Currency Fluctuations and Trade Balance: Assessing EUR-ALL Exchange Rate Effects in Albania

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Abstract: - This study aims to analyze the relationship between changes in the EUR/ALL exchange rate and the trade balance in Albania, as the main trade partner of Albania is the European Union (using the euro as its currency). In this study, we have analyzed the data for a period of 25 months, June 2021 - August 2023, as this period had a significant change in the exchange rate. For our study, we have used different tests, such as regression, the ADF test, and the Durbin-Watson test. The results demonstrate that changes in the EUR/ALL exchange rate have a strong effect on the trade balance in Albania. A weaker euro (EUR) and a stronger Albanian lek (ALL) cause a 30% drop in the trade balance. These results show how important it is to analyze the EUR/ALL exchange rate and understand the reason for these changes. Those findings can be used by policymakers to avoid unexpected exchange rate changes and reduce effects on the Albanian trade balance.

Key Words: - Exchange Rate, Trade Balance, Albania, ALL, EURO, Currency.

1 Introduction

Albania is a small country in Europe and has been a member of the World Trade Organization since 2000. Albania's economy mostly depends on international trade, especially with the European Union, because of its open trade policies. For example, only in 2022, according to [1], exports were 37.5% of GDP, while imports were 47.8% of GDP. The euro currency (EUR) is the main currency for transactions.

As we see, Albania's trade balance is highly influenced by changes in the EUR/ALL exchange rate. Even with economic progress, the country still faces a trade deficit, with imports always higher than exports. It's important to understand how changes in the exchange rate affect trade. Economic theories say that currency value affects trade: a weaker currency makes imports more expensive but helps exports, while a stronger currency does the opposite. These effects are clear in competitive markets with few irregularities, so exchange rates are very important for Albania's trade policies. This article analyses how changes in the EUR/ALL exchange rate impact Albania's trade balance.

In 2022, the Albanian lek (ALL) gained value during the second and third quarters of the year, leading to negative economic effects. The main drivers of this appreciation include increased tourism, foreign investment, and remittances. The article begins by exploring studies on the connection between exchange rates and trade balance. Then, it details the methods used to analyze Albania's case. Lastly, it concludes with a discussion and conclusions.

2 Literature Review

International trade theory suggests that the depreciation of the exchange rate does not immediately impact the trade balance in the short run. This delay occurs because "products in transit do not react to changes in exchange rates, as they are already priced based on prior exchange rates", [2]. This is commonly known as the effect J-curve, named for the characteristic J-shaped pattern of the trade balance over time. This theory suggests that currency depreciation first has a negative effect on the trade balance but then improves it in the long run, as noted by [3] and illustrated in Figure 1.
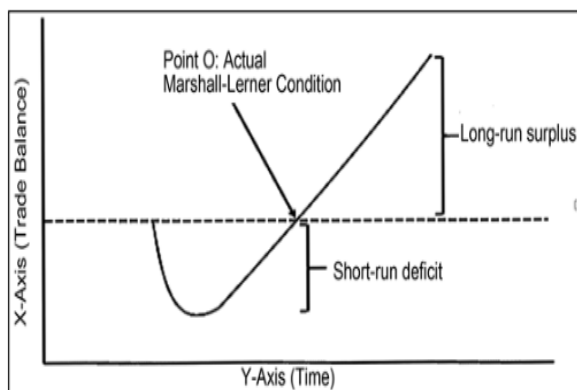
Fig. 1: J-curve Pattern
Source: [3]

Numerous studies have investigated the validity of the J-curve effect using traditional approaches. Additionally, various researchers have explored the broader impact of currency depreciation on international trade balances. Understanding these underlying dynamics can provide valuable insights into the Euro-ALL exchange rate's influence on Albania's trade balance. While extensive research has analyzed the relationship between exchange rates and trade balances in both Albania and other countries, findings remain inconsistent.

[4] employed a co-integration approach and error-correction model to analyze quarterly data from 1990 to 2005. Their results confirmed the presence of J-curve effects in Russia, Croatia, and Bulgaria [4]. Another research indicates that trade in smaller, open economies is more vulnerable to exchange rate fluctuations than in larger economies, [5]. [6] studied the exchange rate depreciation impact on Albania's trade balance using from 1998 to 2012 data. [6] used a specific economic model to study trade and found that income has a big impact on trade. The author also found that when the exchange rate drops, exports increase, and the trade deficit gets smaller.

Contrasting findings were presented by [7] who concluded that real exchange rate fluctuations have an insignificant impact on Albania's economy. Meanwhile, [8] analyzed the relationship between foreign debt and the exchange rate in Romania, finding that RON/EUR exchange rate fluctuations could not be reliably predicted based on the evolution of public and private external debt. Research from other authors, [9], [10], [11], [12], [13], [14] and [15] has also confirmed the J-curve effect. However, alternative studies, including, [16], [17] and [18], reported little to no evidence of the phenomenon.

This study aims to elucidate the relationship between the Euro-ALL exchange rate and Albania's international trade balance, providing a clearer understanding of these critical dynamics.

3 Methodology

Our study uses a comprehensive approach involving several analyses, including statistical tests, applied methods, selection of variables, and identification of data sources. Multiple regression analysis was conducted, inspired by the methodologies of [19], [20] and [21]. The variables considered in this study include the trade balance as the dependent variable and monetary supply, export, and the exchange rate of the Euro currency as independent variables. This study includes variables based on the findings of [22] and [23].

All variables are measured monthly, using the average Euro exchange rate for each month. The analysis covers June 1, 2021, to August 1, 2023, with 25 months of data for each variable, as our focus is mainly on that period. Data was sourced from the Bank of Albania database [24] and analyzed using EViews software.

To ensure accurate and reliable results, several statistical tests were applied: correlation tests to examine variable relationships, the ADF test for data stationarity, the RESET test for model accuracy, the Fisher test for variable significance, the Breusch-Pagan test for homoscedasticity, and the Durbin-Watson test for autocorrelation.

The analysis followed a structured process, including studying correlations, testing for unit roots, choosing independent variables, determining the model form, building the best-fit model, testing for consistency, checking significance, and estimating coefficients. This thorough approach ensures the results are valid and reliable.

4 Empirical Results

The analysis shows a negative link between exports and the EUR/ALL exchange rate, with a correlation of -0.169. This means that when the euro is overvalued, exports decrease. Since most of Albania's exports are in euros, a stronger Albanian lek (ALL) makes local goods more expensive internationally, decreasing competitiveness.

On the other side, the monetary base has a positive effect on exports. An increase in the supply of ALL lowers its value, making Albanian products cheaper and more attractive in global markets.

The results also show a positive link between the trade balance and exports. This indicates that a weaker ALL boosts exports, which improves the trade balance. Table 1 shows a correlation matrix prepared by the authors.

Table 1. Correlation Matrix

	EXPORT	EURO_EXC...	MONETARY...	TRADE_BA...
EXPORT	1.000000	-0.169123	0.447323	0.175241
EURO_EXC...	-0.169123	1.000000	-0.736461	0.125051
MONETARY...	0.447323	-0.736461	1.000000	-0.036012
TRADE_BA...	0.175241	0.125051	-0.036012	1.000000

Source: Author's elaboration

The correlation matrix results show a positive link between the trade balance and the EUR/ALL exchange rate but a negative link with the monetary base. This means that when the monetary base increases, the ALL strengthens against the euro, making Albanian goods more expensive, reducing exports, and ultimately lowering the trade balance. To prepare the data for regression analysis, the Augmented Dickey-Fuller (ADF) test was used to check stationarity. The trade balance, as the dependent variable, was ready for regression without adjustments. However, the independent variables, exports, exchange rate, and monetary base, needed differencing to make them stationary. The Ramsey RESET test showed that a linear model is the best choice for this analysis. Using Ordinary Least Squares (OLS), the linear model was confirmed as the best fit for the data. The Breusch-Pagan-Godfrey (BPG) test showed that the residuals followed a normal distribution. We found heteroscedasticity, but the Durbin-Watson showed no serial correlation.

These results show that the regression model meets all the requirements for accurate predictions, making it a reliable way to understand how the EUR/ALL exchange rate, exports, and impact of the monetary base on the trade balance of Albania. Figure 2 presents the results of the residuals normality test, based on analyses conducted by the authors.

$$\hat{u}^2 = -83.11 + 0.30D*(\textbf{Euro\_exchange\_rate},2) + 0.35D*(\textbf{Export},2) - 8.4D* (\textbf{Monetary Base},2)$$

The equation looks like a good fit for prediction as it is 75% significant. Figure 3 presents the results of an Ordinary Least Squares (OLS) regression analysis, indicating the coefficients, standard errors, t-statistics, and probabilities for each variable, including the intercept, exchange rate, export, and monetary base, along with model fit statistics such as R-squared and F-statistic.
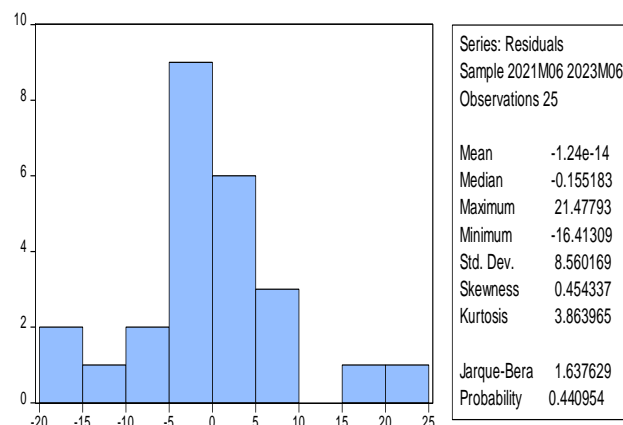

Fig. 2: Residuals Normality Test Results
Source: Author's elaboration

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-83.11856	134.6207	-0.617428	0.5436
EURO_EXCHANGE_RATE	0.305695	0.702670	0.435048	0.6680
EXPORT	0.358860	0.418477	0.857539	0.4008
MONETARY_BASE	-8.48E-06	0.000116	-0.073063	0.9424
R-squared	0.755583	Mean dependent var	-38.18962	
Adjusted R-squared	-0.079334	S.D. dependent var	8.808467	
S.E. of regression	9.151206	Akaike info criterion	7.411295	
Sum squared resid	1758.636	Schwarz criterion	7.606315	
Log-likelihood	-88.64119	Hannan-Quinn criteria.	7.465385	
F-statistic	0.411976	Durbin-Watson stat	2.139304	
Prob(F-statistic)	0.746098			

Fig. 3: OSL Method
Source: Author's elaboration

5 Discussion and Conclusions

The results show that the EUR/ALL exchange rate is very important for the trade balance in Albania. If the Albanian lek (ALL) is overvalued, Albanian goods and services will become more expensive for other countries, so the exports will decrease but a weaker Albanian lek against the euro increases exports and improves the trade balance. Also, increasing the monetary base lowers the value of the Albanian lek, making Albanian goods and services more competitive, and exports will increase.

This shows why it's important to keep the exchange rate both stable and competitive to support economic growth. The analysis shows that the main factors for changes in the trade balance are exports, the EUR/ALL exchange rate, and the monetary base. But other factors that are not included in the model also have a big impact, so more research should be done to understand these influences.

In conclusion, exchange rate stability in Albania is crucial for the economy. Policymakers should prioritize the EUR/ALL exchange rate and the monetary base to mitigate negative impacts on trade and promote sustainable economic growth.

6 Limitations

This study is based on data for a period of only 25 months (June 2021 to August 2023), and that's not enough to analyze long-term trends. It also focuses only on the EUR/ALL rate, ignoring other currencies like the US dollar.

The model uses exports, the exchange rate, and the monetary base but misses other factors like global events and specific industries. It is also only based on numbers with no insights into how businesses or policymakers respond.

Still, the study is a good starting point for understanding how exchange rates affect the trade balance. Future research should include longer time, more currencies, and more factors (not only economic) to give a fuller picture of trade in Albania.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process
The authors wrote, reviewed and edited the content as needed and they have not utilised artificial intelligence (AI) tools. The authors take full responsibility for the content of the publication.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

- Meleq Hoxhaj has been responsible for formulating the idea, as well as supervising and administration of the project.
- Mateus Habili has been responsible for conducting the investigation, gathering and cleaning the data, and using software for formal analysis and obtaining results.
- Dejsi Qorri has been responsible for reviewing and editing the first draft to prepare the final article.

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Conflict of Interest

The authors have no conflicts of interest to declare.

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