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CORRUPTION IMPACT ON EAST EUROPEAN EMERGING MARKETS DEVELOPMENT

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Abstract:

This paper analyzes the impact of corruption level on East European financial markets development. Financial market liquidity for 15 national markets is presented and market volume per capita is used as an indicator for market maturity. Market volume per capita values are compared to corruption perception index values, using classical logic method. Findings of the research are quite interesting and unexpected, as they show modest impact of corruption on financial market development. Results suggest that further research of corruption should be done, in order to develop better, quantitative corruption indicator.

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INTRODUCTION

The phenomenon of corruption has been present since ancient times and has significantly affected the degree of order in a particular society. The development of human communities brought systems that were based on a series of rules and social norms. Compliance with regulations and rules was imposed and violations of them were sanctioned. Penalties for breaking the rules were often very severe and violators expected material incentives to take the risk of being punished. Material incentives were easiest to achieve in violation of the rules in the field of economy, so corruption most often appeared in this important area. Modern economies are based on a whole series of complicated regulations and laws that are regulated and enforced by state institutions, so the impact of corruption is more significant. Corruption always exists to some extent and there is no state without this phenomenon.

Specialized international organizations such as Transparency International deal with the registration and analysis of corruption in individual countries. Their fight against corruption aims to point out the problems that arise in countries affected by high levels of corruption.





There is also a tendency to make recommendations based on which to reduce the level of corruption. We can understand the importance of the fight against corruption if we accept the fact that an orderly and well-organized state provides equal economic opportunities to all its citizens. The ideal of modern societies is to provide the same opportunities for all citizens in all spheres of life and especially in the economic domain.

Knežević and Dobromirov (2016) show that different factors specific to a particular market have a significantly greater impact on the economy than macroeconomic indicators. Sovbetov and Kaplan (2019) show that tranquility of economic environment is significantly important for the development. A good way to look at the development and democracy of a society is to observe the orderliness of the financial market. A well-developed and active financial market indicates a country where there is fair market competition in which there are many participants. K. Mishra (2018) argues that globalization and democracy are mutually supportive and that together they hinder corruption, support human development and social progress. Investors operate freely in conditions where there is equality between them and when the success of a financial transaction depends solely on proper risk assessment and market skill. In such circumstances, the market is controlled by strong and functional institutions immune to corruption. On the other hand, in conditions of high levels of corruption, success in the financial market is achieved through unpunished violations of the rules. In such a situation, it is important to have special personal contacts, privileged information and the possibility of non-compliance with the rules of trade, which is all achieved through corrupt practices. Such financial markets do not benefit most investors and they avoid such markets, which is manifested in lower turnover and poor development of such a market. Therefore, it is possible to state that the liquidity of the financial market will serve well as an indicator of the level of corruption of an economy.

The definition of corruption is described by various terms such as: "abuse of public authority" and "moral setback" and strict legal definitions of corruption as an act of bribery of a public official and exchange of material resources. The phenomenon of corruption indicates the problem of political, economic, cultural and moral underdevelopment (Lučić *et al.*, 2016). Corruption is a phenomenon where there is a deviation from the legal rules that govern the actions of a public servant for personal gain such as money, power or social status. Corruption is also described as an exchange between private and public sector agents where there is an illegitimate conversion of collective goods into payments in the private interest. Another definition of corruption is that it is a process in which the influence of public office is used for private interests in a non-regulatory manner (Jain, 2008), or that government officials can perform corruption for personal gain. Corruption, which could generally be defined as the abuse of public authority to pursue a personal interest, is a complex and ambiguous concept. Although there is a whole range of definitions of corruption, the common view is that corruption negatively affects society.

Corruption can be a significant problem in the process of economic development and modernization of public administration, as it affects the weakening of institutions on which economic growth largely depends. Also, corruption is a specific additional unofficial tax on business transactions. Concerning financial markets as a part of an economic environment, it is important for government regulatory principles to provide orderly market conditions through prudential regulation Brezigar-Masten *et al.* (2011).

The aim of this paper is to analyze the impact of corruption level on East European financial markets and their liquidity. The idea is to prove that higher corruption level in a country has a bad influence on financial market institutions and infrastructure, leading to lower financial market turnover. The paper is organized in following manner: the first section is literature review followed by data and methodology definition. Results are presented and discussed in result and discussion part and at the end a short conclusion summarizes the research.



LITERATURE REVIEW

Numerous researchers are involved in understanding the economic phenomenon of corruption and the impact of corruption on the most important macroeconomic indicators. There is an intense public debate about the interdependence between the level of corruption and the speed of economic development. Some earlier studies suggest that corruption can help the most efficient firms bypass bureaucratic hurdles and rigid laws and that this has a positive effect on economic development. On the other hand, some recent works do not find a significant negative relationship between corruption and economic development.

High levels of corruption can put a country in a bad position where high levels of corruption accompanied by low growth block economic development, while some other countries may develop by reducing corruption and increasing economic growth (Murshed and Mredula,2018). Some authors (Popovaa and Podolyakinaa, 2014) argue that corruption is a disorder that causes low economic growth and that the causality is such that corruption affects GDP. They define corruption as a disease that affects the poor and that the disease disappears when countries develop, so the causality is described from the level of GDP to corruption. Bota-Avram *et al.* (2018) present evidence of interdependence present in both directions. The basic theoretical arguments indicate that there is a connection between the level of economic development and the level of corruption. Assiotis and Sylwester (2014) have shown that corruption adversely affects economic growth only in states that have well-developed independent institutions. At the same time, economic development reduces corruption. On the other hand, corruption does not affect economic growth in countries where independent institutions are weak.

Schneider and Buehn (2018) showed that the correlation between levels of corruption and economic development is negative and reciprocal. Igwike and Hussain (2012) only partially succeeded in showing evidence in favor of a two-way relationship. It depends on economic growth towards a lower level of corruption and on increasing levels of corruption towards a fall in GDP per capita. Although it is justified and logical to claim that a decline in economic activity could cause an increase in the level of corruption or that a higher level of corruption could lead to a lower growth rate, the main direction of interdependence between these two variables has not been proven.

Some research shows that there is no correlation between economic development and levels of corruption in certain cases. Zaman and Goschin (2015), Stojanovic *et al.* (2016) examined the degree of political freedoms of a society as a key factor influencing the dependence between corruption and long-term economic growth. Analyzing data from the period from 1960 to 2000, they failed to establish a correlation between the level of corruption and economic growth in countries with a low level of political freedoms. Luminita (2011) found that high corruption has a positive effect on economic growth when political and economic freedoms are limited, but that the positive impact of corruption diminishes when political and economic freedoms increase. Ionescu (2011) show that in countries with weak independent institutions, the level of corruption has no impact on economic growth.

Gallego-Alvarez *et al.* (2014) concluded that to the extent that we can measure corruption in the environments of different countries, it does not affect growth. Littvay and Donica (2006) examined the period from 1986 to 2003 and did not find a link between corruption and economic growth in non-Asian countries, but found a positive correlation in the case of Asian countries. Paiders (2008) analyzed the values and changes in GDP per capita for the period from 1998 to 2005 and the values and changes in the Corruption Perceptions Index (CPI) for the period from 1998 to 2007. The conclusion of such research is that the mutual connection between changes in CPI and GDP per capita cannot be noticed, and that values fluctuate independently of each other when looking at data from countries in the world and European countries.



The dominant view in the scientific literature is that a change in the level of corruption affects the change in the level of GDP and that there is an interdependence between these two quantities.

The prevailing view in most published papers in this area is that the correlation between the change in the level of corruption and the change in the level of GDP is negative. The World Bank and the IMF are of the view that corruption has significant negative effects on economic growth. High levels of corruption negatively affect economic development by undermining the rule of law and weakening independent institutions on whose successful operation economic growth depends. Similarly, the IMF states, "Many causes of corruption are economic in nature, and so are its consequences - poor governance is clearly detrimental to economic activity and well-being."

Empirical studies of the impact of corruption on economic growth are gaining in importance due to the social impact of these factors. Corruption adversely affects economic growth by reducing the level of private investment and thus changing the structure of government spending, especially by reducing part of the education budget. Groṣanu *et al.* (2015) showed that countries with high levels of corruption continuously tend to record poor economic results. Corruption further deepens the inequality gap between rich and poor sections of society. In his research, Aidt (2011) finds that corruption has a very specific impact on growth, as it has the greatest negative effect in countries with quality institutions, but little impact in countries with weak institutions. Aidt confirms the negative correlation between growth and corruption. It defines four channels through which corruption negatively affects economic growth: increased values of public investment, lower tax revenues, lower operating costs and poor quality of public infrastructure facilities. The impact of a 1% increase in corruption reduces the growth rate of economic activity by about 0.72%, with the most important channel for the impact of corruption being political instability, accounting for about 53% of the total effect.

Some research shows that reducing the level of corruption by one index point affects GDP growth by 0.5 percentage points. Ionescu (2012) reveals significant negative effects of corruption on economic growth due to poor institutions and shows how corruption can have a negative impact on foreign direct investment and net capital inflows, which are important components of economic growth.

An analysis of the relationship between the level of economic development measured by GDP and the estimated level of corruption among countries shows a strong interdependence: poor countries tend to be corrupt. Examining the relationship between the recorded level of corruption and the rate of economic growth among countries, we can see that in countries with high levels of corruption there are significantly different growth rates. In other words, most highly corrupt countries had a low rate of economic growth but, there are countries that have achieved rapid economic growth with a very high level of corruption. This shows that certain countries can achieve a high level of economic growth despite a high level of corruption.

Huang (2012) explores 10 Asian countries (China, Indonesia, Japan, South Korea, Malaysia, the Philippines, Singapore, Taiwan, Thailand, and Vietnam) from 1995 to 2010 and analyzes the impact of corruption on economic growth. The result is a positive impact of corruption, indicating that corruption boosts economic growth in large East Asian newly industrialized economies. The explanation for this phenomenon, which is specific to the Asian continent, is that a strong centralized government can limit the negative effects of bribery compared to a decentralized corrupt bureaucracy. Corruption makes business processes more efficient and accelerates them, thus boosting economic growth, relaxing the rigid bureaucratic regulations imposed by governments.



Absalyamova *et al.* (2016) argue that in countries with a higher level of social trust, corruption is socially acceptable and thus less detrimental to economic growth. Swaleheen (2011) in his research tested the relationship between corruption and economic growth and the results showed that corruption does not reduce growth at all levels and that there can be a significant increase in economic growth even with a high degree of corruption. Proponents of "efficient corruption" argue that bribery helps companies to be more efficient and to contract jobs faster in an economy characterized by bad and rigid laws. According to this model of increasing efficiency, companies, with the help of "quick money", bypass bad laws and inefficient institutions.

There are two views regarding the usefulness or harmfulness of corruption. Studies claiming that corruption is detrimental to economic growth draw attention to the bad implications of corruption on efficiency, especially in the long run. Other studies explain how corruption lubricates business and trade outlets and thus stimulates economic growth and investment. The prevailing view of these two opposing views is the view that corruption is detrimental to economic growth. The usual view in the academic literature is that corruption hinders and hinders economic growth and development, weakens institutions and has a negative impact on society as a whole.

A review of the literature indicates that two observations can be made. First, there is a correlation between corruption and GDP levels. Second, empirical evidence on the link between corruption and economic development shows that negative dependence is present in the vast majority of cases. So far, a limited number of papers have been published that analyze the temporal interdependence between the change in the level of corruption and the change in the level of GDP. Sahakyan and Stiegert (2012) show that the effect of corruption on economic growth is negative and statistically significant only in the medium and long term, while it is insignificant in the short run. Thus, the actions of economic policy makers focus more on the medium and long term, considering the consequences of corruption, than on the short-term effects.

Ruzek (2015) finds that the causality of GDP and corruption is long-term, as the country becomes richer and thus the motivation for corruption decreases. Based on their research, this long-term interaction works only in one direction. Borlea *et al.* (2017) show a negative correlation between the level of corruption and the long-term growth rate. Looking at two periods: 1990–2005 and 1980–2005, they find that less corrupt countries achieve more significant economic growth, while countries with high levels of corruption achieve negative growth rates. Hoinaru *et al.* (2020) showed that there is a strong long-term relationship between the level of corruption and GDP, analyzing the changes in values in the period 1984–2008. All estimates of the effects of long-term business show that corruption has a direct negative impact on GDP per capita.

Using comprehensive data on 47 countries from 1996–2007, Chen N. (2010) shows that, when reference variables are controlled, corporate liquidity is lower in countries with more efficient securities laws or greater control of corruption. In addition, cash can increase the value of the company. This positive relation is more pronounced in countries with efficient securities laws or with low levels of corruption. Moreover, excess cash can reduce a company's value in countries with inefficient securities laws or low corruption controls. This impairment effect of companies can be mitigated or reversed when corruption control is improved or when securities laws are improved.

Although most economists argue that corruption can act as a good solution in the short term for market disruptions that can cause wrong government procedures and policies, in the medium and long term corruption reduces market efficiency and in that period negative effects are dominant.



Gründler and Potrafke (2019) determine a decline in real GDP per capita of 17% when the CPI increases by one standard deviation as a long-term effect of corruption. This fact, which arises from the results of previous research, indicates a significant impact of the level of corruption on the development of the financial market, measured by the liquidity of national stock exchanges.

DATA AND METHODOLOGY

The data set used in the research represents two different indicators: national financial markets volumes for year 2019 from 16 East European countries and 2019 Corruption Perception Index for corresponding countries. Radišić and Dobromirov (2017) describe Central and Eastern European (CEE) emerging markets as active, due to their continuing aspiration to position themselves on the global portfolio investment map. Eastern European markets volumes are represented by annual trading volume from representative, national stock exchanges. Data collection was done by visiting official web sites and taking into account annual trading report. However, certain markets were not taken into consideration, such as Albania, Latvia, Estonia, Lithuania and Russian Federation. Due to non-existing trading volume in 2019, Albania could not be included into data analysis. Latvia, Estonia and Lithuania passed through market consolidation by joining NASDAQ Baltic, established form US stock exchange giant NASDAQ. NASDAQ Baltic as an exchange operates in Sweden, Finland, Latvia, Lithuania and Estonia. Such an international market organization would not be appropriate for planed methodology. Russian Federation is omitted from the research due to conflicting market volume data from several different sources. After collecting official market data, population size was taken into consideration for each of observed countries. Financial market volume per capita is calculated as an indicator V, with an idea to present each financial market relative to size of a country.

Corruption Perception Index (CPI) for 2019 is obtained from official Transparency International web site and presented as a country corruption indicator. Transparency International in their Corruption Perception Index (CPI) methodology assigns a higher value of CPI index to a country with lower corruption level, representing indicator C. CPI index values are rounded and in some cases two countries have the same index value. In these circumstances, unrounded values were taken into consideration in order to create corruption ranking (Table 2).

The process of proving and testing the hypothesis is established on classical logic and the principle of exclusive disjunction. We will compare CPI rank (C) and market volume (V) for each pair of countries and check if the following is true (T) or false (F):

If
$$C_m > C_n$$
 then $V_m > V_n$ (1)

where C_m and V_m are CPI rank and volume per capita rank for one country respectively, and C_n and V_n are CPI rank and volume per capita rank for another country. After testing every presented country's indicator values with each other (105) pairs, we will get certain number of true and false samples. Following specific cases of condition testing, we denote by R a function as:

$$R = \frac{Number\ of\ true\ samples\ (T)}{Number\ of\ false\ samlpes\ (F)}$$
(2)



We introduce the following scheme:

Strong match, if $R \ge 2.5$, Mean match, if $1.5 \le R < 2.5$, Poor match, if $0 \le R < 1.5$.

Result interpretation: if a calculated value of R is going to be over 2.5 (strong match) that will indicate that initial hypothesis is confirmed. With R valued between 1.5 and 2.5 (mean match) we will have a conditional hypothesis approval and with R valued under 1.5 we should prove that hypothesis is not valid.

RESULTS AND DISCUSSION

The financial market volume data related to population of corresponding country are presented in Table 1 as follows:

Table 1. Population, market volumes, volumes per capita and volume ranking

Country	Population	2019 financial market volume (in mil US\$)	Financial market volume per capita (in mil US\$)	FM volume per capita ranking V
Poland	37,840,465	50,394.38	1,331.77	1
Hungary	9,652,821	8,668.02	898.05	2
Czech Republic	10,722,241	5,569.71	519.46	3
Bosnia and Hertzegovina	3,269,170	559.89	171.27	4
Romania	19,523,621	2,044.51	104.92	5
Croatia	4,105,493	328.51	80.02	6
Slovenia	2,070,050	149.94	72.43	7
Montenegro	622,359	43.51	69.91	8
Slovakia	5,462,617	264.68	48.45	9
Moldova	4,031,141	190.22	47,18	10
Northern Macedonia	2,084,162	92.89	44.57	11
Serbia	6,963,764	240.60	34.55	12
Bulgaria	7,000,039	170.42	24.35	13
Belarus	9,452,123	14.97	1.58	14
Ukraine	43,642,532	1.32	0.03	15

Source: author's calculation



Financial market volumes per capita in US\$ were sorted in descending order. The highest financial market volume per capita is ranked 1, the second is ranked 2 and so on. These ranks represent V indicator value that will be used in further analysis.

The CP index score for 2019 is presented in Table 2:

Table 2. Corruption ranking

Country	CP index score 2019	CP index Ranking C
Slovenia	60	1
Poland	58	2
Czech Republic	56	3
Slovakia	50	4
Croatia	47	5
Belarus	45 a	6
Montenegro	45b	7
Hungary	44a	8
Romania	44b	9
Bulgaria	43	10
Serbia	39	11
Bosnia and Hertzegovina	36	12
Northern Macedonia	35	13
Moldova	32	14
Ukraine	30	15

Source: author's calculation

The highest CP index score for 2019 is ranked 1 the second is ranked 2 and so on. These ranks represent C indicator value that will be used in further analysis.

Applying the presented methodology (formula 1) to the data shown in Table 1 and Table 2, 105 tests were performed. The test results of all pairs, which were obtained by crossing on a one-to-one basis, are shown in Table 3:



Table 3. Condition testing results

	Slovenia	Poland	Czech R.	Slovakia	Croatia	Belarus	Monten	Hungary	Romania	Bulgaria	Serbia	Bosnia&H	N Maced	Moldova	Ukraine
Slovenia		ш	ட	⊢	ш	F	F	ш	ட	⊢	 -	ட	⊢	⊢	-
Poland			-	-	-	-	F	-	-	-	-	⊢	-	-	-
Czech R.				-	-	-	F	ш	⊢	-	-	⊢	-	-	⊢
Slovakia					ட	F	ட	ш	ட	-	-	ட	⊢	-	-
Croatia						-	F	ш	ட	-	 -	ட	-	-	 -
Belarus							ш	ш	ட	ш	ட	ட	ш	ш	F
Monten								ш	ш	-	-	ட	-	-	⊢
Hungary									F	-	-	⊢	⊢	-	-
Romania										⊢	 -	ட	⊢	⊢	F
Bulgaria											ш	ட	ட	ш	-
Serbia												ш	ш	Щ	Τ
Bosnia&H													F	-	⊢
N Maced														ш	F
Moldova															⊢
Ukraine															

Source: author's calculation



The number of correct logical statements is 70 and the number of incorrect logical statements is 35, so for R we get the value of 2. This value of R represents **mean match** as defined in the initial research setting. This means that the **initial hypothesis has been conditionally confirmed** and it cannot be determined that there is a medium dependence of the degree of corruption and the value of turnover on the financial market. This is a somewhat surprising and unexpected result.

Analyzing in detail the results shown in Table 3, it must be noted that the tests in which one of the pairs was Belarus differ significantly from the other results. This is not negligible because by omitting the Belarus from the research sample, we would get different results and unconditionally confirm the hypothesis. A logical explanation would be that the Belarus was not adequately assessed in compiling the annual report on corruption in 2019.

Another two countries that show irregular and unexpected results are Hungary and Bosnia and Herzegovina. Hungary has well developed and organized financial market but, the result is odd due to lower CPI index score in recent years. On the other hand, Bosnia and Herzegovina did have certain big financial market transactions in connection with privatization process. These one-time transactions influenced the 2019 financial market volume and influenced the results of research. However, thorough result analysis raises a question of CPI index methodology. There is an impression that there is a need for more reliable and better corruption level index.

CONCLUSIONS

This research analyzed the impact of corruption level on 15 East European financial markets development. Although a strong correlation of low corruption and well developed financial markets was expected, results show medium impact of corruption on financial market performance. Although initial hypothesis was logical and proof was expected, it was not unconditionally proven. As the methodology in this paper was based on classical logic, it was a good opportunity to record some illogical issues aroused concerning the corruption level assessment. These issues were discussed and it is explained how they influenced the research result. Moreover, it was shown that CPI as an indicator has certain shortcomings and heuristic nature. The major finding is that a better corruption indicator should be found and used in scientific research. Further research should try to discover a model for quantitative based corruption indicator.



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UTICAJ KORUPCIJE NA RAZVOJ ISTOČNIH EVROPSKIH TRŽIŠTA

Rezime:

U ovom radu se analizira uticaj nivoa korupcije na razvoj istočnoevropskih finansijskih tržišta. Prikazana je likvidnost finansijskog tržišta za 15 nacionalnih tržišta, a tržišni volumen po stanovniku se koristi kao pokazatelj zrelosti tržišta. Vrednosti tržišnog obima po glavi stanovnika upoređuju se sa vrednostima indeksa percepcije korupcije, koristeći klasičnu logičku metodu. Nalazi istraživanja su prilično zanimljivi i neočekivani, jer pokazuju skroman uticaj korupcije na razvoj finansijskog tržišta. Rezultati ukazuju na to da je potrebno dodatno istraživanje korupcije kako bi se razvio bolji, kvantitativni pokazatelj korupcije.

Ključne reči:

korupcija, finansijska tržišta, likvidnost tržišta.