THE IMPACT OF POLITICAL AND ECONOMIC NEWS ON THE EURO/RON EXCHANGE RATE: A GARCH APPROACH

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Abstract
     Within this study we try to capture the impact of political news and economic news from euro area on the exchange rate between Romanian currency and euro. In order to do this we used a GARCH model. As we observed, both variables influence the exchange rate, this fact implying national currency depreciation and a volatility growth. The political news and the economic news positively affect the euro/ron exchange rate volatility. The two factors conjugation, as it has happened in the recent period is to be avoided because it can have financial and economic consequences with a very high cost for Romania.

Key-words: political news, economic news, exchange rate, volatility clustering, GARCH model

JEL Classification: G12, G14

1. Introduction

     Many studies try to identify the elements that define the investors' behaviour. However, an exact foundation is difficult to be realized. It is often mentioned in the economic papers that, within the financial markets, any available information is rapidly reflected in the assets prices (Brealey and Myers, 2001). On the other hand, Shiller (2002) specifies that, occasionally, the investors demonstrate irrational behaviour regarding some information, the possible role of emotions in taking some decisions being recognized by both the economists and psychologists. Kahneman and Tversky (1979) proved that people have a behaviour which systematically contradicts the utility theory. As a matter of fact, in 1957, Festinger developed the cognitive dissonance theory which proves that people tend to filter the available information, so that this information corresponds to what they already believe. During the last years, this concept has been used to explain the different economic phenomena, too. Prast and de Var (2005) proved that the European unique currency depreciation against dollar in 2000 can be attributed to investors' asymmetrical reactions to the economic and political news.

     During the last decades, a range of studies has emphasized the way in which the economic and political news affects the currency market. There are many studies that examine the way in which the elective systems, the elections, the political alliance and the political incertitude affect both the evolution and the volatility of capital market and of exchange rate market. Taking into consideration the investors' heterogeneous behaviour, the different transaction strategies and also the different abilities of estimating and analyzing the impact of a new piece of information on the exchange rate value, the news don't lead only to an exchange rate modification but also to a higher volatility. Many factors were invoked in order to explain the behaviour of some economic variables. According to the results from the economic literature, the role of economic and political news is very important. The political events influence the assets price in different ways. In some cases, these significantly influence the financial markets, and on the other hand, the markets sometimes react calmly to political changes.

     The political risk is an important factor, especially in emergent economies and in the developing ones. Howell and Chaddick (1994) define the political risk as being "the possibility of the political decisions and political events from a country, including the social ones, to affect the business environment, so that the investors recall the investments or the profit leeway reduces." Clark and Tunaru (2005) define the political risk from two perspectives an external one that is associated to the political events which have economic and financial

consequences on a larger scale and an internal one that is specific to a single country. Authors such as Root (1973) and Simon (1982) define the political risk as being the event that causes losses.

Within this study, we propose to examine the euro/ron exchange rate volatility through a GARCH model between August 1st 2011 and August 23rd 2012. A GARCH model surprises, simultaneously, both explicative factors of the exchange rate evolution and factors that affect its volatility. Our analysis motivation lies in the fact that emergent economies are more sensitive to political events in comparison to the developed ones. Some authors' studies such as Bailey and Chung (1995), Durnev et.al. (2004), Goriaev and Zabotkin (2006) confirm this hypothesis. The political events impact on the euro/ron exchange rate is also a timely subject considering the importance given to the exchange rate by the economic actors from Romania and taking into consideration the recent political events, too. Apart from the political news we also included in the analysis a variable to quantify the economic news impact that regards the euro area's economic situation. An exhaustive analysis would have also supposed the inclusion of some internal economic news regarding the Romania's macroeconomic evolution. Unfortunately we didn't succeed in identifying exactly the hour of this news. We will appeal to the results of a study realized by Stoica (2009) in order to offer a larger image on the way in which the euro/ron exchange rate reacts to different news. The importance of such a study resides in the fact that the identification of the exchange rate determinant factors implies a better understanding of some phenomena impact on some macroeconomic variables.

Our study is structured in four parts. In the second part we emphasize the literature that analyses the political and economic news impact on the currency market and capital market. In the third part the methodological aspects on the estimated model, but also comments regarding the obtained results are presented. In the last part the conclusions are succinctly presented.

2. Literature review

Within the economic literature, there was an increasing interest in the way in which the economic and political news has influenced the exchange rate. Laakkonen (2007) analyses the European and American positive and negative macroeconomic news impact on the euro-dollar exchange rate volatility, with quotes at 5 minutes intervals, between 1999 and 2004. The news is taken from the World Economic Calendar portal (WECO) - Bloomberg. The results demonstrate that, generally, the negative news increase the volatility in a higher percentage than the positive ones. Birz and Lott (2008), through a linear regression in which the dependent variable is the daily modification of S&P500 index, and the independent variables the number of positive and negative news, measure the macroeconomic news impact on the stock index from USA within 1991-2004. The obtained results show that the news related to the gross domestic product and to the unemployment affects the actions performance. Beetsma et. al. (2012), using a linear regression, investigate the way in which the European debts crisis has affected the interest spreads and how it has propagated in other countries between 2007 and 2012. The authors observe that a bigger quantity of news leads to an interest spread growth especially in the GIIPS countries. Bernhard and Leblang (2004) studies the political news impact on the exchange rate volatility using a FIEGARCH model. In the uncertainty periods the traders trust less in the governmental policy's future. The author analyses the political news impact on the lira, French franc, Belgian franc and Swedish krona exchange rate. The results show that the political events have led to the growth of the exchange rate volatility. Clarida and Waldman (2007), using a simple but strong model, show that a negative news regarding the inflation (a higher value than the expected one) is a positive news for the nominal exchange rate, leading to its appreciation. In the study it is analyzed the impact on the announcements related to the inflation on the exchange rate that is calculated at a quote of ten minutes for ten countries between 2001 and 2005. Kumar and Ghalke (2006) quantify the relationship between the parliamentary sessions and capital market. Using the daily data from the latest 14 years, the authors show that the indices performance is lower and the volatility higher when the Parliament is in session compared to the periods in which the Parliament is on holiday. Andersen et. al. (2003), using a set of data for a period of six years related to the macroeconomic expectations and to the macroeconomic realizations, emphasize their impact on the exchange rate between dollar and the German mark, British lira, Japanese yen, Swiss franc and euro. The results show that the surprise news (discrepancies between expectations and realizations) lead to a volatility growth. The negative news has also a bigger impact than the positive news. Collignon et. al. (2012) quantifies the impact of the German chancellor's declarations, the economic news and the political news on the Greece bond interest spread. The results prove that the uncertainty concerning the decisional process on European level has led to the country's saving costs growth.

3. Methodology and results

Hereinafter, through a GARCH model (1,1) we propose to emphasize the way in which the economic and political news affected the euro/ron quotation at 15 minutes interval between August 1st 2011 and August 23rd 2012. This period selection is justified by the fact that during the last year in Romania there were many significant political decisions and events, mostly conflicting.

Worthy to be mentioned is the fact that only during the last year Romania has had 3 prime ministers and the president was suspended. Especially, the last political event was at large publicized in the international mass media. The uncertainty regarding the conflict result and the government's engagement to maintain fiscal discipline, especially in the perspective of anticipated elections which would have resulted after the president eventual definitive suspension, generated strong reactions among the investors. Such situations imply a high political instability which, at least on short term, is negatively reflected in the investors' perceptions regarding the economic environment.

Also, during the last year, the main leaders' instability on the decisional level and a quite doubtful economic situation has continued to exist in euro area. Taking into consideration the investors' aversion to risk, generally, the negative events from euro area had as a result the national currency depreciation. Within April-August, the national currency quote also decreased continuously against euro, the maximum depreciation reaching 5.90%. In this range, the foreign exchange from the region situated in an appreciation trend. The forint the Hungary's currency appreciated by almost 9% and the Polish zloty by over 7%. Between the end of May and the beginning of August 2012 Romanian currency depreciated by approximately 2%, while the Polish zloty and the Hungarian forint appreciated by around 8% against euro in the same period. In those six weeks after the president's suspension until the beginning of August, Romanian currency depreciated by 4%, while the zloty and the forint appreciated by 3, respectively 2 percentages. Poland's economy is very stable and, furthermore, continues to grow compared to other European states' economy. Additionally, Poland is a good example from the budgetary discipline point of view. Hungary, instead, confronts with a set of problems and has started the discussions to conclude a new agreement with the International Monetary Fund. Unlike the other two mentioned currencies the Czech crown, according to the European Central Bank, depreciated in the same period of time by over 4%, the highest quotes being communicated on 26th June- almost 26 crowns for one euro. The Czech economy is however decreasing, and the government has raised some taxes.

Analyzing the Mediafax political news flow, the main mass media agency from Romania, we selected a number of 92 political news. From Reuters database we also selected news regarding the European Central Bank actions, its president's comments, rating agencies decisions, but also news concerning the Greece's situation. Two dummy variables were built for the two categories of news. To these dummy variables we attributed value 1 when the news appeared and value 0 in the other cases. The euro/ron exchange rates at 15 minutes quote interval were obtained from the X Trade Brokers' trading platform, overall being included in the model 17.720 observations. The exchange rate was stationarized applying the first difference. We decided to use the euro/ron quote at 15 minutes interval in order to surprise really and exactly some news impact.

Before emphasizing the impact of the political news and of those from euro area on the exchange rate volatility through the GARCH model (1,1) we will emphasize the influence which these variables had on the exchange rate by estimating the following equation.

$$\log\left(E_t / E_{t-1}\right) = c1 + c2 * s\_political + c3 * s\_euroarea + c4 * ar(1) + \varepsilon_t \tag{1}$$

The estimation results are presented in the following table:

Explicative variables	Dependent variable	
	euro/ron exchange rate percentage modification	
	Coefficient	p.value
Constant	0.000127	0.6877
Political news	0.023648	0.0000
Euro area news	0.010755	0.0060
Number of observations	17.270	D-W statistic: 1.9830
Adjusted R^2	0.023815	

As we observe the political news positively affect the exchange rate, the coefficient assimilated to this influence being of 0.02364, which implies a national currency depreciation. The events from euro area also have a similar impact, the currency depreciation being more diminished in this case. The coefficient's higher value with which the political news affects the exchange rate variation can be attributed to the fact that, during the last year, the majority of the political events have generated instability, being enclosed in the negative news category. In a recent study Georgescu (2012) also show that the political events from the last 2 months have led to the national currency depreciation by approximately 4%.

Generally, by estimating a Garch model (1,1) the phenomenon of *volatility clustering,* more exactly if big variations of the market from the previous period are currently followed by higher variations, and smaller variations from the previous period are currently followed by lower variations, is tested. To estimate the model we used Eviews program. The detailed results will are presented in appendix. The correlogram of squared residuals and the heteroskedasticity test confirm the validity of the chosen model. The estimated model has the following formulas:

$$D\_Ex = C(1) + C(2)*ar(1) \qquad\qquad (2)$$
$$GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1) + C(6)*S\_POLITICAL + C(7)*S\_EURO\_AREA \quad (3)$$

In our opinion the estimated model surprises the factors that affect the volatility, the two variables included in the model being significantly from a statistical point of view. As it emerges from the estimated results, the actual volatility reaction to return shocks is of 0.3097, and the volatility persistence from the previous periods is quite high, of 0.4444. As we observe, the political news positively affects the euro/ron exchange rate volatility at a 15 minutes period with a percentage of 0.001959, and the news from euro area positively affects the volatility with a percentage of 0.002714. A higher volatility generated by events from euro area can be explained by the market confusion regarding the economic and political future of the unique currency. The coefficients sum is subunitary, the necessary condition for the process to come back to the average. Stoica (2009) in an estimation that encloses the euro/ron exchange rate at 15 minutes quote interval period shows that its volatility is positively influenced by the data publication concerning the inflation evolution in Romania, the volatility growing by 0.000931. The volatility is also positively influenced by the data publication regarding the gross domestic product evolution in Romania, growing by 0.000970.

4. Conclusions

Within this study, we tried to quantify the effect of political news and of events from the euro area on the euro/ron exchange rate variation and volatility. As we observed, both variables influence the exchange rate, this fact implying a national currency depreciation and a volatility growth. Consequently, in future, it is expected the imminent general elections to have a similar impact on the exchange rate and on Romania's borrow cost, taking into consideration that there are high uncertainties regarding the constituents of the future parliament, of the future government and regarding their economic strategy. The tensions on the financial markets also have significant implications on the real economy. The two factors conjugation, as it has happened in the recent period is to be avoided because it can have financial and economic consequences with a very high cost for Romania.

The main objective of the political authorities in emerging countries should be to establish a reliable and stable framework in order to ensure predictability and stability for the investors. When the major authorities from a country are in conflict, the consequences of this conflict will be reflected in the real economy. As a result, the advantages of a country reflected in a low cost of labour force will disappear because of an unstable political environment that generates conflicts, foster unpredictability and encourage rent extraction.

It should be underlined, that in Romania the national currency has a managed floating exchange rate against European single currency. Therefore, central bank intervention may influence the level of the estimated coefficients. Besides, central bank has indirectly intervened in foreign exchange market by limiting the amount of money that banks may borrow from central bank. Therefore, in order to avoid this inconvenience we have estimated our model using the euro/ron quotation at 15 minutes interval. On the other hand, it is worth mentioning that in the long run the exchange rate evolution will always reflect the level of competitiveness, the level of productivity from a country and the investors sentiment towards a country.

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Appendix

Table no. 1 - Empirical Estimation Results
Dependent Variable: D_EX
Method: ML - ARCH (Marquardt) - Generalized error distribution (GED)
Date: 09/01/12   Time: 13:45
Sample (adjusted): 3 17272
Included observations: 17270 after adjustments
Convergence achieved after 21 iterations
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1) +C(6)*S_POLITICAL
$\quad$ + C(7)*S_EURO_AREA

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.000288	9.40E-05	3.063757	0.0022
AR(1)	-0.145740	0.004067	-35.83631	0.0000
Variance Equation				
C	0.000961	4.69E-05	20.49340	0.0000
RESID(-1)^2	0.309773	0.023384	13.24744	0.0000
GARCH(-1)	0.444456	0.019351	22.96765	0.0000
S_POLITICAL	0.001959	0.000950	2.062133	0.0392
S_EURO_AREA	0.002714	0.001303	2.083503	0.0372
GED PARAMETER	0.680848	0.007225	94.23377	0.0000

R-squared	0.023402	Mean dependent var	0.000275
Adjusted R-squared	0.023346	S.D. dependent var	0.065050
S.E. of regression	0.064287	Akaike info criterion	-3.442576
Sum squared resid	71.36459	Schwarz criterion	-3.438982
Log likelihood	29734.64	Hannan-Quinn criter.	-3.441392
Durbin-Watson stat	2.029127		
Inverted AR Roots	-.15		

Table no. 2 - Testing for heteroskedasticity
Heteroskedasticity Test: ARCH

F-statistic	0.410539	Prob. F(1,17267)	0.5217
Obs*R-squared	0.410577	Prob. Chi-Square(1)	0.5217

Test Equation:
Dependent Variable: WGT_RESID^2
Method: Least Squares
Date: 09/01/12   Time: 16:06
Sample (adjusted): 4 17272
Included observations: 17269 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.232378	0.079644	15.47352	0.0000
WGT_RESID^2(-1)	-0.004876	0.007610	-0.640733	0.5217

R-squared	0.000024	Mean dependent var	1.226398
Adjusted R-squared	-0.000034	S.D. dependent var	10.39391
S.E. of regression	10.39409	Akaike info criterion	7.520467
Sum squared resid	1865475.	Schwarz criterion	7.521365
Log likelihood	-64933.47	Hannan-Quinn criter.	7.520763
F-statistic	0.410539	Durbin-Watson stat	2.000039
Prob(F-statistic)	0.521705		

Table no. 3 - The correlogram of residuals
Date: 09/01/12   Time: 16:09
Sample: 3 17272
Included observations: 17270
Q-statistic probabilities
adjusted for 1 ARMA
        term(s)

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
| |	| |	1	-0.005	-0.005	0.4107	
| |	| |	2	-0.004	-0.004	0.6671	0.414
| |	| |	3	-0.005	-0.005	1.1444	0.564
| |	| |	4	-0.002	-0.002	1.2052	0.752
| |	| |	5	0.011	0.011	3.3342	0.504
| |	| |	6	0.005	0.005	3.7525	0.586
| |	| |	7	-0.004	-0.004	4.0218	0.674
| |	| |	8	-0.004	-0.004	4.2594	0.749
| |	| |	9	-0.002	-0.002	4.3213	0.827
| |	| |	10	0.027	0.027	17.220	0.045
| |	| |	11	0.001	0.001	17.252	0.069
| |	| |	12	0.000	0.000	17.252	0.101
| |	| |	13	-0.003	-0.002	17.377	0.136
| |	| |	14	0.010	0.010	19.081	0.121
| |	| |	15	-0.001	-0.002	19.102	0.161
| |	| |	16	-0.002	-0.003	19.205	0.205
| |	| |	17	-0.004	-0.004	19.482	0.244
| |	| |	18	0.004	0.005	19.813	0.284
| |	| |	19	0.002	0.001	19.854	0.341
| |	| |	20	0.004	0.003	20.122	0.387
| |	| |	21	-0.001	-0.000	20.127	0.450
| |	| |	22	-0.003	-0.003	20.323	0.501
| |	| |	23	-0.001	-0.001	20.351	0.561
| |	| |	24	-0.000	-0.001	20.352	0.621
| |	| |	25	0.002	0.002	20.424	0.672
| |	| |	26	0.009	0.009	21.776	0.649
| |	| |	27	0.005	0.006	22.264	0.674
| |	| |	28	-0.000	-0.000	22.265	0.724
| |	| |	29	0.005	0.005	22.756	0.745
| |	| |	30	-0.002	-0.002	22.803	0.785
| |	| |	31	0.000	-0.000	22.803	0.823
| |	| |	32	0.002	0.002	22.873	0.854
| |	| |	33	-0.001	-0.001	22.884	0.882
| |	| |	34	-0.002	-0.002	22.976	0.904
| |	| |	35	0.003	0.003	23.128	0.921
| |	| |	36	0.011	0.011	25.311	0.886