

The Influence of The Exchange Rate on Imports – Romanian Case Study

Iulia Iuga

“1st of December 1918” University of Alba Iulia, Romania
iuga_iulia@yahoo.com

Abstract

The worldwide economy is in a continuous process of globalisation and the free circulation of people, workforce, capital, goods, and services is unrestricted, therefore nothing can remain outside the currency transactions. In this context, the present paper develops a practical analysis on the Romanian territory, aiming to debate concrete aspects related to the exchange rate of RON in relation with the EUR currency. The article highlight whether there is a link between exchange rate fluctuations and imports as a component of foreign trade. The main objective of the present paper is represented by the case study on which the analysis is focused – the determination and formulation of an appreciation on the causal and functional connections between the exchange rate of RON in relation with the EUR currency and a variable of the external trade, the imports.

Key words: exchange rate; imports; regression.

J.E.L. classification: E43, P45.

1. Introduction

The international trade is nowadays significantly influenced by the policies and actions affecting specific economic areas. The governmental authorities adopt measures for the stimulation of the direct foreign investments in order to stimulate the national imports and exports in the gross national product.

Moreover, the stimulation of the international trade is supported by the liberalisation of the dynamic of the capital and by the relaxation of the restrictions and taxes applied to it. All these modifications were approved in a context of globalisation and formation of economic unions, as the European Union (Bostan, 2019).

Knowing the relation of reciprocal integration between exports and imports is essential for elaborating and evaluating the present and future macroeconomic policies destined to achieve a commercial equilibrium (Arize, 2002). An import is a good or a service brought in a country from another country. Together with the exports, the imports are the spine of the international trade. If the value of the imports in a country is higher than the value of the exports, the country has a negative trading balance, also known as trade deficit. A higher value of the imports is considered in general a reflection of a national weakness in responding to its needs (Habanabakize, 2020). The imports lead to an exit of the foreign currency from the country and weakens the trade equilibrium, generating a low economic growth. Still, in some cases, the imports are considered a source of economic growth, especially if they include electronic equipment and hardware (Bakari & Mabrouki, 2017). The relation between exports and imports presents the fact that the countries do not disrespect the international budgetary constraints, because their macroeconomic policies were efficient in establishing a long-term equilibrium between exports and imports (Herzer and Nowak-Lehman, 2006).

If, until a few decades ago, the trade using foreign currency was especially generated by the necessity to settle the exports and imports, after 2000, a major percentage is represented by the transactions with convertible currency. The exchange rate is referential for the contemporary financial markets, reflecting elements of concurrence. Its evaluation is essential because it contains influence from a multitude of factors, and, in the same time, its modification has multiple implications in the external competitiveness, the real economy and the financial markets.

In addition, the exchange policy is an important macroeconomic indicator. The success of the policy is influenced by the impact of the exchange rates on imports and exports in terms of reducing the external trade deficit (Gondalia and Dave, 2015).

Based on the reasons mentioned above together with another set of reasons, the imports and exports remain a controversial subject due to their capacity to impact the economic and social life.

The trade deficit in Romania tripled during the last five years (2018, compared to 2013), reaching the highest level since 2008. The growth of the imports is determined by a powerful internal demand and is significantly higher than the evolution of the exports, which was slower in a context of a European low economic growth. The financial prognoses show that the disequilibrium from the system will continue to grow in the following period. The external trade deficit in Romania has grown with 62% compared to 2017, a value of 1.26 billion EUR in January 2018. The external deficit has led to pressures on the national currency and on the external debt. The external debt appears when a country makes more imports than exports (for consumption or investments). When the deficit is large and persistent, as in Romania, the deficit in general put pressure on the exchange rate. The corrections of the exchange rate (toward the weaker national currency) acts as automatic stabilizers, making the imports less expensive and stimulating the exports. A moderate weakening of the currency is expected, but this is not enough to transform the trade deficit in a surplus. Outside the pressures on the exchange rate, the persistent trade delay usually overcome the gross external debt (except for the case of a debt generating financing). Under 50% of GNP, the gross external debt of Romania continues to remain moderate.

The aim of the present study is to research the level of influence and the possible long-term relation of equilibrium between imports and the EUR exchange rate in Romania, using the data of the time series between 2000 and 2018.

2. Literature review

The influence of the exchange rate on the imports is discussed in numerous theoretic and empiric analyses performed in various countries at different periods of time. One of the most well-known approaches is the theory of the absorption, reflecting the way in which the exchange rate impacts the national income and the international trade. According to this theory, the effects of the depreciation will not manifest suddenly, but only after a period (Krueger, 1996). If there is a higher depreciation of the national currency, the imports are more expensive, leading to a higher decrease of the demand for imports (Aziz, 2018).

The literature approaches a general and varied frame where the exchange rate has a significant influence on the decisional process in the international trade practices, while a long-term appreciation or depreciation influence the international trade policy. One of the major aims of each country is to achieve a durable economic growth, because the economic growth is fundamental for each form of development and wellbeing in the society (Sulaiman & Saad, 2009). The neoclassic theory affirms that the export and import levels in a country plays an important role in a country (Vijayasri, 2013). This theory states that the exports help the determination of the exchange rate solicited by a country for the import of goods and services that are not produced on the internal market.

Still, Auboin and Ruta (2011) affirm that, in the presence of the failures on the market, an under-evaluation of the national currency can impact on long-term the total level of the imports. The results of the study performed by Chang et. al. (2020) indicate the fact that the effects of the extremely big changes of the volatility series of the exchange rate significantly differ from the effects of the extremely small changes of the volatility series of the exchange rate on the imports in the USA. Jarita (2008) in his paper analyzed how the exchange rate modify the import and export prices in Malaysia between 1999 and 2006. The result of the study indicated that the variations of the exchange significantly influence the changes in the import and export prices in the Malaysian trade.

Gondaliya (2015) study has found out that there is a positive relationship between export and exchange rate but negative relationship between import and exchange rate. Furthermore, the change in export will influence in positive Indian Rupee against Euro, Pound, Dollar and Yen. Import is not positively influence on exchange rate between Euro, Dollar, Pound and Yen.

Ghiba (2010) sustained that the depreciation on romanian curency LEU has a reduced influence on exports. In case of imports, there is a low dependence between variables.

The Ekanayake (2012) paper reveals the positive impact of the levels of domestic activity and foreign exchange reserves on imports. On the other hand, the relative prices and exchange rate volatility has a negative influence on imports. In case of exports, it depend positively on the levels of foreign economic activity but negatively on relative prices and exchange rate volatility.

Nicita (2013) paper examine the relationship between exchange rate and international trade, trying to investigate the effect of exchange rate volatility on international trade. The model covers the data of 100 countries for the period 2000-2009. The paper found out that exchange rate misalignments do affect international trade flows in a substantial manner. Also, currency undervaluation promotes exports and restrict imports, while the converse holds in the case of overvaluation.

Huchet (2011) paper aims to examine the effect of exchange rates and their volatility on trade flows in China, the Euro area and the United States defining two sectors: agriculture and manufacturing. This study found the impact of exchange rate volatility on trade to be minimal at the sectoral level.

3. Research methodology

The main objective of the present study is to create an image depicting the most important aspects related to Romanian imports, the correlation of their volume with the exchange rate. The growing value of the Romanian imports after the crisis in 2008 questioned the national external trade deficit. Therefore, the study investigates the influence of EUR-RON exchange rate on the Romanian imports between 2000 and 2018. We use the Romanian imports volume as dependent variable. As independent variable, we used a macroeconomic indicator: the RON-EUR exchange rate. We also used the software Eviews and the data have as source the website of the National Bank of Romania (www.bnr.ro). The research had the following objectives:

O1: The identification of the econometric model;

O2: The highlighting of the results after the use of the econometric model.

We further formulated the following research hypothesis:

H1: There is a connection between the RON-EUR exchange rate and the imports in Romania.

In this article we study the RON-EUR exchange rate influence on the imports in Romania in the period 2000-2018. The regression is based on the OLS method, which implies finding the unique coefficients for which the sum of residual squares is minimal. The model is presented below:

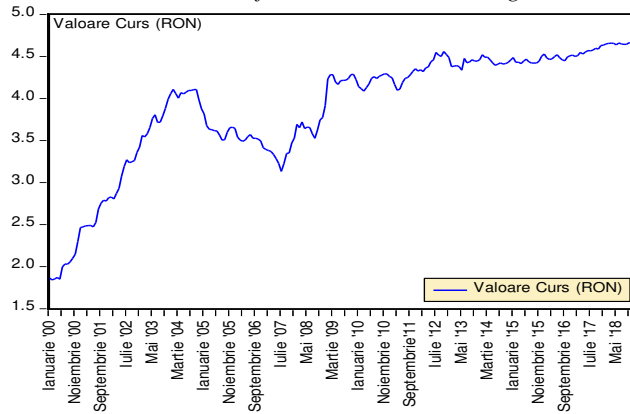
$$y_n = \sum_{i=0}^k \beta_i x_{ni} + \varepsilon_i,$$

x_i —k explanatory variables,

y_n —the dependent variable.

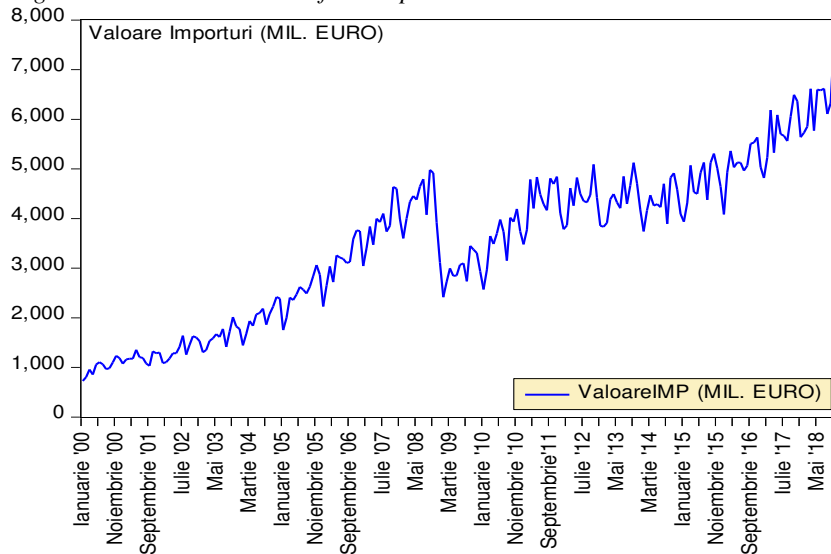
The figures 1 and 2 present the evolution of the EUR-RON exchange rate and the imports at the beginning of the year 2000 until the end of the year 2018. We can observe the exchange rate decrease during the crisis (2007-2008) and a continuous growth beginning in 2009. The imports significantly decrease in the period 2008-2010.

Figure no. 1 The variation of the EUR-RON exchange rate in 2000-2018



Source: www.bnr.ro.

Figure no. 2. The variation of the imports value in 2000-2018



Source: www.bnr.ro.

Table no. 1: The descriptive statistics of the analysed parameters

Observations	Course Value	Import Value
Mean	3.887360	3531.351
Median	4.152750	3810.000
Maximum	4.665100	7598.000
Minimum	1.842000	729.0000
Std. Dev.	0.710673	1579.533
Skewness	-1.192249	-0.026990
Kurtosis	3.729474	2.119489
Jarque-Bera	59.07065	7.393027
Probability	0.000000	0.024810
Sum	886.3180	805148.0
Sum Sq. Dev.	114.6477	5.66E+08
Observations	228	228

Source: own calculations

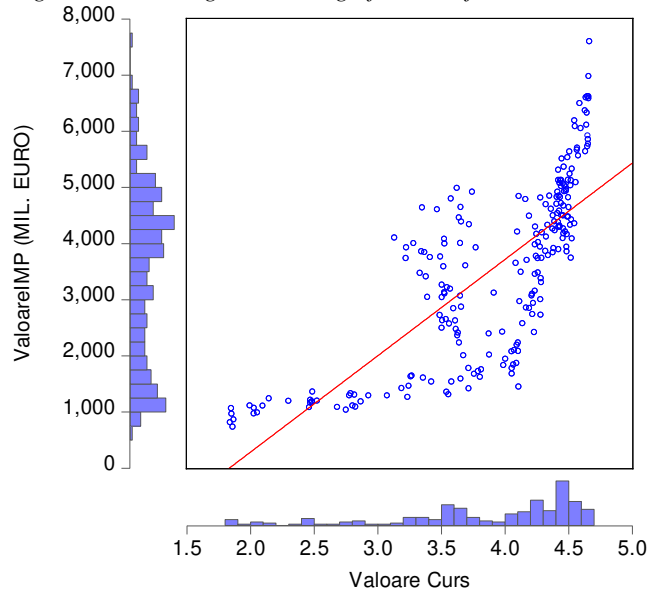
In Table no. 1., **Mean** represents the average of the series of data. For the exchange rate, we calculate the arithmetic average of the values, starting with January 2000 until December 2018. The result is 3.8873 for EUR-RON exchange rate. For the imports, the calculated average value for 2000-2018 is 3531.35 million EUR. **Median** returns the median of the series of data, meaning the value in the middle of a series, in an ascending order. The median calculated for the exchange rate is the arithmetic average between the value from January 2010 (4.1409) and the value from March 2011 (4.1646), resulting a final value of 4.1527. the median of the series for imports has the value of 3810,00 million EUR and is calculated as average of the value from January 2012 (3784) and the value from January 2013 (3836). **Maximum** shows the highest value in the presented series. The highest value of the exchange rate was registered in October 2018 and equals 4.665. The highest value of the imports was registered in October 2018 (7598 million EUR). **Minimum** shows the lowest value in the series. The lowest value of the exchange rate was registered in February 2000 (1.8420). the lowest value of the imports was registered in January 2000 (729 million EUR). **Std. Dev** represents the function that estimates the standard deviation registered on a sample. The standard deviation is 0.7106 compared to the average value for the exchange rate. The standard deviation for the imports is 1579,53 million EUR. **Skewness** represents the asymmetry of the distribution density for a series around its average value. For the exchange course, we can affirm that the distribution of the values for the considered intervals is not symmetric since Skewness does not equal zero. The asymmetry index is negative (-1.192), showing the higher and the tail of the graphic is on the left side, the side of small values. The analysis of a series of values for the imports shows a negative asymmetry index (-0.0269), meaning the higher values are predominant and tail of the graphic is on the left side, the side of the small values. For the exchange rate, **kurtosis** equals 0.39, meaning a Platykurtic distribution, flatter than a normal distribution, with values dispersed on a larger interval around the average. Related to the series of values for the imports, the kurtosis 2.1194, meaning a Platykurtic distribution with a value closer to the normal value. The **Jarque-Bera** test for exchange rate is 59.07065, higher than zero, result that the series were normally distributed. The value of the Jarque-Bera for imports are equals 7.393027.

To depict the relation between the relation between the EUR-RON exchange rate and the imports, we use the diagram point cloud. This static instrument offers information on the connection between the static series. Therefore, with the help of the diagram point cloud, we can establish if there is a linear or a non-linear dependence between the variables.

The existence of a linear relation between the two variables determines the preferential distribution of the points in the diagram in certain squares (II and IV, or I and III). When the points are equally distributed in the squares II and IV, we can affirm that there is a linear relation with a tendency of ascending dispersions between the analysed variables. Therefore, there is a positive dependence between the exchange rate and the export value. The matrix of the correlation between the dependent variable (imports) and the independent variable (exchange rate) estimates a correlation of 77.25% between variables.

In the classic model of regression, the estimation is made with the help of the method of the least squares (OLS). **Eviews** offers more options for the estimation. VALOARE_IMPORT represents the volume of the imports (the dependent variable) and VALOARE_CURS represent the RON-EUR exchange rate (the independent variable).

Figure no. 3: The geometric significance of the Pearson coefficient



Source: own calculations

4. Findings

The value of the parameter R-squared equals 59.67%. The statistic Adjusted R-squared equals 59.49%. The value of the Durbin-Watson test is 0.178001, lower than 2, showing that there is no residual serial correlation. The Akaike (- AIC) informational criterion is often used to select one of two models estimated for the same set of data. Thus, the models characterised by AIC lower values are preferred to those characterised by higher values. (SC) represents an alternative to the AIC criterion used for the same purpose. It also has the same aim as the other two criteria. The fact that all three criteria (Akaike Information Criterion, Schwarz Criterion, and Hannan-Quinn criterion) registered relatively low values (16.67258; 16.70266; 16.68471), and, in the same time, close values, confirm the validity of the model. The value of the Fisher test was 334.4570 and confirms the validity of the model. In the same time, the nullity of the Prob (F-statistic) test confirms once again the validity of the model.

The correlation between the two analysed parameters results from the equation of the linear regression generated by the software. We remark that the growth of the exchange rate with a unit leads to a growth of the imports value with 1716 units. The standard deviation of the repartition of the coefficient for the independent variable (exchange rate) is 93.88318.

5. Conclusions

The international economic relations are in a continuous development; more and more countries manifest their desire to participate to the global economic circuit. Due to these factors, the role of the exchange market grows as importance for the global economic operations. Everything starts from the necessities resulted from the evolution of the economic finances. It was a necessity to find a modality to perform the international transactions and operations in the most convenient way for the parties.

The international exchange market permanently suffers modification to which all the national and international financial systems must adapt. The exchange rate is an important determinant factor of the competitiveness because there are many foreign commercial partners and the income and the payments are correlated with the evolution of the exchange market. When the exchange rate of the national currency is stable, it can be a factor influencing the competitiveness, because its evolution can attract a higher trust in the use of the currency. The importance of the exchange rate resides in the fact that they determine the trade price for various products on the international market in the international trade competition. The exchange rate as relation between the two

national currencies, respectively as price of a currency expressed in another national or international currency, is characterised by instability due to numerous determinants factors, reflected in the continuous modification of the relation supply-demand. This instability has a direct and immediate impact on the external trade. For Romania, the close connection between the RON-EUR exchange rate and the import-export activity left a deep mark on the economic state of the country. The present case study shows that the growth of the EUR currency and the depreciation of RON means expensive imports, while the necessity of the import continues to grow. This is also the idea affirmed by Bostan et al. (2019) as the depreciation of the national currency negatively affects imports.

From the beginning of 2000, Romania imported more than it exported each year, creating a trade deficit. This deficit will be more and more difficult to cover with the present resources, especially that its value has tripled during the last 5 years, while the value of EUR currency considerably increased, reaching a historical maximum at the present time. The economic recovery from the last years and the reduce of the VAT stimulated the consumption. Inevitably, the imports have grown and influenced the increase of the trade deficit, creating problems in the checking account.

With the help of the statistical econometric software Eviews 10, we represented the evolution of these parameters and performed an analysis of the correlation between the values of the exchange course and the values of the imports in Romania. We must also mention the limits of the present research. The study concentrates on the influence of the EUR-RON exchange rate on the imports and does not include other macroeconomic factors.

As a future research direction, we take in consideration the existence of possible specific sectorial differences for the imports.

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