Corruption Perceptions Index, Credit Rating and Global Competitiveness of Selected Countries

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Abstract

The paper aims to analyse the impact of corruption on the economy of selected countries. Its theoretical part characterises the analytical method applied by the author and the basic concepts, e.g. economic performance indicators. The paper contains reflections on the possibilities for assessing effects on the economy, one of them being the comparison with sovereign credit ratings and the other is the evaluation of competitiveness. In the analytical part, the author uses graphs to visualize the relation between the growth of the Corruption Perceptions Index and the increase in the probability of default of the state in meeting its obligations arising from the issued long-term bonds. An analysis of published data showed that growth in the Corruption Perceptions Index increases the sovereign default probability and decreases the country's competitiveness.

Keywords: trend analysis, corruption, rating, competitiveness
JEL Classification: D73, G24

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[3] ** Acknowledgements: The paper has been elaborated in scope of the research task "New approaches and methods of financial investigations, asset seizures and detection of money laundering" solved at Vysoká škola finanční a správní in Prague (Czech Republic) under no. VG20142015038.*

1. Introduction

At the present time money derived from crime is driven by the perpetrators through processes referred to as money laundering. This also applies to the money coming from corruption. In connection with corruption people also often wonder whether and how corruption affects the economic performance of individual countries. Some leading economists consider research related to corrupt practices important in relation to the country's economy. In connection with corruption, discussions refer to the method of its identification, detection and sanctioning. Different authors define corruption differently and the present paper briefly theoretically defines the notion of corruption. A similar problem may arise in quantifying corruption. However, mostly the data show that corruption is not perceived equally in different countries; it is possible to derive a hypothesis that an analysis of corruption can help explain differences in the economic performance of individual countries. However, neither the choice of economic performance indicators is clearly predetermined. The paper contains reflections on the possibilities for assessing effects on the economy, one of them being the comparison with sovereign credit ratings and the other is the evaluation of competitiveness. An analysis of published data shows that growth in the Corruption Perceptions Index increases the sovereign default probability and decreases the country's competitiveness.

2. Methodology

The aim of this paper is to examine from two angles the issue of impacts of corruption on the economy of selected countries. A hypothesis has been drawn for the analysis in this paper, according to which greater corruption relates to a greater risk of credit default and worse competitiveness of a particular country. Therefore selected

countries had been sorted in ascending order by the growing perception of corruption and the first part of the analysis assigned them values of the financial default probability, i.e. probability of the extent, in which the country would be unable to meet its obligations arising from issued government bonds. Ratings of the individual countries have been applied to assess the probability of default. To visualize the dependence of the probability of default on the extent of perceived corruption the analysis used a chart, in which the x-axis (independent variable) stated individual countries in ascending order by the increasing perceived corruption and the probability of default was used as a dependent variable.

A serious problem of time series analyses consists in determining the specific type of the trend function. Decisions about the appropriate type of function should be based on substantive economic criteria, i.e. the trend function should be selected after a factual analysis of the examined economic phenomenon. A graphical representation of the time series allows to roughly reveal basic development tendencies of the analysed indicator. However, the risk of a choice based on a visual selection consists in its subjectivity. Different analysts may assess a situation differently and choose different types of the trend function. The present analysis selected a linear trend according to equation 1

$$y = a * x + b \quad (1)$$

and an exponential trend according to equation 2.

$$y = b * e^{ax} \quad (2)$$

The second part of the analysis again sorted the selected countries in ascending order by the growing perception of corruption and the countries were assigned data characterising the score for the competitiveness ranking of the country. To assess the dependence of the competitiveness on the extent of perceived corruption the analysis again used a chart, in which the x-axis (independent variable) stated individual countries in ascending order by the increasing perceived corruption and the competitiveness score was used as a dependent variable.

3. The notion of corruption

Corruption is often referred to as "the greatest obstacle to economic and social development. The main reason consists in the fact that corruption distorts roles of the rule of law and weakens the institutional foundations, which the economic growth depends on". Corruption involves not only bribery, but also various forms of abuse of functions in public administration for private gains. The issue of quantifying corruption and its consequences in the economy deserves greater attention. It has been addressed by documents of international organisations, such as the OECD (2011). Corruption is often linked to money laundering, as stated Schlossberger (2012). Also many others theorists and media have been showing sustained interest in recent years.

The ProQuest database showed 2 207 836 records for "corruption", of which 70 410 were full text and peer-reviewed ones. The increase in the number of records in individual years is shown by Table 1, Number of records in the ProQuest database for "corruption". If corruption is indeed one of the variables that result in deterioration of the performance of economies, the elimination of corruption within a country may be a key to the elimination of regional economic disparities and thus to improvements in the country's economic performance.

Table 1. Number of records in the ProQuest database for "corruption"

Year of entry	Number of entered records
2014	215 041
2013	198 268
2012	205 506
2011	247 774
2010	164 947

Source: ProQuest database, 17. 10. 2015

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4. Corruption Perceptions Index

Given that corruption is inherently subjective, measuring the level of corruption is often a problem. It is almost impossible to evaluate the absolute corruption rate based on hard empirical data. For example, comparisons of the amounts of bribes, the number of prosecutions or judicial proceedings in corruption cases do not reflect the true extent of corruption, but often rather highlight the quality of prosecutors, courts and sometimes of media upon detecting and investigating corruption. In the present analysis, corruption is quantified by the Corruption Perceptions Index (CPI). The last one was published in December 2014. The Corruption Perceptions Index has been published by the international non-governmental organization Transparency International (TI) since 1995. The analysis is based on the fact that according to the Corruption Perceptions Index (CPI) countries can be ranked according to the perceived level of public sector corruption of the country using a scale of 0–100, where "100" indicates a country almost free of corruption and "0" indicates a high level of corruption. Traditionally, the least corrupt countries in the world include Denmark, New Zealand and Finland

(Denmark in 2014 achieved 92 points, New Zealand 91 points and Finland 89 points). The other end of the ranking shows Sudan with 11 points, North Korea and Somalia with 8 points.

The index is compiled based on the results of surveys, in which respondents evaluate the ability of government institutions to limit and sanction corruption, the effectiveness of anti-corruption measures, the extent of corruption and openness in the public administration institutions and the extent of abuse of public offices and public funds. Attention is also paid to forms and methods of lobbying in the public sector.

Capturing corruption perceptions, i.e. opinions of people who are able, on the basis of their position and experience, to evaluate the level of the public sector corruption in the relevant country, thus constitutes (according to TI) the most reliable method to compare relative levels of corruption in different countries. The index published in 2014 evaluates 175 countries. Compared to 2013, the score of the Czech Republic had improved by 3 points to 51 points, which resulted in an upward shift by 4 places in the global ranking, to the 53rd place. A similar result has been achieved by Georgia, Malaysia, Samoa, Slovakia and Bahrain. Even this improvement, however, is lagging behind the developments in other European countries. Among 31 European countries (EU Member States + Norway, Switzerland, Iceland), the Czech Republic takes the 25th place, after Hungary and before Slovakia.

5. Economic performance indicators

A very common and usually the first analysed indicator to capture the performance of the economy is the gross domestic product (GDP). It is perhaps the most closely watched macroeconomic indicator. The gross domestic product is the market

value of all final goods and services produced in an economy over a given period of time. For the purposes of the present text, however, it is not suitable.

Another possible source for country comparisons is the Global Competitiveness Index. It covers 144 countries and is published annually since 1979 by the World Economic Forum. When evaluating individual states the index uses four basic information pillars, six pillars characterising efficiency enhancements and two pillars covering innovation (Schwab, 2015). The Czech Republic ranked 31st in the ranking of 140 countries.

In today's globalized world credit ratings are often used for investment decisions. As stated by Felixová (2011) a rating may be generally characterised as a method of evaluation and/or assessment of institutions or objects by scales. In the sector of finance, ratings refer to either financial entities or securities. A credit rating constitutes an opinion of a specialised agency on the issuer's ability to fulfil his obligation to repay fully and timely an obligation arising from issuing a certain security. In this context it means a security rating. Credit rating agencies award ratings to various types of securities with different maturities. In contrast, an issuer rating applies directly to the solvency of the issuer. National ratings are primarily used upon assessing the creditworthiness of receivables denominated in foreign currencies against governments, because, as stated by Jílek (2009), credit risks are associated also with individual countries. A specific rating is declared by a rating symbol of the relevant scale and presents the opinion of the rating agency on the creditworthiness of the rated entity, therefore it informs of how the rated entity is reliable in terms of its ability to meet obligations. Opinions of credit rating agencies are expressed verbally or symbolically. The individual rating symbols, which are concise, and suitable for publication purposes,

Table 1 Long-Term Rating Scales

Moody's	Standard & Poor's; Fitch	Evaluation	Default probability in a five-year horizon (%)
Aaa	AAA	Minimal credit risk. Excellent capacity to meet financial commitments.	0.1
Aa1	AA+	Safe investment with low risks	
Aa2	AA		0.3
Aa3	AA-		
A1	A+	Safe investment, susceptible to economic changes and negative influences in the business	
A2	A		0.6-0.61
A3	A-		
Baa1	BBB+	Medium-safe investment occurring often in poor conditions in the economy. Still sufficient capacity to meet obligations, however, the situation may get worse.	
Baa2	BBB		2.8-3.0
Baa3	BBB-		
Ba1	BB+	Speculative investment – the borrower faces adverse conditions and it is difficult to predict future developments.	
Ba2	BB		10.7-11.3
Ba3	BB-		
B1	B+	Speculative investment – the borrower faces adverse conditions and the situation is expected to deteriorate.	
B2	B		24.2-25.4
B3	B-		
Caa	CCC	Probability of default or other interruption of business - the commitments are not likely to be met.	
Ca	CC		47.6-50.8
C	C		

Source: calculations based on data by the CNB; Standard & Poor's; Fitch; Moody´s; Financial Times

are assigned verbal interpretations to enable an even less experienced reader correctly understood the meaning of the rating symbol. An overview of the rating evaluation

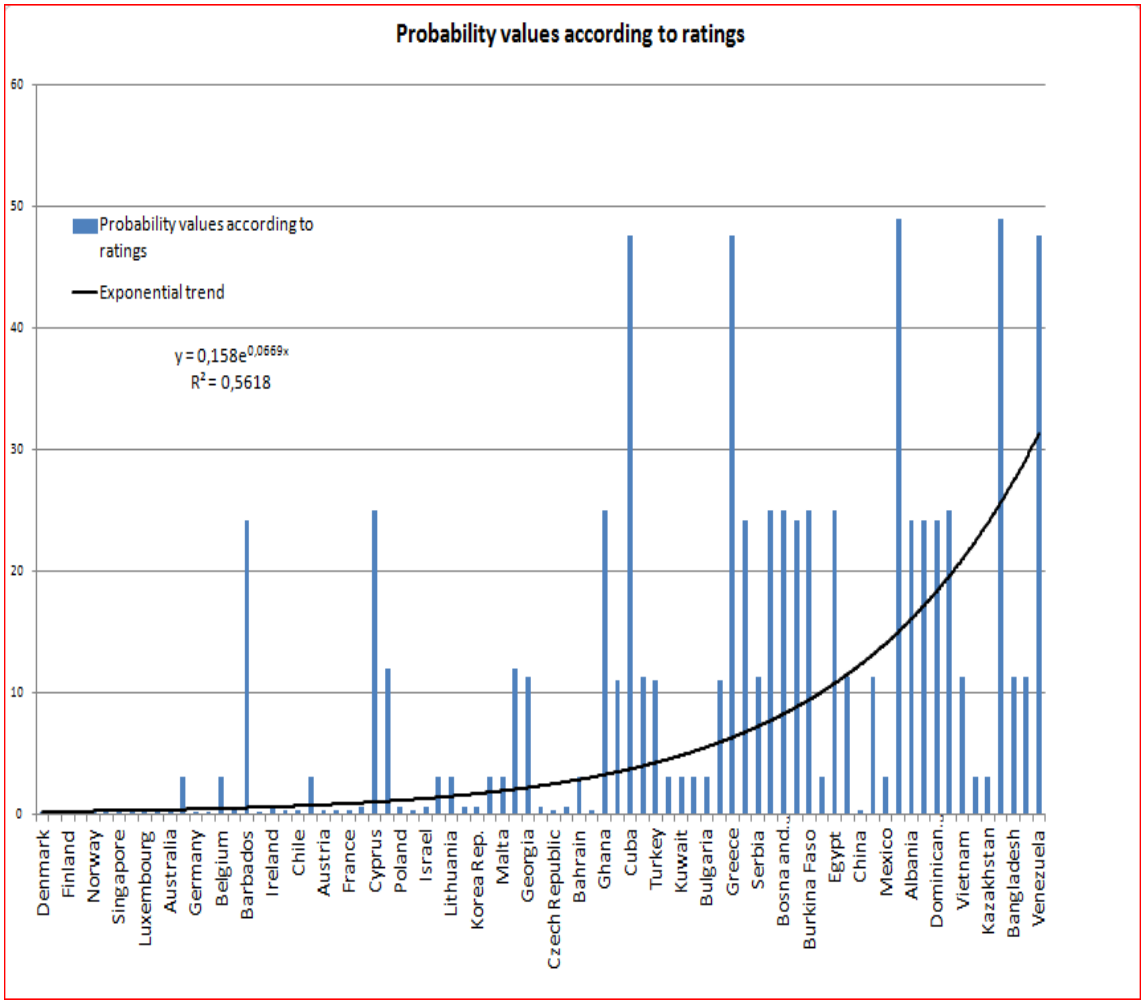
scales is shown in Table 1 Long-term Rating Scale. If scales AAA to C are applied, BB rating refers already to a speculative zone. A rating is a relative risk indicator and is not an accurate measure of the probability of future default. However, credit rating agencies assess their success ex post, i.e. they evaluate the frequency of defaults on debts for the various rating levels. Probability values specified by available sources have been calculated by different methodologies, for different durations of monitoring the rates entities and for different entities. For purposes of this text values of default probability in a five-year horizon from the credit rating have been stated for indicative purposes only.

A good rating helps the entity improve its position upon borrowing, issuing bonds and attracting investors. If the rating is low, an independent analysis helps reveal the causes of the inferior condition. A sovereign credit rating according to the CNB evaluates a country's creditworthiness and its future ability to pay its obligations. Such ratings are produced by independent credit rating agencies, the best known being Standard and Poor's, Moody's and Fitch. The rating uses a scale ranging from the lowest speculative grade up to the highest investment grade. The higher the rating, the lesser the risk of default on the part of the government, therefore usually also the required yield on government bonds. The sovereign rating is based upon numerous quantitative and qualitative indicators, such as government debt and its evolution over time, the condition of and outlook for the economy, institutional development and political risks and so on.

6. Analysis of the relation of corruption and the economy of selected countries

For the analysis of dependence of the sovereign default risk on the corruption perceptions the rating scale has to be assigned a numerical characteristics – the probability of default. A detailed study was produced by analysts from the Fitch

Figure 1 Chart of the relation of rating and Corruption Perceptions Index



Source: Data Transparency International and the Czech National Bank

company (Liu, B. - A. Kocagil and G. Gupton, 2007). For the purposes of the present text the derived data shown in Table 2 Long-Term Rating Scale will be sufficient. The last column shows the probability of default.

The analysis used a graphical representation of the above data. Each country ranked according to the Corruption Perceptions Index has been assigned a numerical value of probability of default in a five-year horizon. The probability has been derived from Table 2 for eighty countries. The chart of the rating and Corruption Perceptions

Index relation, Figure 1, has used a selection of data created upon computer processing of the paper.

The chart shows that with a growing Corruption Perceptions Index also increases exponentially the probability that the country will be unable to meet its financial obligations arising from the sale of government bonds to investors. Both analysed approaches coincide almost exclusively in the left side of the chart only, which shows countries with minimal corruption and a high investment ratings (Denmark, Finland). For most countries the chart shows a gap between relatively high corruption perceptions and favourable ratings (South Korea, Czech Republic, China) or, conversely, a low level of perception perceptions and a very unfavourable rating (Cyprus, Turkey, Greece).

The analysis has confirmed the hypothesis that greater corruption relates to a greater risk of credit default.

Conclusion

The hypothesis conceived at the beginning of the paper has been confirmed by the analysis in the presented text. However, the analysis has also shown that the opinion of Transparency International on the Czech economy is stricter than the opinion of credit rating agencies. Anyway, because the Czech economy seeks to strengthen its position in international markets, it would be appropriate to accept the recommendation and introduce a more effective system of seizure of the proceeds of crime and tax evasion, strengthen the control of publicly owned companies and enforce more the personal liability for misconduct and inefficiency in the handling of public money.

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