THE INFLUENCE OF THE EXCHANGE RATE ON COMMERCIAL FLOWS AND ECONOMIC COMPETITIVENESS. THE CASE OF ROMANIA

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Abstract: The globalization process has accelerated the openness of economies, trade fluidisation and the growth of international trade. In this context, the interdependency between the states' economies has considerably increased together with the vulnerabilities to exogenous shocks. The channel transmitting these vulnerabilities is mainly the monetary channel through the dynamics of the exchange rate. The aim of this paper is to analyse to what extent do the fluctuations of the rate of exchange impact on the dynamics of the commercial flows, in reference to the evolution of Romanian imports and exports. Analysing these connections, we will notice the ambivalent link between the nominal and real economy. Using both the quantitative and qualitative approach, we will try to answer the following question: Have competitive devaluations integrated or disintegrated commercial flows? The results of this research are statistically significant, accentuating the liberal noninterventionist optics regarding the evolution of the exchange rate.

Keywords: real effective exchange rate, imports, exports, competitiveness

JEL Classification: F14, F31

Introduction

The history of the economic school of thought demonstrates that economy as a science is always in need of new explanations and approaches for establishing causal relationships between economic, financial and social indicators. The issue of competitiveness follows the same trend. Any company is interested in establishing the areas that ensure a high productivity rate and encouraging these strategic segments by different means. We must point out that a stable economic climate creates the conditions for the growth and development of economic competitiveness. The stability of the economic environment is mainly given by monetary, fiscal and political stability. Therefore we see the link of interdependency between the volatility of the real exchange rate and the growth of the economic competitiveness.

The first part of this study is dedicated to the analysis of the specific literature regarding economic competitiveness. In the second part we described the relationships established between the rate of exchange and competitiveness in terms of international trade theories.

Regarding the case study, we have analysed the impact of the real effective exchange rate over the Romanian imports and exports between the years 2000-2012 in order to understand the situation before and after Romania's EU accession. With decreased productivity and salaries, under the effect of attracting massive foreign direct investments together with the markets liberalisation, Romania has known increases of the real rate of exchange which affected its competitiveness in the years beforehand and following the adherence. The consequence was the drop of exports attractiveness. This imposed an increase

of physical productivity but also an increase of the absorption capacity of goods and services from other countries which determined an increase of the purchasing power of the population.

The study shows that competitive devaluations of Romania, in the analysed period of time, affected on a medium period of time the structure of the external trade, especially the exports dynamic.

1. Economic competitiveness

Productivity and competitiveness are determined by a vast series of factors. The analysis of these determinants was the research topic of many economists over time, starting with Adam Smith, who focused his analysis on the absolute state specialisation criteria and on labour division, followed by the neoclassical school of thought according to which, up until the present day, the main sources of competitiveness were the investments in physical capital and in infrastructure (Schumpeter (1942), Solow (1956), Swan (1956)). A fundamental model of competitiveness analysis and its determinants is represented by Porter's Diamond (Porter, 1990, p.72). Although Porter's Diamond includes many important variables, this is not comprehensive enough to explain the economy of the present days which became more and more sophisticated and complex. Technically speaking, Porter's Diamond cannot be used in an international context because it is limited to an internal national area of application.

In the current historical context of globalisation it is mandatory the international factors be taken into account because it is the proper way to analyse a nation's competitiveness (Rugman, 1991, Rugman and D'Cruz, 1993). More so, the unique diamond model does not distinguish between human and physical factors. In reality though, the role of different groups of people are important in explaining different types of economic development (Cho, 1994, Cho et al, 2000).

Researchers (Cho et al., 2006; Porter, 1990; Porter, 1998 and Porter et al., 2000) illustrate studies regarding the unique diamond model and its extensions. Figure no. 1 is a representative table of the research evolution regarding economic competitiveness. We notice that the range of action of competitiveness was approached both at a national and at an international level and that the sources of competitiveness concern both the material and the human resources.

Figure no. 1. The structure of models explaining economic competitiveness

National context		International context	
Material resources	Human resources	Material resources	Human resources
The Simple Diamond Model Porter (1990, 1998) Porter, Takeuchi and Sakakibara (2000)	**The model including the human factor** Cho (1994) Cho and Moon (2000)	**The Double Diamond Model** Rugman (1991) Rugman and D'Cruz (1993) Moon, Rugman and Verbeke (1998)	**The Dual Double Diamond Model** Cho, Moon and Kim (2006)

		Dunning (2003)	

Source: Hwy-Chang Moon, 2006, Competition and Cooperation between Korea and Japan: A Business Perspective, University of Tokyo MMRC Discussion Paper No.65

Many studies evaluated the concept of competitiveness based on the Porter model (Grant, 1991; Krugman, 1994; Snowdon, Stonehouse, 2006; Berger 2008, etc.). But Porter's model received a series of criticism and improvements (Grant, 1991; Rugman and D'Cruz, 1998; Moon et al., 1998; etc.).

As seen in the table above, Cho (1994) suggests an integrated model of competitiveness: the nine factors model which also includes the human factor besides the physical one. Later, Rugman and D' Cruz (1998) improved Porter's model by including elements related to the international environment thus creating the Double Diamond model. Based on it, Moon et al (1998) later introduced the generalized Double Diamond model. This model has a series of advantages, compared to Porter's model: multinational companies are taken into account, it allows an easy operability with the national and international paradigm of competitiveness, and also, the government actions are seen as endogenous variables.

Later researches have led to the creation of the Dual Double Diamond model (Cho, Moon and Kim, 2006). In its elaboration three elements were taken into account: the first one includes four physical factors that determine a nation's competitiveness: resource endowment, the business environment, the related industries and the internal demand. The second element targets the human factor – none other than the key element connecting physical factors in order to obtain the increase of competitiveness. The third element includes the external factors. Chance is the one that increases national competitiveness only when the human factor is prepared and knows how to get the most of it.

Currently, the interest of researchers focuses on other mechanisms as sources of competitiveness, like education and training, the technological process, macroeconomic stability, good governance, market efficiency and other. The Wold Economic Forum uses the Global Competitiveness index as a main indicator to measure competitiveness. According to it, there are three categories of indicators which influence the structure of the economic competitiveness index: the dynamic fundamental factors, followed by the economic efficiency factors and innovation ones.

The influence of the real exchange rate volatility over economic competitiveness falls in the first category, of the fundamental factors, more precisely in the macroeconomic environment field. The politics of the exchange rate and the trade regimes adopted by the states influence the stability of the economic environment.

2. The exchange rate and economic competitiveness

The exchange rate is the ratio value between two states' currencies or, the price of a currency expressed in a different currency. In a different statement, the exchange rate is the price at which a national currency is exchanged for a different currency (Krueger, 1996, p.22)

The exchange ratio between currencies has a synthetic character because it allows a comparative analysis of the gross domestic product, of prices, salaries, work productivity and other indicators of the two countries whose currencies are compared.

The traditional views regarding the benefits devaluation or depreciation could have over the trade balance are based on a special price related hypothesis (Rainelli, 2004). The researchers Ali and Anwar (2011) demonstrate that the effects obtained through forced currency depreciation, in order to stabilise the balance of payments, are mostly adverse reactions. They explain that, most of the time, devaluation is the result of the outputs collapse, prices increase and improved trade balance. In the absence of weak adverse reactions of the exchange rate, even if the national currency depreciation favours exports, in the same time negative effects occur over the trade balance known in literature as the J curve.

In the studies regarding the international trade, Paul Krugman (2003) and Michael Porter (1990) analysed the impact of the exchange rate volatility as a mechanism of influence over international economic relations.

In the contemporary globalised world, Krugman believes that international competition on the markets of goods and services is made between producers. Currently, the countries lost their quality as actors inside international trade, as they used to be in the classical era. Krugman finds that countries compete only in what concerns attracting capital and labour force. This type of competition depends on the advantages the location offers. Amongst these advantages we include: stability and efficiency of the legislative framework, infrastructure, taxation, the labour force, etc. Paul Krugman (1994) supports the promotion and implementation of the economic policies which aim to create and extend the location advantages, because this is how companies' competitiveness is sustained inside international trade. Krugman finds that the accounts of the current account balance reflect only a part of the economic competitiveness. Therefore the low interest of the investors in the economy of a country is the expression of its commercial deficit.

Michael Porter (1990) thinks that undervalued exchange rates cover the deficit of competitiveness and delay the economic reform. The currency depreciation that encourages exports and daunts imports, improving the current balance, is temporary because it diminishes as the internal prices of goods and services are being adjusted. In the two authors' vision, Krugman and Porter, international competitiveness cannot be guaranteed long-term through currency deprecation because it requires profound economic reforms.

2.1 The influence of the real effective exchange rate over the evolution of Romanian exports and imports between the years 2000 – 2012

In this study, we chose to analyse as main indicator of Romanian's economic competitiveness, the real effective exchange rate. The evolution of economic competitiveness is also influenced to some extent, as seen in the previous section with the variations of the exchange rates, by the relative price changes between a country and its commercial partners. Literature brings two perspectives to the theoretical notion of the exchange rate: the first one is connected to the purchasing power parity and the second targets an approach on the basis of tradable and non-tradable goods. Although they can coincide in some very special cases, these definitions usually give different results.

2.1.1 The purchasing power parity

The theoretical basis of this theory belongs to Gustav Cassel who, through his articles (1916, 1918), shows that changing the prices between two states determines the adjustment of

the exchange ratio of those countries' currencies (Gaftoniuc, 1995, p.225). The purchasing power parity is a method used to calculate an alternative exchange rate between the currencies of two countries. It measures the purchasing power of a currency in an international unit because goods and services have different prices in some countries compared to others[1]. The purchasing power parity reflects goods and services that can be purchased with monetary units from two different states. According to this definition, the real exchange rate can be determined long-term, as the nominal exchange rate (e), adjusted by the ratio between the levels of external prices (P^f), at an internal price level (P), according to the following equation:

$$R_{ppp}=e*\frac{P^f}{P}$$

The equation above shows that a drop of the R_{ppp} index can be interpreted as an actual appreciation of the exchange rate (Kıpıcı and Kesriyeli, 2000).

2.1.2 The Harrod-Balassa-Samuelson approach

Unlike the PPP model, the model developed by Harrod-Balassa-Samuleson (1964) divides the economy into two sections, tradable and non-tradable. Therefore they find the PPC deviations normal considering a part of the goods in the economy are not traded internationally. The model wishes to explain why the price level in richer countries is much higher compared to the one in developing countries. The answer is due to later studies introduced by Baumol and Bowen (1966) who demonstrated that there is a link between the price level and the productivity level. Kennessey, Heston and Summers (1975) bring empirical proof of the fact that the purchasing power of a monetary unit should be higher for countries with a lower income per capita. Kravis's and Lipsey's (1978) researches showed that the real exchange rates tend to appreciate according to the increase of the income per capita.

The reason behind this approach takes the relative price of the tradable and non-tradable goods and services in a country as an indicator of the country's competitiveness level inside foreign international trade. Starting from the hypothesis that the prices of the tradable goods are the same all over the globe, the real exchange rate defined on the fundamental distinction between tradable and non-tradable goods can be written under the following mathematical formula:

$$R_r=\frac{P^T}{P^N}=e*\frac{P^{T*}}{P^N}$$

Where P^T and P^{T*} represent the domestic and international prices of the tradable goods respectively, and P^N are the prices of the non-tradable goods and services. According to this formula, the decrease of R_f the real appreciation of the domestic currency.

Both the PPP approach and the HBS model start from the premises that the analysed country has only one commercial partner, or, in reality, this is not possible. Considering these limitations, researchers have defined the real exchange rate as related to a state's commercial partners, as used by the weighting standards. Some examples of the weighting standards can

[1] ***, Purchasing Power Parities, http://www.oecd.org/department/0,3355,en_2649_34357_1_1_1_1_1,00.html, accessed on April 20th 2014

be the percentage of a foreign country in some other country's total foreign trade volume and also the amount of currencies used in commercial deals abroad.

In practice, various price indices can be used in the calculation of the real exchange rates based on the purchasing power parity. Amongst them we include the wholesale price index (WPI), the consumer price index (CPI), the gross domestic product (GDP) and producers' price index (PPI).

2.2 Discussions and results

In this research, the real effective exchange rate indicator was taken from the data base of the European Central Bank. Also, I used the REER evolutions which covered the period between the years 2000-2012. The REER indicator attends to the exchange rates' modifications and the CPI evolution from a panel of 36 countries[2] taking the year 2005 as a comparative basis.

Table no 1. The real effective exchange rate

Period	**Real harmonised competitiveness indicator CPI deflated. Real effective exchange rate. Average or standardised measure for given frequency**	**Real harmonised competitiveness indicator CPI deflated. Real effective exchange rate 3-year percentage change**
Index	**(2005=100)**	**(2005=100)**
2012	102,0826	-0,0648
2011	107,9776	-2,3531
2010	104,6937	-10,0386
2009	102,1488	-4,8917
2008	110,5796	10,5796
2007	116,3762	37,5538
2006	107,4025	29,3759
2005	100	16,3439
2004	84,6042	-1,4315
2003	83,0159	-1,6004
2002	85,952	14,5577
2001	85,8329	-1,1109
2000	84,3661	24,9854

Source: European Central Bank

In the second column of the table we notice that the real effective exchange rate is the nominal effective exchange rate, according to the calculations elaborated by the European Central Bank[3]. In Romania, the value of the real effective exchange rate index (2005 = 100) was 102.08 as of 2012. As the table above shows, over the past 12 years this indicator reached a maximum value of 116.37 in 2007 and a minimum value of 83.01 in 2003.

[2] European Union 27 Member States, i.e. BE, DE, EE, GR, ES, FR, IE, IT, CY, LU, NL, MT, AT, PT, SI, SK, FI, BG, CZ, DK, LV, LT, HU, PL, RO, SE, GB, and US, AU, CA, JP, MX, NZ, NO, CH, TR against the Romanian leu

[3] A measure of the value of a currency against a weighted average of several foreign currencies

In the third column of the table we notice a three year percentage change of the evolution of the real effective exchange rate. We associate the increase of the real effective exchange rate with a decrease in competitiveness, while its decrease corresponds with a competitiveness increase. Romania came to an important rise of the real exchange rate, in the period before and after the EU accession, due to the positive results obtained following a non-inflationary politics, but also due to massive inputs of foreign capital. Between the years 2008-2010 an important correction was required regarding the average for the last three years, followed by a much smoother evolution for the 2011-2012 periods.

The REER influence on the dynamics of the external trade (exports and imports) is explained through the connections between variables. Exports are dependent on foreign demand. Foreign demand depends on the income achieved in those countries. In this respect, exports can hold the function of income increase.

Economic theory proved that the exports of a state depend on the real exchange rate. The increase of the real exchange rate reduces exports and highlights the differences between foreign products' prices and national prices.

$X=X^*(REER, Y^*)$

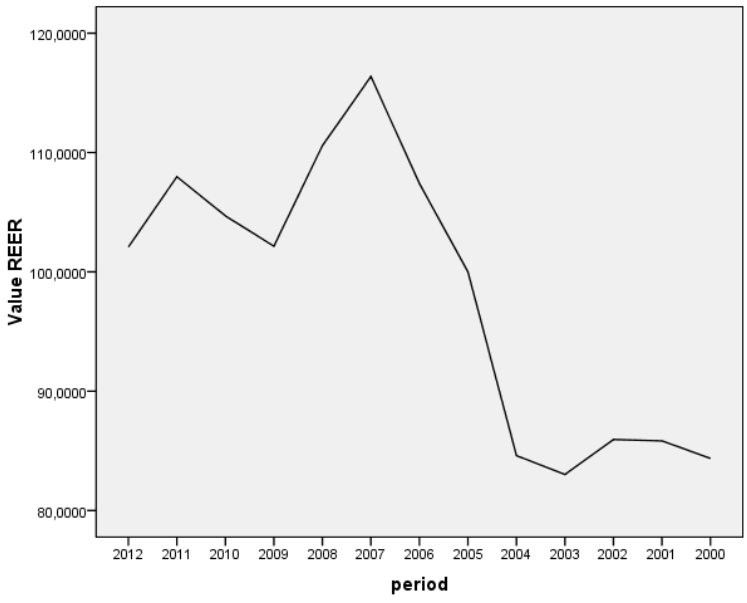
In a linear form the equation is:

$X=x_1REER+x_2Y^*$, where $x_1>0$ and $x_2>0$ represent price elasticity and income elasticity.

The same algorithm applies in the case of the analysis of imports. They are dependent on the national income. In case the national income increases, and the internal demand cannot be covered by the internal production, the imports can cover it. Therefore imports have the feature of increasing the real exchange rate.

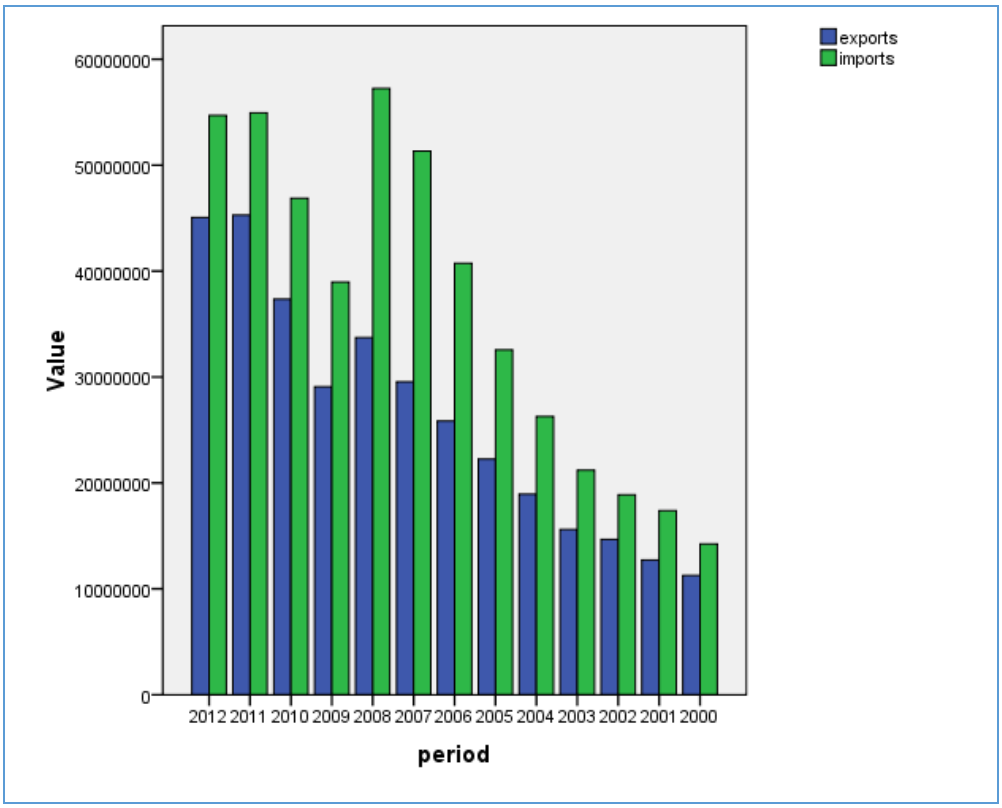
$M= m_1REER+m_2Y$, where $m_1 <0$ and $m_2>0$ represent the price and income elasticity of imports (Voinea, 2013, p.134).

Figure no 3. The evolution of the real effective exchange rate between the years 2000-2012. Index 2005=100.



Source: the author's adaptation of the European Central Bank data

Figure no 4. Value of Romanian exports and imports in thousand euro



Source: the author's adaptation of INSSE data

Analysing the two graphics, we notice that the REER constant increase between the years 2005-2007, including in 2008, contributed to the continuous increase of imports and to a much lower rate of export increase. In the first instance, exporters try to compensate the stronger leu by reducing costs and increasing productivity. But, in this case, the strengthening continued and exporters had to give up on some products and even some customers, leading to the decrease of exports. This was relevant through 2009 data.

During 2009-2010, the REER drop corresponded with a massive import decrease and export increase, which meant an improvement of the economic competitiveness.

In 2011, the increase of the real exchange rate by three units compared to the previous year, led to an import increase in a bigger proportion than the export's dynamic. The year 2012 was characterised by a REER decrease with 5,9% compared to the previous year. This determined an imports decrease and an exports increase, but in low proportions.

According to figure number 4, for a leu devaluation in the period 2009-2010-2012, imports dropped rapidly. Besides the increase of the costs in lei for imports, importers increased their risk margin in case of a new devaluation. The same leu devaluation has minimum influence over the exports. The logic is simple: lost clients are difficult to regain. The same way, it is not easy to finds new clients.

3. Conclusions

The volatility of the exchange rate is fundamental in what concerns the international economic relations, and the economic competitiveness of the companies represents the key factor of stimulating the international commercial transactions and foreign investments. After this study we can state the notion of economic competitiveness includes a wide range of factors. The international commerce theories we approve of, show that the international

competitiveness depends on location advantages, production capacities, labour force qualification, on technological and managerial knowledge and the capacity to adapt to structural changes.

The study showed that the leu devaluation helps exporters, but does not lead to a substantial increase of the exports on a short period of time. As a mechanism of influence of the international commercial trades, the exchange rate carries out a short-term influence and structural reforms in the economy are required, meant to stimulate the increase of the international competitiveness of goods and services. Moreover, devaluations alter the international trade, especially the exports, by losing external partners and markets.

Acknowledgement

This work was supported from the European Social Fund through Sectorial Operational Programme Human Resources Development 2007 – 2013, project number POSDRU/159/1.5/S/134197, project title "Performance and Excellence in Doctoral and Postdoctoral Research in Romanian Economics Science Domain".

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