

# REAL EXCHANGE RATE VOLATILITY AND INTERNATIONAL TRADE: THE CASE OF ALBANIA

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## ABSTRACT

Albania during the last two decades has made considerable efforts aimed to accelerate the globalization process. And one of the most impacts of globalization is trade liberalization which stimulates economic cooperation between countries. Based on the theory, there are various factors affecting international trade such as gross domestic product, exchange rate, terms of trade and price. The objective of this paper is to evaluate the impact of exchange rate volatility in the volume of international trade flows of Albania. It is supposed that an increase in exchange rate volatility leads to decrease in the volume of international trade and economic welfare. The data analysis will be based on some economic indicators during 2005 – 2015 periods such: real exchange rate (RER) as the independent variable, and the Gross Domestic Product (GDP), inflation rate (CPI), the Export Level (EX), money supply (MS), foreign currency lending (FCL), Net foreign Assets (NFA). The findings of the study are relatively in line with those of the recent literature consequence of the fact that the exchange rate in Albania is almost in equilibrium level with lower deviations. Based on findings of the study we have made our predictions of the performance trade flows, economic growth of Albania in the short and as well as the paper is concluded with some recommendations.

**Keywords:** *real exchange rate volatility, economic growth, international trade, export*

**JEL Classification:** *F1, F2 F31, F62*

## 1. Introduction

Generally speaking, trade liberalization or trade openness refers to changes in government policy affecting the reduction of "distortions" of trade flows caused precisely by government interference. These changes include:

- prices of instruments such as tariffs, customs duties, taxes and additional expenses,
- non-tariff limitations; quotas, prohibitions, licenses etc.

The liberalization is a systematic process of reduction and elimination of all tariff and non-tariff barriers between countries as trading partners with each – other (Madeley & Solagral, 2001). But on the other hand, trade restrictions aimed at protecting domestic products, because of their reduced imported products become cheaper competing domestic ones. The lower prices of

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domestic goods have an impact on the depreciation of the exchange rate. Theoretical literature suggests that the real exchange rate (or its equilibrium level) which is consistent with the establishment of internal and external equilibrium, differs from the "shock" of economic factors with which it is associated. Among these factors is the opening trade. When a landlocked country of small liberalizes its trade increases the demand for imports and reduces the demand for tradable products, in this case, a real devaluation may establish internal and external equilibrium.

### **The balance of the exchange rate**

The importance of calculating the equilibrium exchange rate and assessment of basic economic factors associated with have become important issues studied in recent years for several reasons<sup>3</sup>:

- ❖ Firstly, some countries (especially those of Central Europe which have recently acceded to the European Union) have necessary to recognize the right course of exchange for entering the euro zone.
- ❖ Secondly, the volatility of some important world currencies, has caused debate on the issue that these fluctuations represent a movement based footing and are assessed to the exchange rate, or they are avoided?
- ❖ Thirdly, the important issue is that of dis-balances observed globally and implications that have brought these imbalances in exchange rates.

When discussing his footing on the exchange rate one of the important points to consider is the time frame anticipated and necessary to achieve this equilibrium. In the context of exchange rates are determined in the course consistently in the foreign exchange markets by demand and supply of foreign currency; it will always be at its equilibrium value.

According to Mundell (1971) for a country with a small economy, and a set of trading conditions, the equilibrium exchange rate is expressed as the relative price of international goods to domestic goods which simultaneously establish equilibrium in the monetary market. The concept of equilibrium exchange rate is expressed in terms of indicators of domestic economic base raises some important issues for discussion such as its existence, optimization, determination, evaluation at different times, and it is often important to discuss the dis-equilibrium exchange rate<sup>4</sup>.

### **The exchange rate regime in Albania**

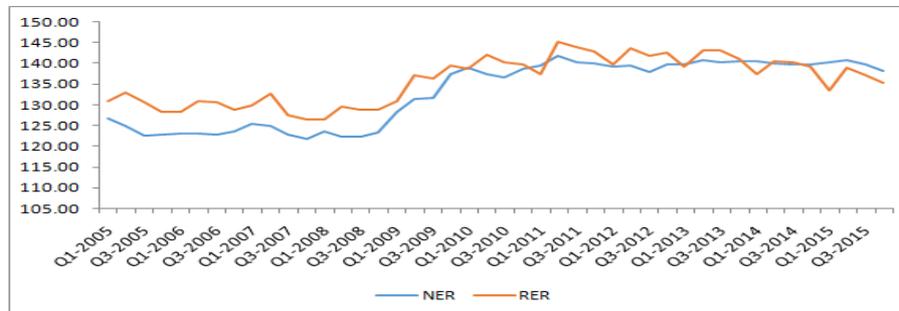
In a country with an open economy, the exchange rate is regarded as a key variable in terms of it's interaction with other internal and external economic variables. The focus remains quite high to the role played by the exchange rate in the country's economic factors because these variables have a mutual connection with each - other and affect the country's economic performance and because empirical studies show that the dynamics of the impact of exchange rate of these economic factors is long-term<sup>5</sup>. Usually in countries with developing economies, as well as

<sup>3</sup> (Dias, P., & MacDonald, R. (2007) "*Behavioural equilibrium exchange rates estimates and implied exchange rate adjustments for ten countries*". Washington DC: Peterson Institute.

<sup>4</sup> (Cassino, E., & Oxley, D. (2013). "*How does the exchange rate affect the real economy? A literature Survey*". New Zealand Treasury Working Paper.

<sup>5</sup> (Mirzaeenezhad, M. R., Mohammadi, T., & Tabas, H. M. (2012). "The effect of the real effective exchange rate fluctuations on macroeconomic indicators (Gross Domestic Product, Inflation and Money Supply). *Interdisciplinary Journal of Contemporary Research in Business*, 4 (6), 1079-1103.

Albania, many transactions in foreign currencies carried out in a more free market than through official channels to exchange<sup>6</sup>.



**Figure 1: The dynamics of nominal and real exchange rate Lek/Euro.**

**Source:** Statistical Database of the Bank of Albania and author's calculations

According to Figure 1 the real exchange rate has had the appreciating and depreciating fluctuations relatively stable against the European currency. For the period 2005 to early 2009 average exchange rate was 1 euro = 130 Lek. Bringing appreciation of the domestic currency as in nominal terms and in real terms reflects the macroeconomic stability in the country, deepening the difference between interest rates and inflation levels comparable with key partners<sup>7</sup>. This appreciation of the lek against the euro during this period, as well as against the US dollar, and the growth rate has followed the level of domestic exports has affected the stability of the index of the nominal effective exchange rate. In real terms the domestic currency appears more appreciated than in nominal terms. While during the period 2009 - 2013 Lek received depreciating positions against the euro standing at an average rate exchange rate of 1 euro = 140 Lek. According to the central bank during this period the national currency depreciated on average by 7.6 percent against the European currency causing increased imported inflation, an important indicator for our country because it influences the formation of the inflation rate in the country. During the years 2013 - 2015 the national currency's performance is characterized by light value appreciation and depreciation against foreign currencies. Also lek has appreciated more in real terms, slightly depreciating in nominal terms indicating a marginal contribution to broadcasting in the country of foreign inflationary pressures<sup>8</sup>.

### Export performance and trade balance

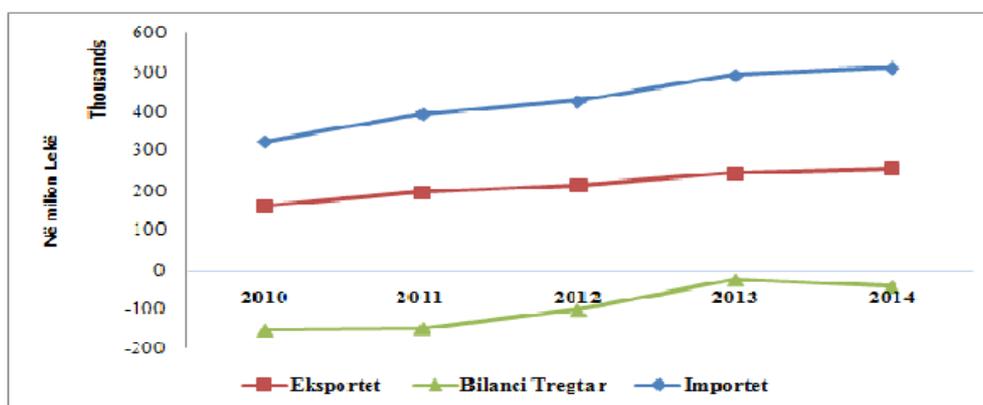
Economic theory suggests that between exchange rate and trade balance exists connection to depreciation of the currency Lek versus foreign currency Euro (or rising exchange rate), makes the price of imported goods to rise in the domestic market and lowering the price goods exported to foreign markets. Under this framework, when these exported goods are more competitive in foreign markets, it will bring an incentive to increase the volume of exports and improve the country's trade balance. Of course, the opposite effect, that of domestic currency appreciation (or

<sup>6</sup>Muço, M., Papapanagos, H., & Sanfey, P. (1998). "The determinants of official and free-market exchange rates in Albania during transition".

<sup>7</sup> Banka e Shqipërisë. (2007). "Deklarata e Politikës Monetare të Bankës së Shqipërisë për 6-m e dytë të vitit 2007". Tiranë: Banka e Shqipërisë, p. 20.

<sup>8</sup> (Banka e Shqipërisë. (2015). "Raporti i Politikës Monetare për 3-m e katërt të vitit 2015". Tiranë: Banka e Shqipërisë, p. 54.

a reduction in exchange rate) would have an adverse impact on exports and trade balance in the country. According to the authors (Salko, Beci, & Kodra, 2014) this so tight connection is expected to happen at a time when competition is perfect, but at a time when the Albanian exports have a low weight and low competitive level in foreign markets, fluctuations in the exchange rate Lek / Euro will not affect the same intensity in the trade balance in the country. An essential component to assess of our country competitiveness in foreign markets is the level of performance of exports. The structure of Albanian exports by commodities and destinations has changed significantly during the period 2005 - 2015. In addition to the contribution of processed goods and those of other crude, were added to the positive contribution to the growth of mineral fuels and mineral raw materials.<sup>9</sup>. At the same time, Albanian exports began to move from their main destination BE - here, to the CEFTA member countries and other emerging markets<sup>10</sup>. Dynamics of Albanian exports has been growing and their contribution to improving the trade balance is estimated to be insufficient compared with the annual level of volume of goods and services imports.



**Figure 2 - The performance of the trade balance, imports and exports**

**Source:** INSTAT statistical database

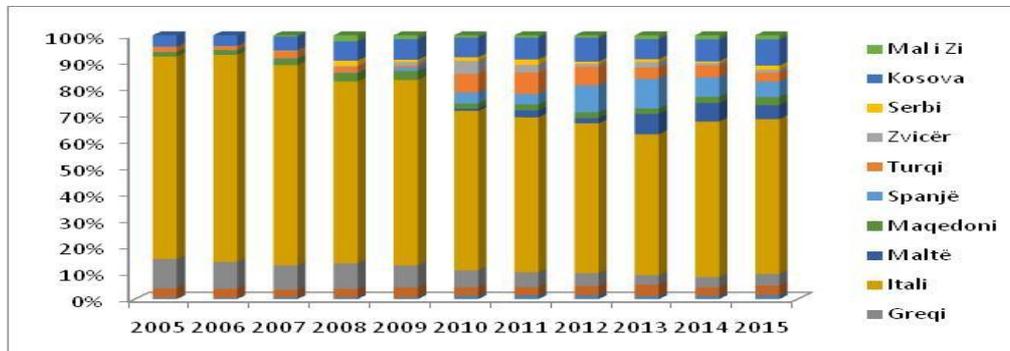
Figure 2 shows a brief overview of three important indicators of foreign trade, the level of exports, imports and trade balance in the last period from 2010 to 2014 shows that there has been an improvement in the trade balance to narrow its deficit. This improvement is observed more in 2013 more significant reduction of the level of imports and an improvement of the level of exports. However, the EU market remains remains the main destination for export of Albanian products although its share has declined in recent years by concluded the results in the paper of Mitre (2013) who prove the level from 89% in 2005 to 76% in 2012. While TCI index<sup>11</sup>, which answers the question of whether an exporting country start to produce new goods for export to a given country or must expand in existing markets as exports has shown an upward trend from

<sup>9</sup>Based on the index of metal prices published monthly by the IMF During the period 2005-2011, this index recorded a substantial increase, on average by about 18% in annual terms, by quoting the (Mitre, 2013 p. 110)

<sup>10</sup>Mitre, O. (2013). "The performance of exports in Albania during 2005-2015: CMS approaches". Bank of Albania Bulletin.Tirana.

<sup>11</sup>TCI: Trade-Complementarity Index is an indicator that helps in assessing and geographical orientation of exports. It measures the extent to which the model of country exports coincides with the pattern of imports of another country.

41.7 in 2005 going to 54.2 in 2012. The level of this indicator shows a consistent increase in the structure of Albanian exports to the structure of the EU exports.



**Figure 3 - Geographical distribution of domestic exports to European Union markets**

**Source:** INSTAT statistical database

The selected partner countries in the study are Italy, Greece, Germany and Spain, the details of which are representatives on the level of our exports with foreign partner countries. The volume of exports to these countries during the last decade, marks the value 1.2 billion, accounting for about 73% of the total volume of exports to Europe and about 68% of the volume of Albania's total exports worldwide, during the period 2005 - 2015. as shown graphically, Italy is the leading country in which export, and then into the lower levels, but the upward trend of volumes to these countries from year to year, are Greece, Spain, Turkey, Kosovo, Germany, etc.

## 2. Methodology

The study is based on empirical examination of the impact they have economic factors in determining the equilibrium of the exchange rate and in turn influence that the real exchange rate in essential economic and financial factors for a period of more than 10 years (2005-2015). In building the models we included a series of panel data for each of the indicators necessary to build the indicators timely basis. The sources of these data are numerous and different according to the nature of the economic factors involved and in order to achieve the study purpose.

The main research question:

What is the impact of exchange rate fluctuations in the level of international trade in the country as well as in several other economic indicators? Is this a positive or negative impact during the study period 2005 - 2015?

The main hypothesis that supports scientific research question is:

$H_0$ : The real exchange rate has no statistically significant impact on the level of exports

$H_a$ : The exchange rate has a statistically significant impact on  $t$  on the level of exports

To prove this hypothesis we rely on the following statistical analysis.

## 3. Data collection and basic tools for data analysis

Measuring the impact assessment carried out by the relationship between real exchange rate and an economic factor - financial. As such, this analysis included six economic factors that for each

collected data in the form of time series with three-monthly frequency. In data processing are performed all statistical tests, determination and evaluation of the model have been realized in this case.

### Econometric Model Specification

Given what the literature suggests that a regression analysis explains the effects of the independent variable change in the dependent variable. RER assessed to be in the form of an independent variable and the economic factor as the dependent variable, thus assessed whether RER has a statistically significant impact or not, and key hypothesis is proved or refuted. Macroeconomic factors that will be included in this model are: real exchange rate (RER) as the independent variable, and the Gross Domestic Product (GDP), inflation rate (CPI), the Export Level (EX), money supply (MS), foreign currency lending (FCL), Net foreign Assets (NFA) as independent variables.

The basic form of simple regression equation with two variables will apply to any established links:  $Y = \alpha + \beta X + \varepsilon$

### Descriptive analysis of time series

Table 1 summarize the main statistical indicators reflected the variabalave involved in the study.

**Table 1** - Descriptive Indicators series taken in the study

	Minimum	Maximum	Mean	Std.Dev.	J-B test	Prob (J-B)
RER	126.52	145.32	136.05	5.71	3.71	0.156
PBB	203699	346476	270417	38932	1.8	0.405
CPI	253.22	335.25	294.1	24.48	3.21	0.2
EX	1.36	4.42	2.74	9.86	4.44	0.108
MS	1543666	3628540	2722677	675836	3.63	0.162
FCL	183641	1067983	785165	286706	7.45	0.024
NFA	365970	1072309	667428	183360	1.3	0.521

**Source:** Author's calculations

Forty fourth observations for each variable were analyzed. According to the table we see that, according to test Jarque - Bera<sup>12</sup> probability of each time series (ie, the value of its statistical significance) is greater than 0.05, it indicates that every time series has normal distribution.

### More specifically about testing the connectivity, Exchange rate – level of Exports

Analyzing the stationarity of these two variables test result according to Philip Peron to be stationary at first difference, while Johansen suggested to us that there are cointegration vectors between them. Theoretically depreciation of the national currency increased exports and decreased imports by contrast, and then the trade deficit improves. The real exchange rate, as the indicator that best expresses our country's competitiveness in international markets, the dynamics of its limited during this period of study, has had a significant impact on improving the level of exports. The main indicators that lead us test the statistical significance of the model appear summarized in the following table:

<sup>12</sup> According to test Jarque - Bera Output Indicators have normal distribution to two degrees of freedom.

**Table 2-** The dependence of the level of exports from the exchange rate

The variable	Coefficient	Std. error	t - stat	Probability
<b>LnRER (1)</b>	-5.09	1.01	-5.02	0.000
<b>LnRER (2)</b>	-2.67	1.16	-2.28	0.03
<b>LnRER (3)</b>	-2.31	0.89	-2.57	0.016
<b>C</b>	0.072	0.016	4.4	0.0002
<b>R<sup>2</sup></b>	0.70	Average of DV		0.022
<b>R<sup>2</sup> adjusted</b>	0.57	Stand.Dev. of DV		0.086
<b>S.E.of regres</b>	0.056	Akaike criteria		-2.67
<b>ShKM</b>	0.081	Schwarz criteria		-2.48
<b>Log likelihood</b>	62.75	Dur-Wats. criteria		2.2
<b>Statistika F</b>	5.55	Prob. (stat. F.)		0.00016

**Source:** Author's calculations according to Eviews 9.5

From the model results can also build regression equation with two variables that expresses the relationship between two variables, exports (Y) and real exchange rate (X):

$$Y = -12.74 + 7.47 * X$$

This means that if the exchange rate will be 1 then there would be a fall in exports to the extent of (-12.74 %)<sup>13</sup>

While (7,47 \* X) indicates that if the exchange rate will increase by 1%, which means a devaluation of the national currency, then the level of exports will grow at 7,47 %. Based on important statistics like that of Prob (t-stat) resulting smaller than 0.05, we can state with high confidence that RER affects exports difference with one to three time delays, and it is an indication statistically significant. This result leads to acceptance of alternative hypothesis, as well as the collapse of basic hypothesis raised about the impact of RER at least one economic factor included in the model. Regarding the coefficients sign they are negative, as well as theoretical literature shows that connections between RER and exports, it means that the collapse of the real exchange rate, ie the local currency appreciation against her foreign level exports will decrease. While the growth of RER favors export growth, promotes the competitiveness of domestic products to foreign markets, aims to upgrade the country's trade balance. According to Table 1 and other statistical important as indicators, among which R2 (coefficient of determination) of adjusting the value 0:57 shows that the independent variable RER explains the 57% variability of the dependent variable, exports for the period under review in 2005 - 2015. Normally, this is a simple regression model with two variables and therefore fluctuation in the level of exports affect many other factors that are not included in this study. Statistics Fisher 5.55 and Prob (stat.F) 0.00016 indicate that this model is statistically significant total, the independent variable is statistically different from zero.

Also Durbin Watson criterion 2.2 is only slightly greater than two, and the result is good, then it means that the model built to test the relationship between variables does not suffer from autocorrelation.

<sup>13</sup> If the exchange rate would be equal to one means that we are in terms of purchasing power parity when the relative consumer prices between countries are the same.

#### **4. Summary of the macro-level analysis of the impact of exchange rate fluctuations on several economic factors**

In summary analysis estimate that the fluctuation of the exchange rate has not had an impact on all the factors involved in the study as GDP, inflation, exports, money supply, loans in foreign currency and net foreign assets, this impact can be measured best by setting appropriate statistical models depending on the level of integration and correlation of variables between them.

Evaluation of the local currency against the currencies of the partner countries with which we cooperate more, seems to have given her more impact on the national level affecting exports and domestic trade balance. According to the analysis RER has affected exports to three times delay with a confidence level of 95%. Also, it is estimated that the RER affects the performance of the country's economic development because the depreciation / appreciation of the domestic currency powering the main economic actors precisely in improving financial climate. While the two variables, money supply and credit in foreign currency, the impact of RER dynamics of change has not been a significant level of significance 5% but 10%. In this case the impact is less important and the level of reliability 95% got that from the beginning, this result accepts the null hypothesis.

And the level of inflation or the consumer price and the level of net foreign assets, fluctuations RER there was no impact for the period of study. This deviation level of RER has not been substantially higher to convey in this country's economic indicators.

#### **5. Conclusions**

The empirical results show that the exchange rate in Albania over the period 2005 - 2015 has been fluctuated / deviated from its equilibrium level. By RER evaluate the method of bringing the exchange rate equilibrium turns out that this course has consistently been the underestimation and overestimation period but the level of evasion has not passed 2% from the current exchange rate level. The highest divergence towards this level in 2007 marked periods, 2011-2012, 2015, a period that marked these events or difficult economic situation in the country

In the second model, the survey results show that the exchange rate had statistically significant impact (with a 95% confidence level) on two factors: the total production in the country and the level of exports of goods and local products. While a 10% level of significance exchange rate has had a significant impact on the level of money supply in the market and the level of lending in foreign currency from the banking sector.

#### **6. Suggestions**

The model analysis remains limited to the number of economic factors included in the model. As well as the validity of the results remain only in the context of these factors, as well as studying the period covered in the study. Model suggested apply including other macroeconomic factors as may recommend: remittances, market interest rates, foreign investments, etc.

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