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The effects of IMF conditionality on Romanian economy: evidence from the Bucharest Stock Exchange

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Abstract: The financial crisis has hurt almost all the countries in the world, strengthening the role of the international financial institutions such as the International Monetary Fund (IMF). Given that Romania turned to the IMF to cushion the impact of the crisis, our paper investigates the influence of the IMF programs on the macroeconomic indicators of the Romanian economy in the recent years and the effects on the investment environment represented by the volume of transactions on Bucharest Stock Exchange (BSE). The method used to achieve our goal is the analysis of the time series consisting of the monthly moving average of the volume of transactions on BSE, the consumer price index (CPI), the credit interest rate (Lombard) and the Euro/Ron rate of exchange fluctuation in the last 10 years. The contribution of the paper comes from its findings which draw an interesting and useful conclusion on the effects of the interventions of the IMF in Romania that can work as a guideline for further interventions.

Keywords: Romania, IMF conditionality, financial crisis, Bucharest stock exchange, market, credit, interest rate.

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Introduction

The main distinctive characteristic of the year 2008 was its economic trends, which guarantees it a special place in the world economic history. The rapid expansion of the crisis and the prompt transformation of euphoria into a feeling of doom is another main characteristic of that year (Mau, 2009). Moreover, during the first few months of 2008, both in Romania and overseas, the

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confidence about an economic miracle based on market stability managed to transform into expectations of economic brunt. In the fall, the 2008 financial crisis had already penetrated all economies regardless of their size or development level. This was not just another economic downturn. It is likely considered to be the most harmful economic turmoil to affect all sectors of the global economy. Moreover, because of the size of the crisis, we experienced the first decrease in global output in the past 60 years when the world GDP dropped with 0.6% in 2009.

The global financial crisis has become an inevitable part of our reality, as 2008 has forced experts, scholars and governments to seriously analyze the factors and roots of such flow of misfortune more and more. Hence, we mean to mention only the main approaches in the literature concerning the factors that caused the instability and global financial crisis (De Soto, 2010; FCIC, 2011; Greenspan, 2007; Caprio et al., 2008): (a) the strongly expansionary macroeconomic policies in developed countries, which generated demand expansion in the world economy; (b) the globalization of the financial systems, which strengthened demand expansion; (c) the shortcomings and serious weakness in the regulatory and governance systems; (d) the complex structure of high-risk mortgage loans securitization; (e) the employment of the *mark to market* stock values assessment method in accounting; and (f) the information problems and lack of transparency. At the same time, the boom in the economic activity created a set of circumstances which led to the formation of very optimistic expectations concerning the coming revenues and the risks of a decline in earnings was underestimated. This kind of expectations propelled the private sector to seek the implementation of more expansive policies.

Moreover, the market has underestimated the riskiness of the investment projects ensuing from the misleading anticipation based on the continuity of the growth in economic activity. The aforementioned two issues led to unjustified high prices and an increase in demand in real estate market. When the economic growth slowed it became apparent that the risks were underestimated and, in contrary, the active prices had been overestimated. This led to shrinkage in private demand and to an increase in the demand for more explicit models regarding the real risk levels of investment projects.

Hypotheses and research methodology

Literature review

First of all, the above mentioned dramatic alterations have impacted the financial companies' balance sheets by deteriorating them, which, in the end, led to the bankruptcy of some of these companies. In the short term, researchers have attempted to identify the key factors that influenced the dimension and the velocity of expansion of the crisis. Particularly, a group of scholars who have analyzed sub-prime credit problems implies that this is what led to such an unprecedented downturn (Popov and Ongena 2011; King and Wen, 2011; Tsai et al., 2011 cited in Moshirian, 2011).

Meanwhile, other scholars have attempted to find the explanations for such abrupt and speedy expansion of the crisis from one country to another. Particularly, Kenourgios et al. (2011) have investigated the financial contagion in a multivariate time-varying asymmetric framework, focusing on BRIC countries (Brazil, Russia, India, China have less representatives in IMF than other smaller countries) and U.S. and U.K. stock markets during five recent financial crises. And the empirical evidence confirms a contagion effect from the crisis country to all others for each of the examined financial crises. Another evidence of correlation between stock markets is the study conducted by Junior and Franca (2011) which concludes that markets tend to behave as one amid great recessions. Grammatikos and Vermeulen (2012) conclude that the sovereign debt crisis affected the development of stock exchanges by making financials palpably more dependent on changes in the difference between the Greek and German CDS (credit default swap) spreads after Lehman's collapse. Analyzing data from 50 equity markets the authors conclude that the effect on the interdependence of stock markets was considerable after Lehman's collapse, while JP Morgan's acquisition of Bear Stearns had a negligible effect (Kotkatvuori-Örnberg et al., 2013).

The global crisis has strengthened the role of international financial institutions such as the IMF as a global financial architect allotting an opportunity for its revitalization (Ohanyan, 2013). The IMF has used the chance it was given to reshuffle its voting rights and quotas as a response to its main critiques. Particularly, many scholars long before the global crisis had observed the lack of accountability and transparency amongst the Fund (Bradlow, 2006; Stiglitz, 2003; Portugal, 2005). It was during the crisis that for the first time the IMF and the EU collaborated to rescue the European states from downturn. In this end, the Fund helped the Romanian government to mitigate the effects of the crisis while imposing certain austerity measures.

Hence, given the fact that the roots of the global financial crisis have been strongly related with the situation in stock markets, we propose to study the behavior of the Bucharest Stock Exchange (BSE) amid this financial crisis. It is interesting to explore the effects of the IMF and its conditions on the investing environment, especially the BSE, as according to the requirements of the Fund, the Romanian government managed to privatize with certain delays ten of the largest loss-making state-owned enterprises (SOE), and their securities are now quoted in the BSE. Moreover, a recent study on post-communist Eastern European countries efficiency revealed serious doubts concerning the stock market efficiency for all observed countries, including Romania (Dragotă and Ţilică, 2013).

Assessments and studies have been conducted mainly by Romanian scholars on the efficiency of the BSE and separate tools estimations and cross-country comparisons were used. Yet, a vast amount of studies contains pre-crisis period analyzes. Tudor (2009) analyzes the data from 2001 to 2007 related to price ratios and the cross-section of common stock returns on BSE and concludes that book-to-market equity and earning-price ratios are important risk factors,

while, contrary to the CAPM, the correlation between stock returns and beta is insignificant, even when the latter is the only explanatory variable. Mînjina (2009) estimated the relative performance of valuation on BSE for pre-crisis period, as well.

Another study has attempted to test the BSE for heteroskedasticity employing the generalized ARCH model (Lupu and Lupu, 2007). Strong evidence of inefficiency in the BSE in that the lagged stock price index was a significant predictor of the current price index was found in the research conducted by Harrison and Paton (2004). Meanwhile, authors note that the level of inefficiency appears to diminish over time and there is evidence consistent with stock market efficiency in Romania after January 2000. Amongst the observed literature the only attempt to test the reliability of the moving average crossover rule in the BSE can be found in the study conducted by Anghel (2013) including both pre and after crisis periods, where the author concludes that the local market is not overall informational efficient.

Research hypothesis

The purpose of this article is to shed light on the effects of the SOEs stages of post privatization on the BSE work sessions. The first target of the research is to utilize models concerning dynamical statistical series trends. The second utilizes the techniques of the potentiality in different stages of dynamics evolution. It aims to track changes in the indicators that are presented below. The analysis aims to highlight recent changes in Bucharest Stock Exchange after the crisis. In conformity of our data analyzed with the data from the IMF world economic outlook October 2013, we show approximately the same as estimation as the one of the IMF experts. The data returns to the first IMF's measurement for the Romanian economy which are the memorandums of intervention signed with the Romanian government, letters of intention and reviews under Stand-by Arrangements (SBA). The model utilized four time series collected from BNR archives and Bucharest Stock Exchange archives ranging from January, 2007 to June, 2014. As variables we used the average volume of transactions and the consumer price index, the interest rate (Lombard) and the Euro/Ron exchange rate.

Potential intervention and the sway of Romanian macroeconomic indicators alterations on the Bucharest Stock Exchange

Their evolution is similar to specific methods of stock quotes. As a result, specific methods are explored. On the one hand, due to the fact that the basis of the quotations of the stock exchange are subjective factors which determines the character of the oscillator and, on the other hand, owing to the insufficiency of informations methods are called on to make predictions on this random character. They must mainly reveal both the specific price trend and swings around the trend to conserve in order to be able to make predictions (Barns, 1979). These predictions are then used in the justification of the decision to issue an intervention.

In the practice of scholarship there is a wide variety of dynamic analysis methods, which start from the descriptivist principles (such as the methods of charting (Jiler, 1965) and psychological methods of contrary opinions (Greiner, 1965), or the statistical and mathematical methods of moving averages, oscillators method (Tewels, 1969), concentration phase method (Norfi, 1975) breaks in rhythms method utilized in the study of pregnancy (Livemore, 1966), the theory of waves (Fraser, 1962), and secondary reactions method (Edwards, 1951), etc.).

The method used a component of the theory of waves which utilizes the mobile average technics (Bob et al., 2013).

It is based on the idea that a statistical series (such as those mentioned above):

$u_1, u_2, u_3, \dots, u_i \dots u_n$

Can be associated with two series of moving averages:

- short-term with interval of length s_1 ;

- long-term with interval of length s_2 ;

with: $s_1 < s_2$, calculated according to the relationship:

$$m_{i+[\sqrt{sk}]}^{(sk)} = \frac{\sum_{j=i-s_k}^i u_j}{s_k}, \quad (1)$$

where $[sk]$ = integer part, and $k = 1, 2$. In our analysis $s_1 = 4$ (quarterly moving averages) and $s_2 = 12$ (annual moving average).

The use of moving averages is trying to highlight the evolution of the different trends and is able to give an image relating to the behavior of the series. Note that the values s_1, s_2 , are determined as a result of the behavior in previous periods. As it is observed differently in different environments it reacts to the series of price oscillations. Thus, as you increase the size of the interval for calculating the average, its sensitivity decreases moving from the initial series oscillations. This objective was taken into account in the implementation of the moving averages.

In all cases, however, the idea underlying the introduction of moving averages is that in a series of statistics with random behavior, it introduces a relation of order, which is required for defining the relationship of the original series.

Thus, the background of general trends caused by factors with systematic series incorporates the influence of largely circumstantial factors that determine the occurrence of random of extremes which can be peaks (local maxima) if $u_{t-1} < u_t > u_{t+1}$; or depressions (local minima) if $u_{t-1} > u_t < u_{t+1}$; as well as some phases (the intervals between two turning points) of different sizes. With the help of moving averages there can be captured (according to the decomposable hierarchies of the maker) different levels of importance of the return.

However, it is unknown whether the return of time t is a maximum or a minimum absolute given that at time t it is not known the development at time $t + 1$, and the decision of the stock exchange trade options must be given at time t and not at time $t + 1$. To answer this question we will introduce a new concept, namely the concept of potential. The use of this notion is as follows: If we have a dynamic array u_1, u_2, \dots, u_i , then as each u_i element is greater than the previous u_{i-1} it decreases the growth potential of the series, and as it has less potential for decreasing, the series decreases. At the point of maximum (or minimum) of the absolute growth (or decrease) potential the series is (theoretically) zero. In practice, due to a combination of circumstances, is sufficient to achieve a range N.

Potential statistical series can be expressed using an indicator whose construction can be defined as (the following model represents the program written in Visual Basic by Bob in 1999):

- Establishing a number ω large enough to characterize the short, medium or long term evolution of the series.

- Calculating differences D between two successive values of the series u_i :

$$D_i = u_i - u_{i-1}. \tag{2}$$

- Calculating the moving average of the positive difference between the length ω , where the last term is i :

$$\overline{D}_i^{(+)} = \frac{\sum_{j=i-\omega}^i |D_j^{(+)}|}{\omega}. \tag{3}$$

- calculate the moving average of the negative differences between the length ω , where the last element is i :

$$\overline{D}_i^{(-)} = \frac{\sum_{j=i-\omega}^i |D_j^{(-)}|}{\omega}. \tag{4}$$

- calculation status indicator at moment i :

$$I_i^s = \frac{100(\overline{D}_i^{(+)} - \overline{D}_i^{(-)})}{\overline{D}_i^{(+)} + \overline{D}_i^{(-)}}. \tag{5}$$

- calculation of the potential indicators of the series of prices:

$$Ip_i = \begin{cases} 100 - I s_i \text{ for } I s_i \geq 0 \\ -100 - I s_i \text{ for } I s_i < 0 \end{cases} \tag{6}$$

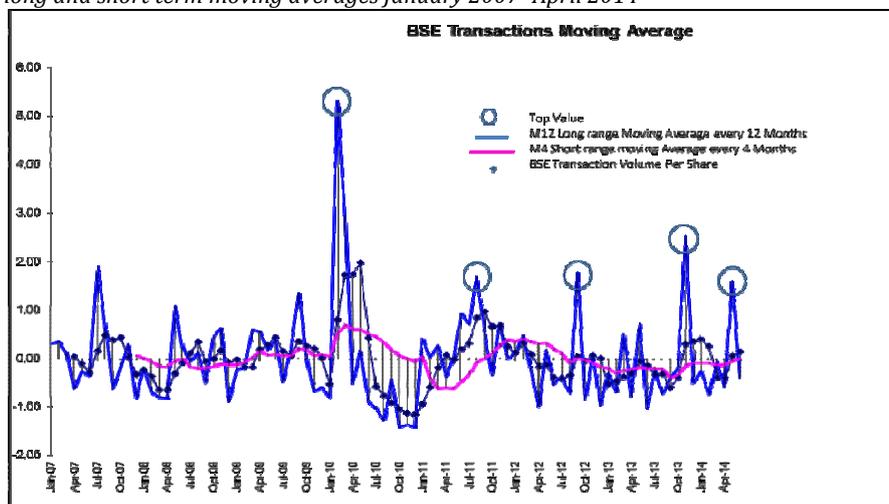
Descriptive statistics

As methodology the model utilized the techniques of moving monthly average connected with the potential indicator. The main hypothesis referring to the potential indicator is that time series have a potential to go to the +100% when is in development trend and goes to the -100% then the time series go to the minimum (see Figure 2) When the potential has a value in the closed neighbourhood of the absolute value $\pm 100\%$ it alarms to have a level intervention which is necessary to rebound the economic trends which are in our case the following: average volume of transactions, consumer price index, interest rate (Lombard) and Euro/Ron exchange rate.

Hypothesis H_0 implies that the four dynamic series are independent. As follows the statistical relation implies the BSE like conditional factors in relation with the other three: CPI that measure the effect of inflation, dynamics of interest rate (Lombard) that offers an image of the credit market and the last is the exchange rate of Euro/Ron which reflects the report between this two currencies.

In the figures below we analyze for every independent indicator, the moving average in short and long term, the 4 month short moving average, check the stability of the indicators after the intervention and report to the IMF about the availability of further intervention needed. In the long term the 12 month moving average indicates succeeding scale of the measurements on the economy and if another packages of intervention will be needed.

Figure 1. The Bucharest Stock Exchange volume of transactions per share associated with long and short term moving averages January 2007- April 2014

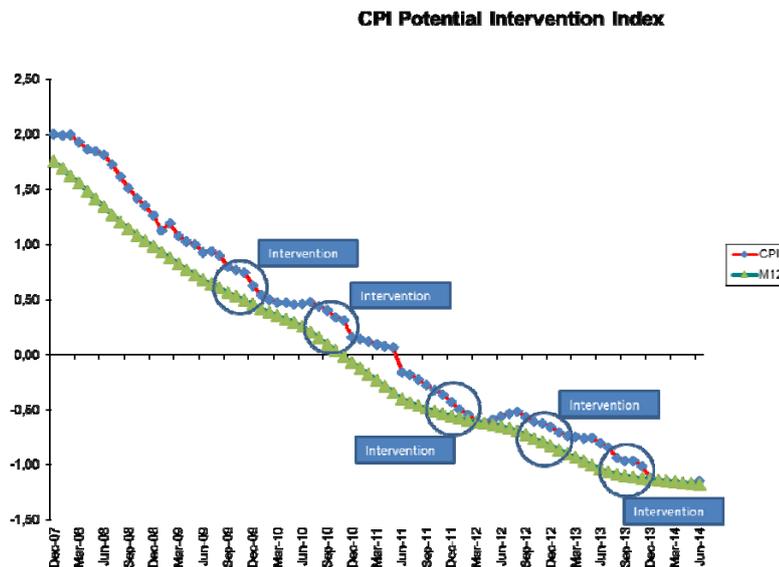


Source: Author's own research.

The IMF World Economic Outlook 2013 shows us that foreign direct investments have declined a lot in the first years of crisis, while since 2011 there can be observed a slight and continuous recovery according to

Androniceanu (2013). The professor highlights that some important economic, political, social and administrative changes have taken place due to the crisis, meanwhile the country's fiscal and financial policies are not attractive enough to guarantee the desired amount of expected foreign investments. The IMF intervened 18 times until 2014 with a total amount of payments of 14.923 billion Euros and 2014 expected 4 interventions amounting to 778.8 million Euros. The trend in Figure 1 indicates when it is compared with its analogue from the figures with the independent variable that an intervention correlation relation can be found at the top points on the trend (see Figures 2, 3 and 4) starting at October 2010, October 2011, April 2012, January 2013, July 2013.

Figure 2. The IMF payments and the effects of CPI potential intervention on the Bucharest Stock Exchange associated with the moving average in the long term from December 2007-June 2014

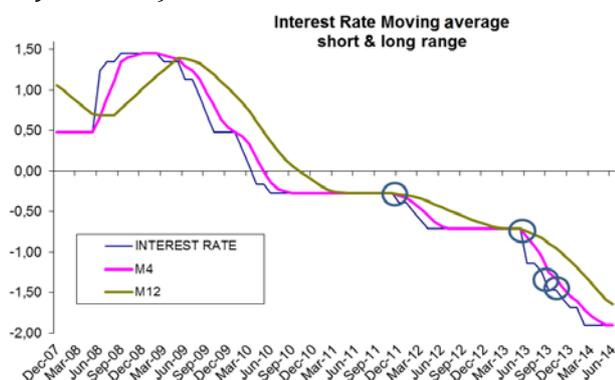


Source: Author's own research.

Being part of the entire world and highly integrated within the EU, Romania could not manage to be far from negative influence of the crisis. First decline in main macroeconomic indicators, especially CPI, has become evident since the last quarter of 2008 (see Figure 2). Romanian government was satisfied with obtained achievements of 2007: continuous economic growth, shrinkage of inflation, and decline of the unemployment rate. The Romanian government started implementing an expansive policy with a large budget deficit. Parallel with the large budget deficit, Romania has faced a negative current account balance which was conditioned by high consumption due to remittances from abroad and foreign direct investments.

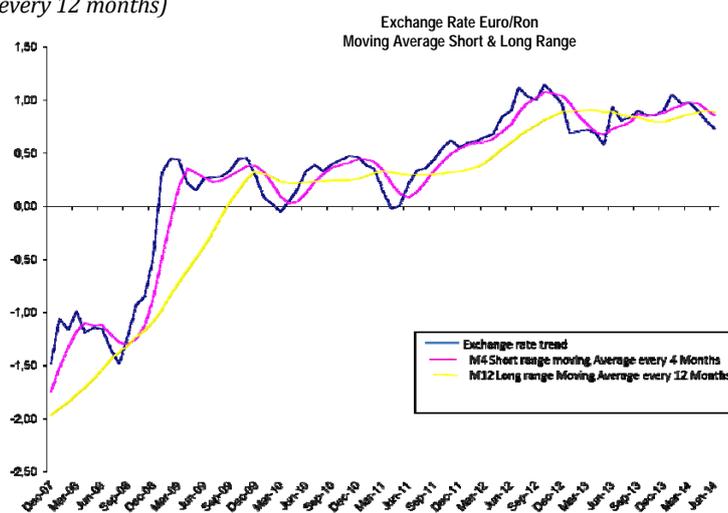
When the crisis hit the world, Romania was facing a modest inflation of 4.8% in 2007. Several months later in 2008, it drastically increased to 7.8 % undergoing the shrinkage of capital inflows, and demand curtail in major Romanian export markets which helped in maintaining a high consumer price index. Inflation during the crisis was high, fluctuating around 6% which was reduced to 3.3% in 2012. Yet the National Bank of Romania failed to underpin the achievement, and in 2013 inflation registered a slight decrease compared to the starting crises date 4.5%.

Figure 3. The effects of interest rate moving average index on Bucharest Stock Exchange short range M4 (moving average every 4 months) and long range M12 (moving average every 12 months)



Source: Author's own research.

Figure 4. The effects of exchange rate Euro/Ron index on the Bucharest Stock Exchange short range M4 (moving average every 4 months) and long range M12 (moving average every 12 months)



Source: Author's own research.

The Euro/Ron exchange rate was affected by the level of export growth – it can be observed in 2010 just the next year after the crisis and continued to be higher in 2011, meanwhile the next two years passed with decline in exports. With regards to the import, it experienced drastic shrinkage in 2009 by 20.5%, which led to a sudden decline of the current account balance GDP ratio. The Government managed to underpin the obtained level of current account balance/GDP ratio in the next years.

As it was mentioned, the Government has pursued an expansive policy which led to a large deficit. Particularly, since 2005 to 2009 the budget deficit/GDP ratio turned from -0.7 to -7.3 respectively. The large budget deficit allowed them to create public job vacancies by boosting the decline of unemployment in the country.

Hence, those negative factors have made the Government to ask financial support from the IMF to cushion the impact of the crisis on the economy and aimed to maintain adequate capitalization of banks and liquidity in domestic financial markets by further contraction of public expenditures. Yet, it is evident that the IMF arrangements come along with austerity measures. In the end, gross public debt/GDP ratio almost tripled during the recent 5 years. The next section is about requirements and the Romanian Government decisions made under those conditions.

The IMF conditional lending to Romania

One could observe that 5 years after the crisis, the Romanian economy fails to achieve the pre-crisis level of the GDP, economic growth was not stable in the recent three years. Particularly, in 2011 Romanian economy enhanced by 2.2 percent, while in 2012 the enhancement was less than the years before.

We looked at the main macroeconomic indicators according to which the economy started being stable after 2012. We chose a 10-year time span to illustrate five years before the crisis and respectively 5 years after the crisis. Therefore, it could be seen that total investments in the share of GDP during the 2003-2008 period increased – 31.3 percent of GDP in 2008. Looking forward 5 years, the Romanian Government probably failed to attract sufficient amount of investments to achieve pre-crisis level. The same picture is with the unemployment rate which has started to be curtailed since 2004 and in 2008 it was only 5.8 percent. Unemployment rose since the crisis penetrated in the economy and up until now it remained high. Stoiciu (2012) notes, that Romania in April 2009 involved SDR 11.4 billion from which about 0.9 was considered as precautionary, but it implied evident austerity conditions for the Government.

Indeed there is a great debate between scholars and experts concerning the IMF conditionality. On the one hand, conditions and measures make the governments to be more cautious while implementing policies; on the other hand conditionality may lead to quite unexpected effects. Particularly, austerity measures could make potential private lenders suspicious of a country's political and economic situation, inducing them to lend less instead of more (Radelet and Sachs, 1998). Hence, they argue that structural conditionality has

often been prescribed in the wrong cases and in wrong dosages. Dreher (2009) claims that the current practices of the IMF conditionality have to be reformed. First of all, there is palpable non-compliance among countries and in addition it is not rigorously punished by the Fund (Vreeland, 2006).

Dreher (2009) affirms conditionality may have commitment value, when there are no alternative sources credit available and investors, and then the country has no other choice but to comply with the conditionality. During the crisis, people all around the world were seeking available funds or investors to attract to their countries, so Romania did not have another chance but to resort to the IMF for financial assistance.

The initial 24-month Stand-By Arrangement (SBA) has proposed to cover three main areas: to curtail public expenditures underpinning budget deficit up to 3 percent, to maintain adequate capitalization of banks and liquidity in domestic financial markets and to bring inflation within the national bank target and underpin it there.

The lack of managerial capacity in the public sector has influenced the undertaken decisions (Androniceanu, 2012). Hence, the direct and the shortest way to cut the expenditure was through large elimination of public workplaces – about 137 thousands – and to freeze on goods and services, premiums, pensions and certain transfers. To comply with the second requirement, the Government got involved in with parent institutions of nine largest foreign-owned banks from Romania by motivating them to invest in the domestic economy and to subscribe under the coordinated commitments.

The authorities managed to comply with the two above mentioned restrictions with a few exceptions, yet they faced some problems while implementing the next measure to curtail forfeits of the largest ten loss-making state-owned enterprises (SOE). Particularly, authorities have to avoid of accumulation of external arrears and to meet the ceiling on general government domestic arrears (IMF, 2011). For this reason the Government asked another 24-month SBA amounting to SDR 3.1 billion in 2011, which was claimed as precautionary measure. The arrangement has been requested to support ongoing structural reforms by further focusing on the health reform and contraction of the local government arrears and restructuring core loss-making SOEs. As it is highlighted in the eighth review under the loan program (2013, July) the government failed to implement three of the five targets. Moreover, Romania has asked for another SDR 1.7 billion precautionary arrangement in 2013, October, which was caused by limited success of the reform of the SOEs and remains incomplete up to now (European Commission, 2013). While the grid operator Transelectrica's and the gas pipeline operator Transgaz's securities are now quoted on the BSE, Romania raised about EUR 100 million from secondary public offers. Hence, in the next section it is proposed to analyze the effects of the "former" SOEs on the overall situation in BSE.

Conclusions

An intervention correlation relation can be found at the top points on the trend of BSE transaction average and the independent variables on figure (2, 3 and 4) starting at October 2010, October 2011, April 2012, January 2013, and July 2013. Potential intervention models can be used both to model and forecast the response series and also to analyze the impact of the intervention. In our case we found a direct correlation. Inflation during the crisis was fluctuating around 6 % which was reduced to 3.3% in 2012.

An overview of the Romanian main macroeconomic indicators reveals that Romania keeps good track on implementation of the measures. Particularly one of the principal conditions has been to curtail public budget deficit GDP ratio up to 3 percent, while in 2013 it was 2.3 percent. The RNB with some exceptions has managed to underpin the inflation around 4 percent, which is near the target. Yet, Romania was faced, with real difficulties, when trying to cut arrears in top 10 loss-making state-owned enterprises. They failed in negotiations on "CFR Marfa", Transelectrica and Transgaz remained the two former SOEs whose securities now are quoted on the BSE. This unsolved issue served as main cause to why Romanian authorities claimed an additional precautionary loan from the IMF in 2013. The IMF program with Romania added to the BSE the opportunity to host new major players on its trading list by the partial privatization of Transelectrica and Transgaz which gave the stock market the chance to breathe a little and to recover some of the losses incurred during the financial crisis.

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