THE IMPACT OF THE CORRUPTION ON THE COUNTRY CREDIT RATE. EMPIRICAL ANALYSIS FOR THE LAST FOUR YEARS 2010-2013

Simona Roxana Ulman, PhD Candidate, "Al. Ioan Cuza" University of Iași

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Abstract: Corruption can be seen as the divergence from the public integrity concept. This negative phenomenon affects the good governance and the correlation between it and the country credit, an important index for the measurement of the macroeconomic environment stability, is logically argued. In this context, the aim of this study is to analyze if the country credit is influenced by corruption and to show the nature of this influence. Analyzing the country credit rate data from the Global Competitiveness Report and the data about corruption from Corruption Perceptions Index, and the manner they have evolved in the last four years (2010-2014), the results are expected to reveal the existence of a strong positive connection between these two indices, corruption significantly influencing the credit rate of a country. The analysis is made distinctly for the last four years for a clearer perspective of the evolution of these variables and for a more powerful argument for the strong correlation between them.

Keywords: corruption, country credit rating, macroeconomic environment, public sector.

1. Introduction

There is an urgent need for transparent, responsible and important changes in the politics of the public sector. This need is provoked both by the problems of corruption and lack of credibility of a country to pay back the debt and the likelihood of default. These two problems reveal the risk level of the investing environment of a country. Around the world, all nations complain of corruption. The high levels of social danger caused by the corrupt actions impose their control and sanctions through an adequate normative frame, through the anti-corruption agencies and through the perception of this phenomenon change. Also, country credit rate is an important element of a country stability showing its ability and willingness to repay its public debt on time and, in this context, it is relevant not only for the foreign investors, but also for international financial markets, economic agents and governments in their totality. Taking into consideration these aspects, the aim of this paper is to investigate if corruption and country credit rating correlate each other and if the country credit is influenced by corruption. The analysis is made distinctly for the last four years for a clearer perspective of the evolution of these variables and for a more powerful argument for the strong correlation between them.

2. Corruption

As a social phenomenon, the corruption is the expression of the moral decay and of the spiritual degradation, being a very complex social problem. Its ways of action, its social consequences and specific measures of solving this problem are a communal point of interest

both for the public opinion and for the institutionalized level of the social control (Sarbu, 2013, p. 9). It comes from the Latin term *coruptio*, meaning the especially behaviour of the public actor that commercializes his work responsibilities and the trust of the society in his integrity, receiving in turn money or other benefits (Nistoreanu et. al., 2002, p. 345). Corruption can be seen as the divergence from the public integrity concept. This negative phenomenon affects the good governance and the correlation between it and the country credit rate, an important index for the measure of the macroeconomic environment stability, is logically argued. Corruption is an action made by private individuals or companies that do not behave into an ethical manner and abuse of the public resources. These private individuals or companies cannot act alone. They have to be connected to the public actors that intermediate their abusive action and, so, deviate from the rules imposed by their public status. It never has to be forgotten that these corruption actions are always made by the public officials not for the general interest, but only for the private one.

Around the world, all nations complain of corruption and as it is observed in the Corruption Perception Index 2013, the most used index for the corruption measuring, no country has a maximum score showing that a country is totally clean. A country that isn't able to control and eliminate this problem suffers important losses of economic and social wellness. This phenomenon is perceived by everybody as being very dangerous for the well-being of the societies, undermining the power and authority structures, and, in this way, the credibility of the public institutions. This determines the citizens of a country to be distrustful on the public sphere and to not be implied in the country politics and social problems. The high levels of social danger caused by the corrupt actions impose their control and sanctions through an adequate normative frame, through the anti-corruption agencies and through the perception on this phenomenon change, trying to improve the national cultural points of views and to educate the minuses of the public system national approach on this level.

As it can be seen from the next graphs, the corruption is almost constant in the discussed years, registering a low decline or growth in all the countries. The greatest growth is registered in the Russian Federation with 7 additional points, but also in Brazil and China with 5 additional points. India also added 3 points at its corruption score. The decrease is registered in Japan with minus 4 points, Sweden with minus 3 points and Germany with minus 1 point, but, taking into consideration that these countries have very high scores of CPI, meaning very low levels of corruption, declines of 4 points do not have as consequence big changes, countries still having high levels of CPI and low levels of corruption. Also, as a conclusion, it can be observed that countries that have scored advancement in the CPI are especially BRIC countries that, although are between the power centres of the world, are very corrupt. Their recent economic development categorises them in this powerful group, but still does not assure them efficient national integrity systems. They have to recuperate important elements of culture and law that undermine the integrity from the national level. As it is well-known, corruption became almost the perfect opposite of the public integrity concept, meaning that a public sector that is not corrupt is a public sector of integrity. Becoming a part of the centres of power of the world, the BRIC countries must emphasize on this aspect, prioritizing it and giving the proper importance when they establish their policies.

Discussing about the countries from the Eastern European Bloc, the things are a little different because these countries only evolve, registering ascent between 5 and 7 points, with

the Ukraine's exception, that evolves only with 1 point. This higher evolution is explainable because the countries from this group have had a lower level of CPI than the countries of the anterior group, starting from 21 (for Russian Federation in 2010) and ending with 60 (for Poland in 2013). It can be observed that almost the lowest score for the all four years is for Russian Federation, a country that is between the power centers of the world. With a worse situation on the corruption aspect than the BRIC countries, Russian Federation belongs to the group formed by the countries from the Eastern European Group. Poland is the leader of this discussed group, detaching by the other five countries included in it. It registers the highest evolution, equal to 7 points and has a value equal to 60 points in 2013 in the context that the next country from its group has a CPI score equal to 43 points.

Figure 1: The evolution of the corruption in the last four years (2010-2013) in the centres of power in the world

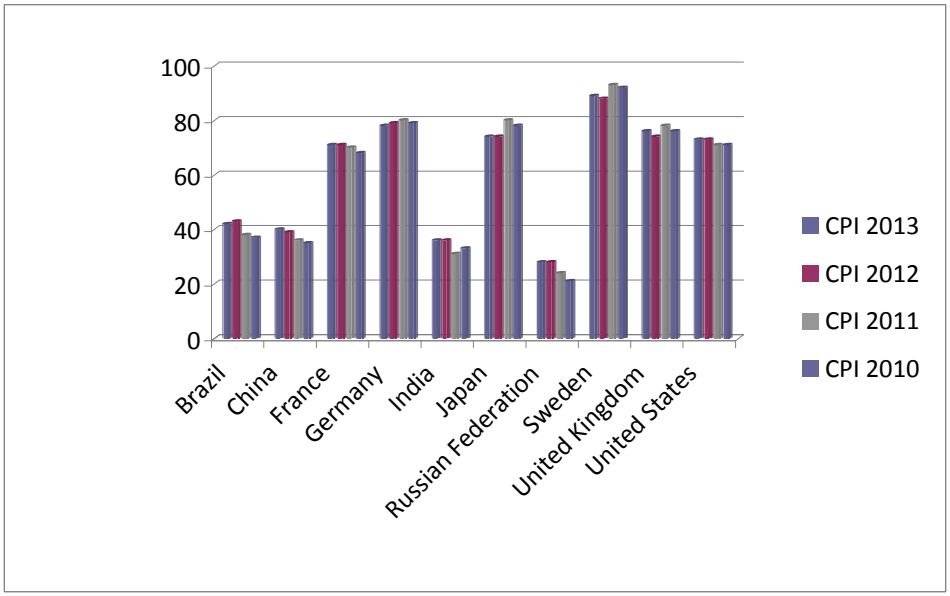
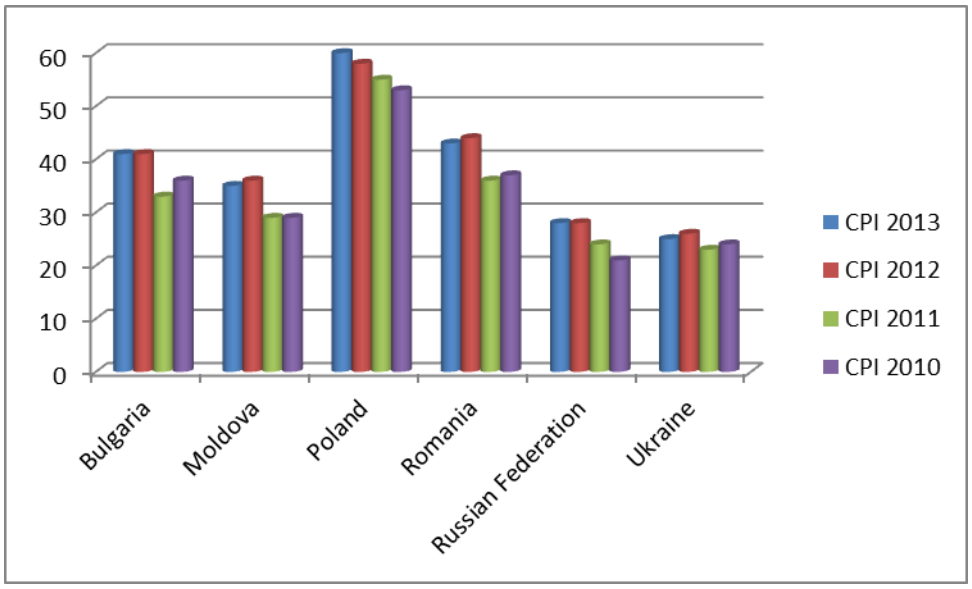


Figure 2: The evolution of the corruption in the last four years (2010-2013) in the emergent countries from the Eastern European Bloc



3. Country credit rate

A credit rating represents an assessment of the credit worthiness of a debtor, in our case, referring to the national level, the debtor is the country represented by its government. The evaluation is made to find out the ability of the debtor to pay back the debt and the likelihood of default. This index reveals the risk level of the investing environment of a country. It is a useful instrument for the investors that look to invest abroad. It is an important facet of the government of a country ability and willingness to repay its public debt on time and, in this context, it is relevant not only for the foreign investors, but also for international financial markets, economic agents and governments in their totality. Like other credit ratings, sovereign ratings are assessments of the relative likelihood that a borrower will default on its obligations (Cantor and Packer, 1996, p. 37). From the point of view of the governments, they generally seek credit ratings to ease their own access and the access of other issuers domiciled within their borders to international capital markets, where many investors prefer rated securities over unrated securities of apparently similar credit risk (Cantor and Packer, 1996, p. 38).

In this paper, we used the country credit rating measured in The Global Competitiveness Report, the index representing the "expert assessment of the probability of sovereign debt default on a 0-100 (lowest probability) scale" (Schwab, 2013). We analyzed this index from the perspective of four years to be able to extract the right conclusions of the overall national images and to find out if great changes have been registered over these years.

Figure 3: The evolution of the country credit rate in the last four years (2010-2013) in the centres of power in the world

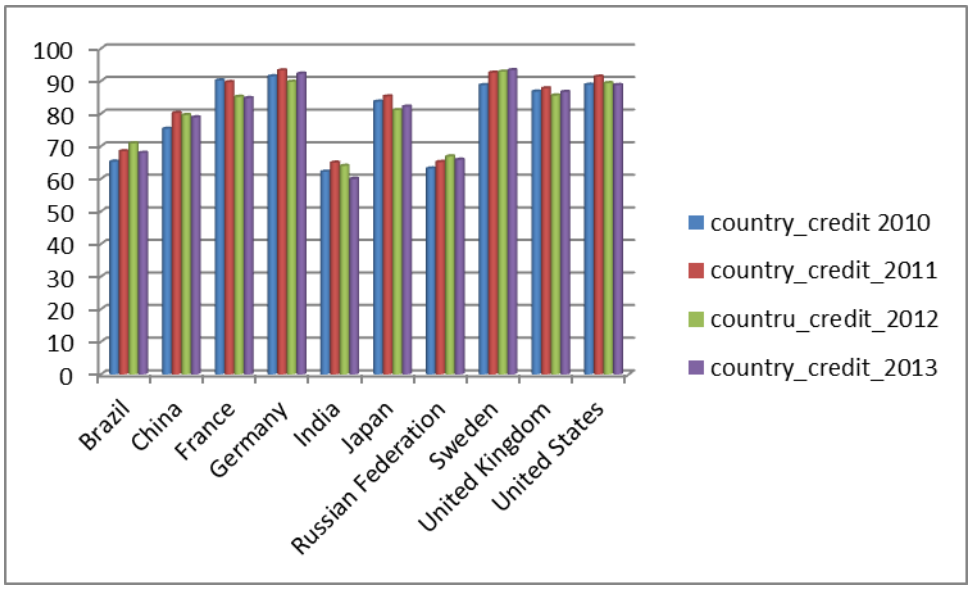
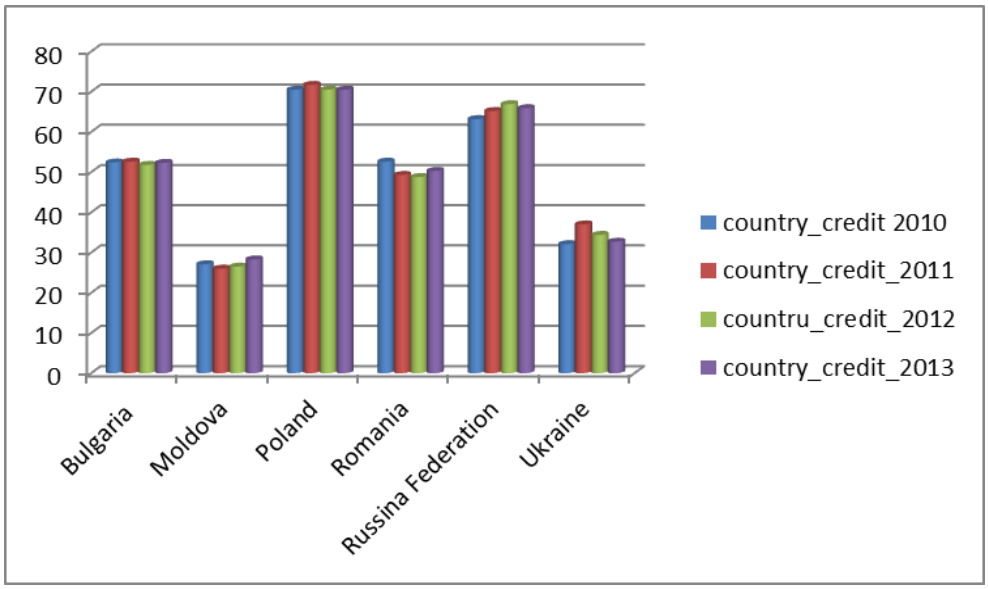


Figure 4: The evolution of the country credit rate in the last four years (2010-2013) in the emergent countries from the Eastern European Bloc



In this context, the evolution of the country credit rating in the last four years in the main centers of power in the world is evidenced in the first above-mentioned graph. It can be observed that big changes did not happen in the last four years, but, between countries, the differences really exist although they are all centers of power. The minor rates are for India and Russian Federation, followed by Brazil, China and Japan. This reveals that the BRIC countries are still having problems of credibility comparing with the other centers of power. These countries have to recuperate important disparities at this level as to be able to equate to the other centers of power discussed here. In all the years, in this group of countries, less levels of country credit rating than 55 do not exist and differences greater than 5 points over the years do not register. In this context, we can observe evolution for Brazil, China and

Sweden, involution for France and India and alternated levels for the rest of the countries – Germany, Russian Federation, United Kingdom and United States.

As it can be seen in the second graph, the countries from the group of the emergent countries from the Eastern European Bloc register levels that can be coupled: Bulgaria with Romania (approximately 50 points), Moldova with Ukraine (with the specification that Moldova has his levels a little under 30 points and Ukraine a little over this value) and Poland with Russian Federation (between 60 and 70 points, but with Poland in the top). The levels are almost constant in the all four years and for the all countries from this group, more constant than the ones from the first group, where evolutions or involutions did register.

4. Results and discussion

Four Spearman Rank Correlation tests and four regressions were performed for all the countries (100) included in the analysis. Since this is a cross-sectional analysis, robust errors estimation method was used for estimating the relation between the two variables for each regression from the present analysis.

For the economy of paper space, we grouped the results of our regressions in two tables, emphasizing that each regression is numbered in the following way: model 1 – *CPI_2013* vs. *country_credit_2013*; model 2 - *CPI_2012* vs. *country_credit_2012;* model 3 - *CPI_2011* vs. *country_credit_2011*; model 4 - *CPI_2010* vs. *country_credit_2010*.

Table 1: The estimation of the calculated correlation coefficients

Model Summary[b]

Model	R	R Square	Adjusted R Square	Sig.
1. *CPI_2013* vs. *country_credit_2013*	,843[a]	,710	,707	,000[a]
2. *CPI_2012* vs. *country_credit_2012*	,853[a]	,727	,724	,000[a]
3. *CPI_2011* vs. *country_credit_2011*	,860[a]	,740	,737	,000[a]
4. *CPI_2010* vs. *country_credit_2010*	,845[a]	,713	,710	,000[a]

a. Predictors: (Constant), CPI_2013, CPI_2012, CPI_2011, CPI_2010

b. Dependent Variables: country_credit_2013, country_credit_2012, country_credit_2011, country_credit_2010.

For the model 1, the regression analysis indicates that a strong connection between CPI_2013 and country_credit_2013 exists, because the correlation report has a high and positive value (R=0, 843). R square indicates that 71% of the dependent variable variation is explicated by the variation of the independent variable. Also, the estimated value of the multiple adjusted determination report obtained in the estimation of the calculated correlation coefficients (table 1, model 1) reveals with a higher precision the influence of the independent variable on the dependent variable, indicating that the variation of the CPI_2013 variable explicates 70,7% of the country_credit_2013 variation. Also, the correlation report test (Sig.

F= 0,000) < (α = 0, 05) shows that, between the considered variables, a significant relation does exist; the determination report test (Sig. F= 0,000) < (α = 0, 05) indicates that, statistically speaking, it really exists a significant relation between the two chosen variables; the regression model's test (Sig. F= 0,000) < (α = 0, 05) guaranties, as it should, with a 95% trust, that the model is statistically significant (table 1, model 1).

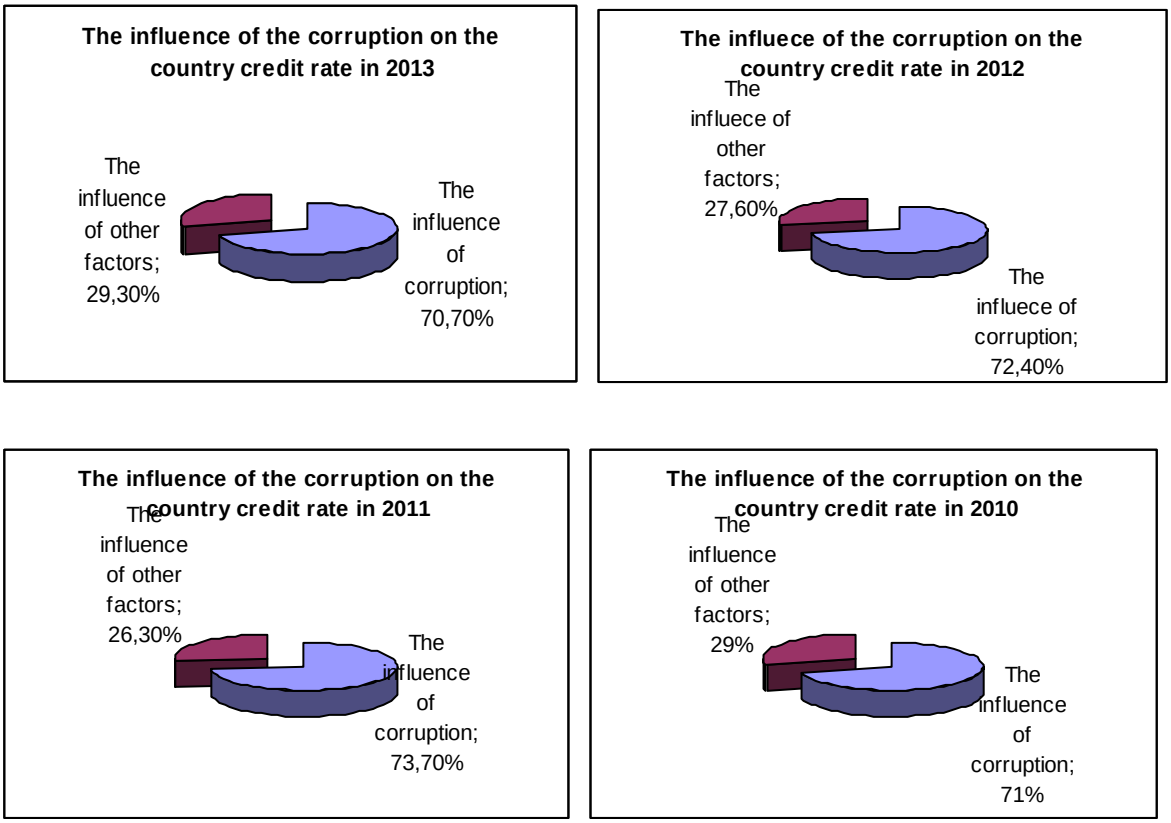
For the model 2, the regression analysis also indicates that a strong connection between CPI_2012 and country_credit_2012 exists, because the correlation report has a high and positive value (R=0, 853). R square indicates that 72,7% of the dependent variable variation is explicated by the variation of the independent variable. Also, the estimated value of the multiple adjusted determination report obtained in this estimation of the calculated correlation coefficients (table 1, model 2) reveals with a higher precision the influence of the independent variable on the dependent variable, indicating that the variation of the CPI_2012 variable explicates 72,4% of the country_credit_2012 variation. Also, the correlation report test (Sig. F= 0,000) < (α = 0, 05) shows that, between the considered variables, a significant relation does really exist; the determination report test (Sig. F= 0,000) < (α = 0, 05) indicates that, statistically speaking, it exists a significant relation between the two chosen variables; the regression model's test (Sig. F= 0,000) < (α = 0, 05) guaranties, with a 95% trust, that the model is statistically significant (table 1, model 2).

For the model 3, regression indicates that a connection between CPI_2011 and country_credit_2011 exists, because the correlation report has a high and positive value (R=0, 860). R square indicates that 74% of the dependent variable variation is explicated by the variation of the independent variable. Also, the estimated value of the multiple adjusted determination report obtained in this estimation of the calculated correlation coefficients (table 1, model 3) reveals with a higher precision the influence of the independent variable on the dependent variable, indicating that the variation of the CPI_2011 variable explicates 73,7% of the country_credit_2011 variation. Also, the correlation report test (Sig. F= 0,000) < (α = 0, 05) shows that, between the considered variables, a significant relation does really exist; the determination report test (Sig. F= 0,000) < (α = 0, 05) indicates that, statistically speaking, it exists a significant relation between the two chosen variables; the regression model's test (Sig. F= 0,000) < (α = 0, 05) guaranties, with a 95% trust, that the model is statistically significant (table 1, model 3).

For the model 4, regression also indicates that a connection between CPI_2010 and country_credit_2010 exists, because the correlation report has a high and positive value (R=0, 845). R square indicates that 71,3% of the dependent variable variation is explicated by the variation of the independent variable. Also, the estimated value of the multiple adjusted determination report obtained in this estimation of the calculated correlation coefficients (table 1, model 4) reveals with a higher precision the influence of the independent variable on the dependent variable, indicating that the variation of the CPI_2010 variable explicates 71% of the country_credit_2010 variation. Also, the correlation report test (Sig. F= 0,000) < (α = 0, 05) shows that, between the considered variables, a significant relation does really exist; the determination report test (Sig. F= 0,000) < (α = 0, 05) indicates that, statistically speaking, it exists a significant relation between the two chosen variables; the regression model's test (Sig. F= 0,000) < (α = 0, 05) guaranties, with a 95% trust, that the model is statistically significant (table 1, model 4).

For a better perspective and comparison, we put the data in four pie graphs, revealing that the highest influence of the corruption is exerted on the Country credit aspect in 2011 year (73,7%), with the mention that big differences do not exist in the four analyzed year. The average of the corruption influence on the country credit rate for the all four years is 71, 95%, value not very higher than the bigger one from 2011 year. It can be observed that corruption impacts the country credit rate at a high level and in the next section the explanations for this reality would be formulated in the next sections.

Figure 5: The influence of the Corruption on the Country credit rate in 2013, 2012, 2011, and 2010



From the model's parameters test results (table 2), we can observe that, at an extension with a unit of the CPI variable, the dependent variable values advance with different numbers of units, revealing the positive influence that exists between the two variables taken into the analysis. Also, it can be seen that at a value of CPI equal to zero (CPI_2013, CPI_2012, CPI_2011, CPI_2010=0), the medium values of the dependent variables are different. It is observed that when, hypothetically speaking, CPI is equal to zero, the dependent variables are first negative (for the first two years) and then positive (for the last two years). The constant term also becomes significant and implies the existence of other factors that affect the country credit rate. These results imply that while corruption is a significant determinant of the Country credit rate variable in all the four selected years, there are other variables that significantly explain the country's evolution in the case of the country credit rate. So, it can be observed that when CPI_2013 advances with a unit, country_credit_2013 advances with 1,061 units; when CPI_2012 advances with a unit, country_credit_2012 advances with 1,086 units; when CPI_2011 advances with a unit,

country_credit_2011 advances with 0,944 units; also, when CPI_2010 advances with a unit, country_credit_2010 advances with 0,954 units. These values become significant taking into consideration that the country credit rate takes values between 0 and 100 and the lowest value of this variable is 5,3 for Zimbabwe from all the countries and for all the years. Also, it should be mentioned that this is an exception, because the medium value of the credit rate for all the years and for all the countries is 50,89 and for the countries from the first stage of development for all the years is 26,22. In these conditions, values such 1,061; 1,086; 0,944; 0, 954 become relevant and significant, proving the influence that corruption exerts on these country variables.

Table 2: The model's parameters test results

Coefficients[a]

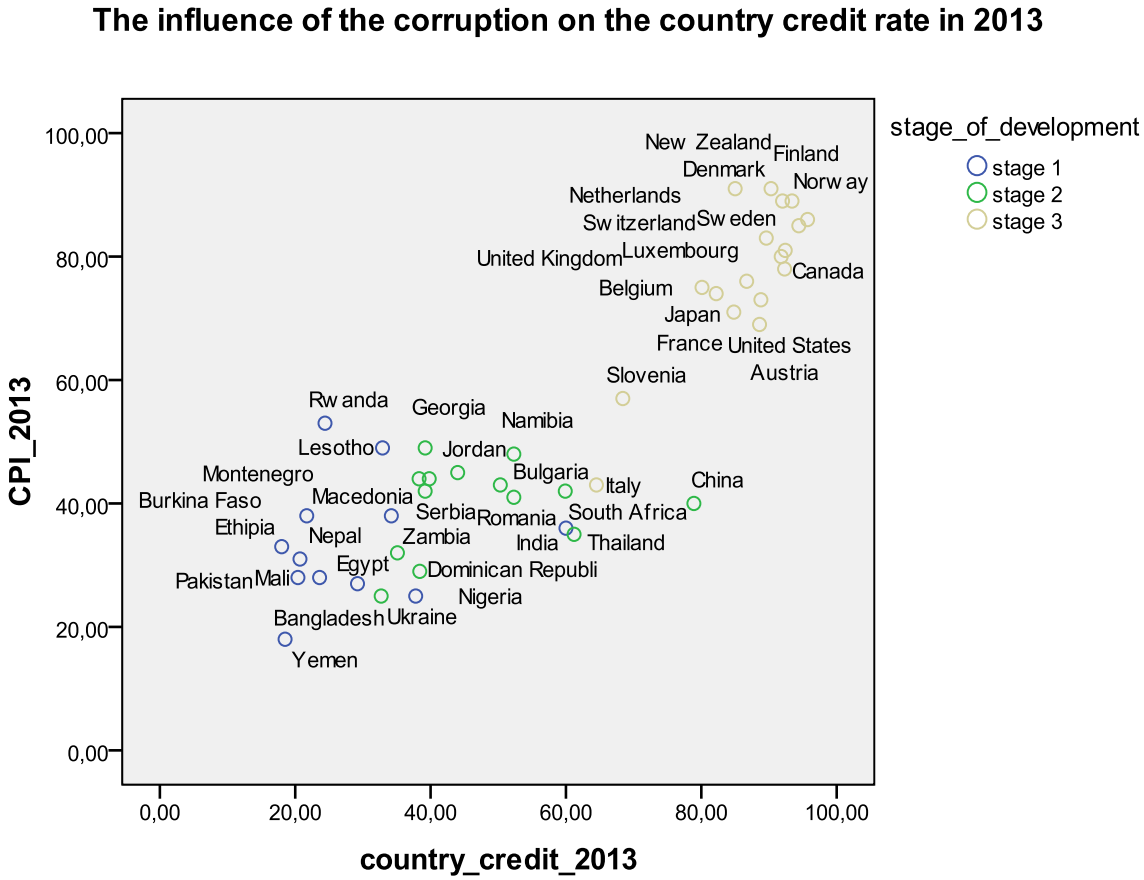
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-,299	3,370		-,089	,930	-6,979	6,382
	CPI_2013	1,061	,066	,843	16,117	,000	,931	1,192
2	(Constant)	-2,632	3,536		-,745	,458	-9,652	4,387
	CPI_2012	1,086	,068	.853	15,913	,000	,950	1,221
3	(Constant)	9,596	2,994		3,205	,002	3,650	15,542
	CPI_2011	,944	,058	,860	16,268	,000	,829	1,059
4	(Constant)	9,494	3,312		2,867	,005	2,916	16,073
	CPI_2010	,954	,063	,845	15,047	,000	,828	1,080

a. Predictors: (Constant), CPI_2013, CPI_2012, CPI_2011, CPI_2010

b. Dependent Variables: country_credit_2013, country_credit_2012, country_credit_2011, country_credit_2010.

These regressions reveal that countries rated as having high CPI, meaning that corruption is low at the national level, tend to have higher values of the country credit rate. In the same way, countries rated as having a high level of corruption revealed through the low value of CPI, tend to have lower scores of the country credit rate variable than the more ethical countries. More specifically, it must be underlined that a high CPI score means less corruption, *0* indicating *highly corrupt* and *100* indicating *very clean*. A country that has a high CPI rank is expected to have a high rank on the Country credit variable list from The Global Competitiveness Report 2013-2014, 2012-2013, 2011-2012 and 2011-2010 that means that uncorrupted countries are also expected to have high country credit rate.

Figure 6: The influence of the corruption on the country credit rate in 2013



Source: authors' processing

The scatter plot (Figure 4) depicts the relationship between the perception of corruption measured by the Corruption Perceptions Index and Country credit rate measured in the third pillar from the Global Competitiveness Index, Macroeconomic Environment as the last index of this pillar. It reveals a positive correlation between the two variables, which means that, on average, the views of corruption are related with the levels of development of

the country credit rate. Also, from the graph, it can be observed that countries divide in only two well defined groups and not three: one group with a strong positive connection between country credit rate and CPI, including the countries from the first two stages: Stage 1 and Stage 2, and another group, organized between 60 and 100 – level of CPI and 60 and 100 – level of country_credit_2013. As it can be seen, the second group is formed from the most developed countries of the world (Netherlands, Sweden, Belgium, United States, Canada, Japan, Finland, Denmark, etc.). Slovenia and, especially, Italy are the "out-siders" of the analysed countries from the Stage 3 because of their low scores both in CPI and country_credit_2013. Also, a same status can be established for China, the country with the highest score at the country credit rate from the Stage 2 of development. Rwanda and Lesotho also detach on the CPI score by the countries from their stage of development, Stage 1: Factor-driven economies, having a higher CPI score.

5. Conclusions

The analyzes reveals a positive correlation between corruption and country credit rating, meaning that, on average, the views of corruption are related to the levels of development of the country credit rate. The results reveal that countries rated as having high CPI, meaning that corruption is low at the national level, tend to have higher values of the country credit rate. In the same way, countries rated as having a high level of corruption revealed through the low value of CPI, tend to have lower scores of the country credit rate variable than the more ethical countries. The highest influence of the corruption is exerted on the Country credit aspect in 2011 (73,7%), with the mention that big differences do not exist in the four analyzed year. The average of the corruption influence on the country credit rate for the all four years is 71, 95%, value not very different than the bigger one from 2011. So, it can be observed that corruption impacts the country credit rate at a high level.

The possible explanations for this state of facts must be found on the basis of their determinants, meaning on the public sector level, especially taking into consideration the governments of the countries. The way of acting of this institutions impact also the integrity of the public sector as a whole and, in the same way, the stability of the macroeconomic environment that is represented, between other factors, by country credit rating. More, the manner of the public actors acting in an ethical way or not, translating in public integrity or, contrary, in corruption, impacts with a high level the financial public actions. Country credit rating, as an important facet of them, is a country ability and willingness to repay its public debt on time and, in this context, it is relevant not only for the foreign investors, but also for international financial markets, economic agents and governments in their totality. In this context, if a public sector is perceived as being corrupt, it is impossible to be trusted when it is in the debtor position. It cannot be possible to have part of credibility at the financial duties level if it is seen per totally as not having part of integrity. The analogy can be made starting from the individual level, revealing that a person that is not a man of integrity cannot be credible for borrowing him a sum of money. Using the inductive reasoning, a state with a corrupt public sector cannot be trustworthy when it is in debt.

In conclusion, the relation between the level of corruption and the country credit rate is proven and the negative impact of the corruption phenomenon on the macroeconomic environment stability is emphasized.

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