Constant	4.478	0.046	< 0.001
R^2 / adjusted R^2	0.924 / 0.905	F = 48.7	n = 16

Note: OLS; dependent variable is the natural log of the annual average EUR/ALL rate. Durbin–Watson = 2.14. The informal-flows coefficient is borderline with heteroskedasticity-robust standard errors (p = 0.050).

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ADDING CAPITAL AND INCOME INFLOWS

Once inflows enter the model, the trade balance loses significance and inflows take over (Table 5). In Model 2, inflows have the expected negative sign (−0.15, p = 0.09). The weak significance reflects 2020, when inflows fell by 30% but the exchange rate was almost unchanged; after isolating that year (Model 3), the inflow elasticity doubles to −0.29 (p = 0.001), the adjusted R^2 rises to 0.97, and the trade balance, the interest-rate differential and informal flows are all insignificant.

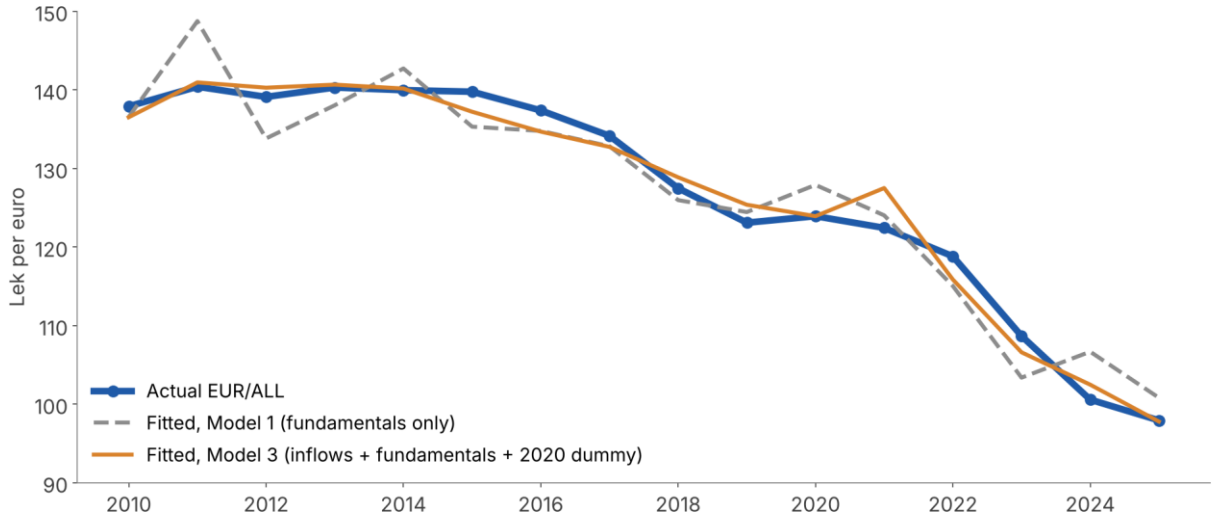
Table 5. Models 2 and 3: Fundamentals and Inflows, ln(EUR/ALL), Levels, 2010–2025

Variable	Model 2 coeff.	Model 2 p-value	Model 3 coeff.	Model 3 p-value
ln(Inflows, € m)	−0.146	0.090	−0.295	0.001
Interest-rate differential (pp)	−0.002	0.901	−0.012	0.343
Trade balance (% of GDP)	−0.014	0.150	−0.005	0.413
Informal flows, NEO (% of GDP)	−0.013	0.214	−0.001	0.839
COVID-19 dummy (2020)	–	–	−0.126	0.002
Constant	5.882	< 0.001	7.266	< 0.001
R^2 / adjusted R^2	0.942 / 0.921	F = 44.9	0.979 / 0.969	F = 93.9

Note: OLS, n = 16. Standard errors for Model 3: inflows 0.061; differential 0.012; trade balance 0.006; NEO 0.007; dummy 0.030. Durbin–Watson = 1.57 (Model 2) and 2.10 (Model 3). The inflow coefficient in Model 3 remains significant with heteroskedasticity-robust standard errors (p < 0.001). The dummy means that in 2020 the rate was about 12% below what the fall in inflows alone would imply.

The size of the effect is economically large. Inflows rose by 1.05 log points between 2010 and 2025 (from €3.36 billion to €9.63 billion). Multiplied by the Model 3 elasticity, this implies a 0.31 log-point fall in EUR/ALL, compared with an actual fall of 0.34 log points. Inflows alone thus account for about 90% of the appreciation over the sample. Figure 3 shows that Model 3 tracks the actual rate closely, whereas the fundamentals-only model misses the 2011–2013 plateau and over-predicts a weaker lek in 2020 and 2024.

Figure 3. Actual and Fitted EUR/ALL Exchange Rate, 2010–2025



Source: authors' estimates. Fitted values are exponentials of the fitted log exchange rate.

Short-Run Effects: First Differences

In first differences, which remove common trends, the inflow effect holds: a one-percentage-point rise in the growth of inflows lowers EUR/ALL by 0.22% in the same year (p = 0.022; p = 0.081 with robust errors). None of the fundamentals is significant (Table 6). The constant, −0.9% a year, is not significant, which suggests that once inflows are accounted for there is little residual trend appreciation to attribute to other factors.

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Table 6. Model 4: First Differences, 2011–2025

Variable	Coefficient	Std. Error	p-value
Δ ln(Inflows)	−0.216	0.078	0.022
Δ Interest-rate differential (pp)	−0.006	0.014	0.682
Δ Trade balance (% of GDP)	−0.001	0.005	0.812
Δ Informal flows, NEO (% of GDP)	−0.004	0.006	0.534
Δ COVID-19 dummy	−0.064	0.030	0.063
Constant (trend)	−0.009	0.009	0.321
R^2 / adjusted R^2	0.579 / 0.345	F = 2.48	n = 15

Note: OLS; dependent variable is Δ ln(EUR/ALL). Durbin–Watson = 1.87. The overall F-test is not significant at 10% (p = 0.11), reflecting the small sample; the inflow coefficient is the only individually significant regressor.

Which Inflow Matters? The Composition Model

Entered separately, tourism, remittances and FDI all have negative coefficients but none is individually significant (Table 7). They are, however, jointly significant (F = 6.68, p = 0.014). The reason is collinearity: the three series move together, with pairwise correlations of 0.92–0.93 and VIFs of 18–78. With annual data their separate effects cannot be identified, and policy conclusions should refer to foreign-currency inflows as a whole. The point estimates are largest for remittances (−0.18) and tourism (−0.12) and smallest for FDI (−0.02).

Table 7. Model 5: Composition of Inflows, ln(EUR/ALL), Levels, 2010–2025

Variable	Coefficient	Std. Error	p-value
ln(FDI net inflows, € m)	−0.019	0.100	0.856
ln(Remittances, € m)	−0.179	0.167	0.315
ln(Tourism receipts, € m)	−0.116	0.100	0.282
Interest-rate differential (pp)	−0.014	0.014	0.342
Trade balance (% of GDP)	−0.006	0.007	0.396
Informal flows, NEO (% of GDP)	+0.003	0.011	0.801
COVID-19 dummy (2020)	−0.126	0.063	0.081
Constant	7.080	0.902	< 0.001
R^2 / adjusted R^2	0.980 / 0.963	F = 56.3	n = 16
Joint test: FDI = remittances = tourism = 0	F = 6.68		0.014

Note: OLS. With eight parameters and 16 observations the model has eight degrees of freedom; it is reported to show that the inflows are jointly, not individually, identified.

DIAGNOSTICS AND ROBUSTNESS

The residual diagnostics support Model 3 (Table 8). None of the four main models shows serial correlation, heteroskedasticity or non-normal residuals at the 5% level. Model 2's lower Durbin–Watson statistic and borderline Breusch–Pagan result disappear once 2020 is isolated. None of the levels models passes the Engle–Granger test at conventional critical values, so a long-run equilibrium relationship cannot be confirmed with 16 observations; the first-difference results, which do not depend on cointegration, confirm the inflow effect. The high VIF of the trade balance in Models 2 and 3 (28–32) reflects its overlap with tourism and explains why its coefficient becomes insignificant once inflows are included.

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Table 8. Diagnostic Tests

Test	Model 1 (fundamentals)	Model 2 (+ inflows)	Model 3 (+ 2020 dummy)	Model 4 (differences)
Durbin–Watson	2.14	1.57	2.10	1.87
Breusch–Godfrey LM(1), p-value	0.648	0.368	0.788	0.724
Breusch–Pagan, p-value	0.448	0.069	0.185	0.068
Jarque–Bera, p-value	0.649	0.804	0.660	0.993
Engle–Granger t on residuals	−4.06	−3.00	−4.02	–
Highest VIF	8.4 (IRD)	28.3 (TB)	32.1 (TB)	3.5 (Δ inflows)

Note: Engle–Granger 5% critical values for four to six regressors and n = 16 are about −4.9 to −5.2.

Four robustness checks confirm that inflows dominate:

- **Inflows alone:** elasticity −0.30 ($p < 0.001$), R^2 0.91—almost as high as the full model, although the residuals are non-normal without the 2020 dummy.
- **Without informal flows:** inflow elasticity −0.30 ($p < 0.001$), R^2 0.98; the result does not depend on the NEO proxy.
- **Excluding the two earliest years (2012–2025, n = 14):** inflow elasticity −0.30 ($p = 0.011$), dummy −0.13 ($p = 0.009$).
- **Excluding 2020 instead of using a dummy:** the estimates are identical to Model 3 by construction, confirming that the dummy simply removes the pandemic observation.

In every specification that contains inflows, their coefficient is negative and of similar size (−0.22 to −0.30), and in none is the interest-rate differential or informal flows significant.

DEEPENING THE ANALYSIS: DO CRIMINAL PROCEEDS DRIVE THE LEK?

A widely held view in the Albanian public debate is that the appreciation is driven by the proceeds of crime, above all drug trafficking, laundered through construction and real estate. Former deputy finance minister Irena Beqiraj, for example, estimates that 25–40% of the appreciation cannot be explained by tourism, investment and remittances (Tirana Times 2026). The evidence that laundering takes place is strong. The US State Department reports that most money laundering in Albania is related to drug and human trafficking and that criminals launder proceeds through real estate purchases and construction projects; a MONEYVAL assessment attributes 42% of money-laundering cases to drug trafficking; and the 2025 report of the Albanian Financial Intelligence Agency identifies real estate as the main laundering mechanism (US Department of State 2025; GI-TOC 2024; AFIU 2025). The question for this paper is therefore not whether criminal money enters the economy, but whether it is large enough, relative to €9.6 billion of recorded inflows, to be the main driver of the exchange rate.

Three Channels and Where They Appear in the Data

Criminal proceeds can affect the lek through three channels, each of which leaves a different statistical footprint:

- **Unrecorded conversion.** Cash euros brought into the country and sold for lek end up on the balance sheets of banks or the Bank of Albania. Because no recorded transaction matches them, they appear in net errors and omissions. This is the channel measured in Table 2 and Table 9; it is small and has declined since 2017.
- **Disguised recorded flows.** Laundered money may be declared as remittances, counted in tourism receipts (which the Bank of Albania estimates partly from surveys and exchange-bureau data) or booked as FDI in real estate. In that case it is inside the inflow variable of the regressions and cannot be separated statistically.
- **Euro hoarding.** Proceeds held as euro cash or euro deposits, rather than converted, raise euroisation but do not create demand for lek and therefore do not appreciate the currency.

Only the first two channels can appreciate the lek. The first is measured directly and is not significant. The second is tested below with a counterfactual calculation.

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Published Estimates of Illicit Inflows

Table 10. Published Estimates of Illicit Financial Inflows into Albania

Source	Period	Estimate	Approx. annual amount
GI-TOC, citing Petrova (2023)	2020–2022	Illicit inflows 0.84% of GDP; illicit outflows 2.16% of GDP (net outflow)	€150–200 million
GI-TOC report on Albania, Kosovo and North Macedonia	2017–2019	€1.6 billion laundered through real estate and construction	≈ €530 million
Money-laundering expert cited by GI-TOC	2019	≈ €500 million laundered through real estate	≈ €500 million
Kotorri (2025), FES	2015–2024	Permitted construction worth €16.24 bn; identified bank and FDI financing €7.11 bn; unexplained gap ≥ €9.13 bn (also includes remittances, savings and land)	≤ €913 million (upper bound)
This paper: net errors and omissions	2010–2025	Unrecorded net inflows €2.07 bn in total	€129 million (average)

Sources: GI-TOC (2024); Invest in Albania (2020), reporting the GI-TOC regional study; Kotorri (2025); authors' calculations. Estimates of the informal economy as a whole (30–35% of GDP) are not included, because they measure domestic unreported activity rather than cross-border inflows of foreign currency.

The published estimates cluster between €0.15 and €0.9 billion a year, or roughly 0.6–3.4% of GDP. Larger figures that circulate in the media do not survive a basic consistency check: the claim that €12 billion of drug money was exchanged in 2023 alone exceeds the IMF's estimate of the entire annual turnover of Albania's foreign-exchange market, about USD 11 billion (IMF 2025a).

A COUNTERFACTUAL TEST

Suppose that a part X of recorded inflows is in fact laundered criminal money. Using the elasticity of Model 3 ($\gamma = 0.295$), the share of the 2010–2025 appreciation attributable to the growth of that illicit component is:

$$Share = \gamma \cdot [\Delta \ln INF - \Delta \ln(INF - X)] \div |\Delta \ln(EUR/ALL)|$$

where Δ denotes the change between 2010 and 2025 and $|\Delta \ln(EUR/ALL)| = 0.342$. Only illicit money that grows faster than legitimate inflows raises the share; a constant proportion of criminal money in every inflow leaves it at zero. Table 11 reports the results.

Table 11. Contribution of Hypothetical Illicit Inflows to the Appreciation, 2010–2025

Scenario (illicit inflows hidden in recorded flows)	2025 amount (€ m)	% of 2025 GDP	% of recorded inflows	Share of appreciation
Constant 10% of all inflows in every year	963	3.6%	10.0%	0%
GI-TOC estimate (0.84% of GDP), from zero in 2010	227	0.8%	2.4%	2.1%
Real-estate laundering €600 m, from zero in 2010	600	2.2%	6.2%	5.5%
Construction financing gap €913 m, from zero in 2010	913	3.4%	9.5%	8.6%
Construction financing gap €913 m, from €300 m in 2010	913	3.4%	9.5%	0.5%
Extreme: €2,000 m, from zero in 2010	2,000	7.4%	20.8%	20.1%
Required for 25% of the appreciation	2,425	9.0%	25.2%	25%

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Scenario (illicit inflows hidden in recorded flows)	2025 amount (€ m)	% of 2025 GDP	% of recorded inflows	Share of appreciation
Required for 50% (main driver)	4,239	15.7%	44.0%	50%

Note: authors' calculations with the Model 3 inflow elasticity; recorded inflows were €3,359 million in 2010 and €9,627 million in 2025; GDP in 2025 is €27.0 billion. Scenarios assume that the illicit amount was recorded as tourism, remittances or FDI and that the rest of the inflows were legitimate.

On every published estimate, criminal money hidden in recorded inflows explains between 0% and 9% of the appreciation. For it to be the main driver, illicit inflows would have had to grow from close to zero in 2010 to about €4.2 billion in 2025—15.7% of GDP and 44% of all recorded tourism, remittance and FDI inflows. That is 4.6 times the upper-bound construction financing gap and about 19 times the GI-TOC estimate. Even a 25% share would require €2.4 billion a year, or 9% of GDP.

CASH AND TIMING

Two further indicators point the same way. First, lek cash outside banks is high by European standards—24.3% of M3 in July 2025 against 9.3% in the euro area—and grew by 15% in the year to November 2025. Relative to GDP, however, it rose only from about 15.6% in 2014 (217.6 billion lek) to 17.6% in 2025 (about 467 billion lek), far less than would be expected if large volumes of foreign cash were being converted into lek. Second, the timing does not fit: the strongest appreciation, in 2023 and 2024, coincided with the tourism boom and with the lowest values of unrecorded inflows in the sample (0.70% and 0.53% of GDP), not with a surge in unexplained money.

Assessment

Criminal proceeds are a documented and serious feature of the Albanian economy, concentrated in construction and real estate, and they have plausibly contributed to the rise in property prices and, at the margin, to the appreciation—most likely in 2016–2019, when the construction boom began. The data do not, however, support the hypothesis that they are the main driver of the exchange rate. On published estimates they account for a small share of the appreciation (about 2–9%, and up to 20% under an extreme assumption), while recorded tourism, remittance and FDI inflows explain most of it. One caveat cannot be removed with the available data: if laundered money were systematically recorded as tourism receipts or remittances on a scale several times larger than any published estimate, it would be indistinguishable from legitimate inflows in this analysis. Testing that possibility requires data that are not public: Bank of Albania exchange-bureau turnover by counterparty, cash declarations at borders, and notarial real-estate transactions by method of payment.

Discussion and Outlook, 2026

The results support the view that the appreciation of the lek is an inflow phenomenon. Recorded foreign-currency inflows nearly tripled between 2010 and 2025, and in a shallow, highly euroised foreign-exchange market this supply of euro has outweighed every other factor. The finding is consistent with the IMF's conclusion that the appreciation is driven largely by fundamentals with only a modest role for speculative flows, provided that tourism and FDI are read as fundamentals—that is, as the result of Albania's structural shift towards services exports and foreign investment.

Three alternative explanations find little support. First, the carry trade: the interest-rate differential narrowed and even turned negative while the lek appreciated, and its coefficient is never significant. Second, informal and criminal money: unrecorded inflows are positive and non-trivial, about €2.1 billion over sixteen years, but their weight in GDP halved after 2017 and they are not significant in any model; and the counterfactual test shows that laundered money hidden in recorded inflows would have to be about five times the largest published estimate to be the main driver. Third, the trade position: the improving trade balance matters only because it embodies the tourism boom; once inflows are measured directly, it adds no explanatory power.

Intervention has slowed but not stopped the appreciation. Purchases of about €1.96 billion in 2024–2025, close to 4% of GDP a year, absorbed a large share of the increase in inflows, yet the lek appreciated by 7.5% in 2024 and 2.6% in 2025. The results imply that intervention on this scale can smooth the path of the exchange rate but cannot change its direction while inflows keep rising.

For 2026 the drivers point to continued strength. Remittances reached €621 million in the first half of 2026, and the euro had fallen to about 90.7 lek by November 2026, 7.4% below the 2025 average. The model implies that the lek will weaken only if inflows slow—through a weaker tourist season, lower emigrant transfers or a fall in real-estate FDI. Because all three inflows move together, a common shock such as a European recession would affect them simultaneously, which is the main downside risk for the exchange rate.

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CONCLUSIONS AND LIMITATIONS

Responses to the Research Questions

RQ1: Capital and income inflows explain most of the appreciation. A 10% rise in combined tourism, remittance and FDI inflows lowers EUR/ALL by about 2.9% in the preferred model, which accounts for about 90% of the appreciation between 2010 and 2025. The inflows are jointly significant but cannot be separated with annual data.

RQ2: The trade balance is significant only when inflows are omitted, because its improvement reflects tourism exports. The interest-rate differential is not significant in any specification, and its movement—narrowing while the lek strengthened—contradicts a carry-trade explanation.

RQ3: Informal flows are persistent (about €2.1 billion in 2010–2025) but declining relative to GDP and do not explain the exchange rate. Criminal proceeds laundered through real estate are documented, but on published estimates they explain at most 2–9% of the appreciation; to be the main driver they would need to be about five times the largest published estimate. BoA intervention of about €1 billion a year in 2024–2025 slowed the appreciation without reversing it. High deposit euroization limits the conversion of inflows into lek and weakens monetary transmission.

RQ4: Because the appreciation is driven by structural inflows, policy should focus on adjusting to a stronger lek rather than resisting it.

INFORMAL FOREIGN-CURRENCY FLOWS, 2010–2025

Informal foreign-currency flows are measured as net errors and omissions (NEO) in the balance of payments—the foreign currency that entered or left the economy without being captured by any recorded current, capital or financial transaction. The annual series, reported by the World Bank in US dollars, is converted to euro and scaled by GDP and by recorded inflows:

$$IFFt = NEOt\ (USD) \div (USD/EUR)t$$

$$IFF/GDPt = IFFt \div GDPt\ ;\quad IFF\ sharet = IFFt \div (TOURt + REMt + FDIt)$$

where TOUR, REM and FDI are recorded tourism receipts, remittances and FDI net inflows in € million. A positive value is a net unrecorded inflow. Table 9 reports the results for each year.

Table 9. Estimated Informal Foreign-Currency Flows, 2010–2025

Year	Informal flows (€ m)	% of GDP	% of recorded inflows	Cumulative since 2010 (€ m)	EUR/ALL change
2010	328	3.60%	9.8%	328	4.2%
2011	219	2.35%	6.9%	547	1.8%
2012	270	2.84%	8.8%	817	−0.9%
2013	37	0.39%	1.2%	854	0.9%
2014	55	0.55%	1.6%	909	−0.2%
2015	142	1.38%	4.1%	1,052	−0.1%
2016	129	1.19%	3.4%	1,181	−1.7%
2017	−179	−1.53%	−4.6%	1,001	−2.4%
2018	−18	−0.14%	−0.4%	984	−5.0%
2019	103	0.74%	2.2%	1,086	−3.4%
2020	165	1.24%	5.1%	1,251	0.7%
2021	176	1.15%	4.0%	1,427	−1.2%
2022	142	0.78%	2.4%	1,569	−3.0%
2023	153	0.70%	2.0%	1,722	−8.5%
2024	133	0.53%	1.5%	1,854	−7.5%
2025	214	0.79%	2.2%	2,068	−2.6%

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Year	Informal flows (€ m)	% of GDP	% of recorded inflows	Cumulative since 2010 (€ m)	EUR/ALL change
2010–2025	2,068	1.04% (avg.)	2.7%	2,068	−29.0%

Sources: authors' calculations from World Bank balance-of-payments data (net errors and omissions), FRED (USD/EUR) and the datasets described in Table 3. Negative EUR/ALL changes indicate an appreciation of the lek. Net errors and omissions also contain statistical errors and timing differences, and the Bank of Albania already estimates part of informal remittances and tourism inside the current account, so the series is a lower bound of informal inflows.

Five conclusions follow from the estimates:

- **Size.** Unrecorded net inflows totalled about €2.07 billion over 2010–2025, an average of €129 million a year or 1.04% of GDP.
- **Persistence.** The flows were positive in 14 of 16 years; the only net outflows were in 2017 (−€179 million) and 2018 (−€18 million).
- **Declining weight.** Informal flows were largest at the start of the period—€328 million, or 3.6% of GDP, in 2010, and 2.9% of GDP on average in 2010–2012. After 2018 they stabilised at €100–215 million a year (0.5–1.2% of GDP), while recorded inflows more than doubled. Their share of recorded inflows fell from 9.8% in 2010 to about 2% in 2022–2025.
- **No link with the appreciation.** In 2023 and 2024, the years of strongest appreciation (−8.5% and −7.5%), informal flows were 0.70% and 0.53% of GDP, among the lowest values in the sample. In the regressions their coefficient is insignificant in every specification.
- **Criminal proceeds.** Published estimates of illicit inflows (€0.15–0.9 billion a year) are of the same order as, or somewhat larger than, the unrecorded flows in Table 9. Even at the upper end they explain less than a tenth of the appreciation (Table 11); for criminal money to be the main driver, it would have to reach about €4.2 billion a year, or 44% of recorded inflows.
- **Policy relevance.** Informal inflows remain a persistent, secondary source of foreign-currency supply, equivalent to 14% of BoA foreign-exchange purchases in 2024 and 21% in 2025. Formalising real-estate payments and cash remittances would improve the measurement of the balance of payments, but would not by itself change the exchange-rate trend.

POLICY RECOMMENDATIONS

For the Bank of Albania

- **Limit intervention to smoothing** excessive short-term volatility and reserve accumulation; the results indicate that purchases cannot offset an inflow-driven appreciation, and they create sterilisation costs.
- **Rely on the policy rate for price stability,** since the interest-rate differential has little effect on the exchange rate and the inflation target remains the primary objective.
- **Continue de-euroisation measures,** so that more inflows are converted and held in lek, strengthening monetary transmission.
- **Publish a consistent quarterly series** of tourism receipts, remittances and FDI by sector, together with an analysis of net errors and omissions, with any methodological revisions back-cast.

For the Government

- Support exporters through productivity measures—energy costs, logistics, skills—rather than exchange-rate targets.
- Reduce dependence on correlated inflows by diversifying tourism markets and seasons and by promoting goods exports and non-real-estate FDI.
- Strengthen the formalisation of real-estate transactions and cash payments, which would improve the measurement of inflows and reduce unrecorded flows.

LIMITATIONS

- With 16 annual observations the models have 8–11 degrees of freedom; elasticities are imprecise, and cointegration cannot be confirmed.
- Tourism, remittances and FDI are highly collinear, so their individual effects cannot be identified.
- The tourism series combines World Bank data (2010–2019) and Bank of Albania travel credits (2020–2025); FDI for 2021 and tourism for 2023 are derived from reported growth rates.

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- Laundered money recorded as tourism, remittances or FDI cannot be identified directly; the counterfactual test bounds its effect using published estimates, which are themselves uncertain.
- Net errors and omissions are an imperfect proxy for informal flows; BoA intervention could not be included in estimation because data before 2021 were not available.

DIRECTIONS FOR FURTHER RESEARCH

- Re-estimation with quarterly data (2008 Q1–2026 Q3) using an ARDL bounds-testing model to separate long-run and short-run effects and to include BoA intervention as a regressor.
- A direct test of illicit inflows using Bank of Albania exchange-bureau turnover, border cash declarations and notarial real-estate transactions by method of payment, which would allow laundered money to be separated from legitimate tourism and remittance receipts.
- A sectoral breakdown of FDI, distinguishing real estate from productive investment, and direct measurement of informal inflows through household and tourism-expenditure surveys.

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