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CORRUPTION ENVIRONMENT AND FOREIGN DIRECT INVESTMENTS IN CROATIA

KORUPCIJSKO OKRUŽENJE I IZRAVNA STRANA ULAGANJA U HRVATSKOJ

Summery: *With this research, the authors would like to contribute to the understanding and identification of corruption, which is an important factor that can affect FDI in Croatia. The scientific and pragmatic purpose of this research is to identify an appropriate anti-corruption policy to influence the increase of FDI in Croatia. The research sample includes data for all countries that have FDI in Croatia as well as countries where Croatia has FDI. The authors added indicators on the level of FDI for the level of corruption in Croatia which were statistically processed. The statistical analysis is performed based on a total of 614 different values where the FDI of individual countries is put in relation to Croatia on a yearly basis, and the CPI was measured in those countries in the same year as in Croatia. The main hypothesis is that corruption "as sand" significantly negatively affects foreign direct investment in Croatia. An alternative hypothesis has also been formulated that corruption "as sand" significantly affects Croatia's foreign direct investment in foreign countries. The results showed that in the period from 1999 to 2019 there was no connection between corruption and FDI in Croatia. However, when the connection between corruption and Croatian FDI is observed, such a connection is becoming stronger as the FDI increases. Such a relationship between corruption and Croatia's FDI can be characterized as "as grease." However, when only seven countries in which Croatia has the most direct investments were considered, a significant positive correlation was found between such investments and measured corruption in those countries, therefore the alternative hypothesis was accepted. The obtained results of the conducted research can provide important knowledge to the creators of Croatian economic policy that the impact of corruption on Croatian FDI abroad "as grease" in the future may be a very limiting factor to an increase in investments when the level of corruption in these countries decreases, which already applies to countries where corruption is shown to be at a low level.*
Keywords: *Croatian economy; Foreign direct investment; Corruption*
JEL classification: *F 21, E 61*

Rezime: *Ovim istraživanjem autori žele pridonijeti razumijevanju i prepoznavanju korupcije kao važnog čimbenika koji može utjecati na FDI u Hrvatskoj. Znanstvena i pragmatička svrha ovog istraživanja je identificirati odgovarajuću antikorupcijsku politiku kako bi se utjecalo na povećanje FDI-a u Hrvatskoj. Istraživački uzorak uključuje podatke za sve zemlje koje imaju FDI u Hrvatskoj kao i zemlje u kojima Hrvatska ima FDI. Autori su pokazatelje o razini FDI-a dodali pokazateljima razine korupcije u Hrvatskoj koji su potom statistički obrađeni. Statistička analiza je napravljena na temelju ukupno 614 različitih vrijednosti pri čemu se FDI pojedinih zemalja stavlja u odnos s Hrvatskom na godišnjoj razini, a CPI u tim zemljama je mjeren u istoj godini kao i u Hrvatskoj. Glavna hipoteza je da korupcija "kao pijesak" značajno negativno utječe na izravna strana ulaganja u Hrvatskoj. Formulirana je i alternativna hipoteza da korupcija "kao pijesak" značajno utječe na izravna strana ulaganja Hrvatske u inozemstvo. Rezultati su pokazali da u razdoblju od 1999. do 2019. u Hrvatskoj nije postojala povezanost između korupcije i izravnih stranih ulaganja. No, kada se promatra veza između korupcije i hrvatskog FDI-a, jasno je da ta veza postaje sve jača kako FDI rastu. Ovakav odnos korupcije i FDI-a u Hrvatskoj može se okarakterizirati poput "podmazivanja". Međutim, kada se u obzir uzme samo sedam zemalja u kojima Hrvatska ima najviše izravnih ulaganja, utvrđena je značajna pozitivna korelacija između tih ulaganja i izmjerene korupcije u tim zemljama, pa je alternativna hipoteza prihvaćena. Dobiveni rezultati provedenog istraživanja mogu dati važnu spoznaju kreatorima hrvatske gospodarske politike da utjecaj korupcije na hrvatski FDI u inozemstvu "poput podmazivanja," u budućnosti može biti vrlo ograničavajući čimbenik porastu investicija kada razina korupcije u tim zemljama bude opadala, a što se već pokazuje u odnosu na zemlje u kojima je korupcija na niskoj razini.*
Ključne riječi: *hrvatsko gospodarstvo, izravna strana ulaganja, korupcija*
JEL klasifikacija: *F 21, E 61*

INTRODUCTION

Modern economic relations in the world are characterized by increasing international movement of capital while strengthening the process of financial globalization. Foreign direct investments (FDI) can be an important factor in stimulating economic growth and development of the Croatian economy because foreign direct investments do not fall into the category of foreign debt. They can have a positive impact on export growth, improve the trade balance, restructure the economy, fill the state and local budget, encourage in-novation, raise the level of competitiveness, improve the application of modern technologies, develop additional business methods, increase the capital of domestic companies, create new jobs, develop industry, etc. - all of which ultimately has an impact on raising standards of Croatian citizens. Of course, FDI can also have negative implications for the Croatian economy if such investments are inadequately made, if foreign investors control economic flows in Croatia, if the ownership structure is adversely changed, if foreign investors prefer to import goods from their countries if national resources are irrationally exploited, if the amount of good business deals is reduced, if the generated profit is mainly withdrawn to foreign countries and not reinvested in Croatia, if employees are laid off, if dirty capital contaminates economic flows of Croatia, etc. The study of the phenomenon of corruption in the modern economic literature is more and more associated with various economic indicators, where the results of individual research show its important eco-nomic side. Given the potential strength of FDI for the Croatian economy, it is necessary to consider various aspects of the possible impact of corruption on foreign investors. The results of such research not only support theoretical reflections but also have a strong pragmatic purpose aimed at the well-being of the Croatian economy. With regard to the potential strength of FDI for the Croatian economy, it is necessary to consider various aspects of the possible impact of corruption on foreign investors.

1. OVERVIEW OF PREVIOUS RESEARCH

Previous research on the impact of corruption on various economic categories has been conducted on a significant scale only for the last two to three decades, and the authors of the conducted research are mainly economists. However, from studying the existing literature, it is clear that there is still an insufficient number of research taking into consideration different ways in which the interaction of corruption and certain economic parameters takes place. This statement is especially true for the study of the relationship between corruption and FDI, where we can say that such research in Croatian literature is almost non-existent, which is an added value of this research.

Wei (1999) concluded that corruption, similar to taxes, discourages foreign direct in-vestment. On the other hand, Lambsdorff and Cornelius (2000) investigated corruption in African countries and found that economic growth and foreign direct investment are closely linked to levels of corruption. The authors concluded that the fight against corruption is a crucial contribution to economic prosperity. Abed and Davoodi (2002) also found, on the example of transition countries, that corruption significantly reduces foreign direct investment. Habib and Zurowicki (2002) suggested in their research that foreign investors generally avoid corruption because it can create operational inefficiency. Voyer and Beamish (2004) investigated the impact of corruption on Japanese foreign direct investment in 59 countries in the world. The authors concluded that there are no comprehensive legal and regulatory frameworks in developing countries to effectively fight against fraud and that corruption has an effect on the decline in foreign investment. Prior to a potential investment, managers must assess the level of corruption in a market. In contrast, Larraín and Tavares (2004) studied the impact of FDI on corruption. The authors concluded that foreign direct investment, as a part of GDP, is significantly associated with lower levels of corruption regardless of the level of import intensity. The quantitative impact of foreign investment on corruption is of the same magnitude as GDP per capita. Egger and Winner, (2006), argued that corruption is an important barrier to foreign direct investment in developed economies, but not in less developed ones. Teksöz (2006) considered that corruption negatively affects the inflow of foreign direct investment, but also found that corruption in the area of import/export licenses has a significantly positive impact on FDI inflow.

Denolf (2008) concluded that corruption has only a slight impact on the decision to participate in foreign direct investment. The author suggested conducting future research on the impact of foreign investors' prosecution as well as the impact that corruption may have on investors' decisions to enter

the host country and continue their activities. Javorcik and Wei (2009) empirically proved that corruption reduces foreign direct investment and shifts the ownership structure towards joint ventures. The authors found that more technologically advanced companies are less likely to engage in joint ventures. Woo and Heo (2009) empirically tested the relationship between the level of corruption and the attractiveness of FDI in eight non-OECD Asian countries (Bangladesh, India, Indonesia, Malaysia, Pakistan, the Philippines, Sri Lanka, and Thailand) for the period from 1984 to 2004. The authors found that corruption harmed the attractiveness of the foreign direct investment. Alemu (2012), investigated the effects of corruption on FDI inflows in 16 Asian economies for the period from 1995 to 2009. The author concluded that a 1 percent increase in the level of corruption reduces FDI by approximately 9.1%. The countries, characterized by high levels of corruption but with an outstanding inflow of foreign direct investment, could even double FDI if they manage to reduce the current level of corruption.

Castro and Nunes (2013) investigated the impact of corruption on FDI in 73 countries for the period between 1998 and 2008. Their results suggest that countries with lower levels of corruption have higher inflows of foreign direct investment. The authors concluded that control of corruption can be an important strategy in increasing FDI inflow. Delgado et al. (2014) proved that corruption plays a significant nonlinear role in foreign direct in-vestment growth, weakening their effectiveness in improving economic growth rates in many developing countries. Developing countries with insignificant or low returns on foreign investment can benefit significantly from reducing corruption. Belgibayeva and Plekhanov (2015) concluded that improving corruption control in the destination country increases the flow of investment from countries with a lower incidence of corruption compared to countries with a higher incidence of corruption. The change in potential investor profile can further strengthen economic and political institutions that control corruption. Iloie (2015), analyzed the data obtained for corruption, FDI, and risk assessments of countries in Central and Eastern Europe and did not spot a pattern linking three concepts together. Melo and Quinn (2015) came to the interesting conclusion that an inflow of foreign direct investment reduces corruption in countries, but not if the recipient of the in-vestment is a country that is a major oil producer.

Zeleni, (2016) concluded that corruption has a negative impact on attracting foreign direct investment in the Western Balkans for the period between 1992 and 2012. Gasanova et al. (2017) found that in countries where the level of corruption is low and the economic environment is attractive, the level of foreign direct investment is high, and in those coun-tries where the level of corruption is high and economic attractiveness is low, then the lev-el of FDI is low. However, the authors identified countries that have high levels of corruption and high FDI inflows such as China, India, Brazil, and Russia (BRIC countries). These countries are exceptions to the rule due to broad domestic markets, cheap labor, and the wealth of natural resources, and Canare (2017) investigated the effect of corruption on foreign direct investment inflows to 46 countries in the Asia-Pacific region from 2006 to 2013. The results showed that corruption has a negative effect on FDI inflows. However, there was no significant correlation between the two variables when the analysis was limited to low-income and middle-income countries. Epaphra and Massawe (2017) believed that the control of corruption is very important for attracting foreign direct investment, but that the level of GDP per capita and the quality of state institutions is a more important factor in boosting the inflow of foreign direct investment than the level of corruption.

Yi, Meng, Macaulay, and Peng (2019) examined the effect of corruption and institutions on foreign direct investment at different stages of investment and concluded that corruption can act “as sand” or “as grease” on FDI. Thangamani (2020) investigated corruption and the inflow of foreign direct investment in the countries of South Asia, namely Sri Lanka, India, Pakistan, Nepal, and Bangladesh in the period from 2002 to 2018. The author concluded that FDI inflows improve when investors’ perceptions of the level of corruption in these countries are more favorable for investment. Ertz et al. (2019) used the case study methodology of experts working in Canadian mining multinational corporations operating in Africa. Triangulated empirical data showed that misconduct in business (MIB) in the form of bribery is not exclusively related to an individual's perspective, organization, or a broader social context. These different layers of society are tightly intertwined and interact with each other to result in bribery. The authors propose a network of conceptually related constructs that intervene in the process of bribery, i.e., relations under the influence of institutional dysfunction and connection and substantiality through action and culture. Bardi & Hfaiedh (2021) analyzed the impact of FDI and corruption on environmental quality in MENA countries in the period from 1990 to 2016. Their empirical assessments have confirmed the "pollution haven" hypothesis that

the industrial activities of developed countries that pollute the environment are shifting to developing countries that have poorer environmental regulations.

Hanousek et al. (2021) based on the theory of real options and institutional factors, developed a theoretical framework for investing in the presence of corruption, using private companies in 13 European countries in the period from 2001to 2013. The authors showed that corruption uncertainty and the level of corruption have no impact on the in-vestment of MNE subsidiaries. By analyzing a sample of domestic companies, they found a negative effect on investment, primarily driven by the uncertainty of corruption, rather than the level of corruption. The authors also showed that investments of domestic companies aligned with subsidiaries are not directly affected by corruption but by uncertain-ties related to finances and justice. Krifa-Schneider et al. (2022) used a panel of smooth transition regression and GMM models for 80 advanced and emerging economies over the 2003–2019 period. The authors showed that corruption uncertainty and the level of corruption have no impact on the investment of MNE subsidiaries. By analyzing a sample of domestic companies, they found a negative effect on investment, which was primarily driven by the uncertainty of corruption, rather than the level of corruption. The authors also showed that investments of domestic companies, that are aligned with subsidiaries, are not directly affected by corruption but by uncertainties related to finances and justice. Krifa-Schneider et al. (2022) used a panel of smooth transition regression and GMM models for 80 advanced and emerging economies over the 2003–2019 period.

The authors found that the reduction of corruption in developed economies is associated with more FDI above a corruption threshold, while in developing economies the level of corruption is less important because countries are more tolerant of it. Li et al. (2021) explored the role of host-country digital media in choosing how the FDI of multinational companies entered, which is linked to internal and external efforts to control corruption. Using a set of FDI data from Chinese manufacturing companies listed between 2010 and 2016, their empirical analyzes showed that digital media freedom in the host country has a positive impact on the choice of a subsidiary fully owned by a multinational company as a way for FDI to enter. This main relationship is strengthened by external control of corruption in the host country. Moustafa (2021) explored the dynamic relationship be-tween perceived corruption and the FDI in Egypt during the period between 1970 and 2019. using the back-casting methodology. The author explained the positive relationship between perceived corruption and the FDI by the fact that there is an interdependence of assets creating rents with perceived corruption and foreign investment, and that he used the FDI data based on the balance of payments that have growing financial flows and phantom-FDI components.

2. METHODOLOGICAL ASPECTS OF RESEARCH

2.1. Determination of research sample and data sources

The research sample includes data for all countries that have FDI in Croatia as well as countries where Croatia has FDI. The data on the net acquisition of financial assets (equity and debt instruments), net acquisition of financial assets (by country), net acquisition of financial assets (by activities), net commitments (equity and debt instruments), net commitments (by countries) and net commitments (by activities). The data were obtained on the official website of the Croatian National Bank. Transparency International data for individual countries for the same time period were also used, which are also available on their official website.

Our research on corruption and FDI in Croatia was conducted for the period from 1999 to 2019, ever since Transparency International measures the perception of corruption (Corruption Perception Index - CPI) in the country. There are no data for CPI in Bosnia and Herzegovina for the period from 1999 to 2002, Serbia and Montenegro for 2001 and 2002, while for 1999 and 2000 data were taken for FR Yugoslavia, Northern Macedonia for the period from 2000 to 2002, Malta for the period from 1999 to 2003, Liberia for the period from 1999 to 2004 and 2006, Saint Vincent and the Grenadines for the period from 1999 to 2006, also 2020 and 2015, Panama for the period between 1999 and 2000, the British Vir-gin Islands for the period from 1999 to 2019, Liechtenstein for the period from 1999 to 2019, the Marshall Islands for the period from 1999 to 2019, Belarus for 2001, Antigua and Barbuda for the period from 1999 to 2019, Bahrain for the period from 1999 to 2002, Cyprus for the period from 1999 to 2002, Equatorial Guinea for the period from 1999 to 2004, 2015 and 2016, Qatar for the period from 1999 to 2002, Angola for the period be-tween 1999 and 2002,

Bahamas for the period from 1999 to 2010 and 2015, Albania for the period from 2000 to 2001, Libya for the period for the period from 1999 to 2002, Syria for the period from 1999 to 2003, other countries category for the period from 1999 to 2019 and the category of unknown country for the period from 1999 to 2019. The lack of these data has no impact on the results of the research, since FDI for these countries in the mentioned period does not exist, and the number of omitted cases is negligible compared to the total number of cases included in the study.

2.2. Statistical methodology

Investigating corruption in any country, including Croatia, is not easy to do due to its nature, and it is especially difficult to identify perpetrators who can cause significant harmful damage to the community. Perpetrators of corruption have no interest in making such activities public because they would be exposed to criminal prosecution and moral condemnation by the community. Often, perpetrators of corruption can be influential members of society, who by taking actions prevent their detection and prosecution. The models for measuring corruption are primarily based on the perception of a certain cate-gory of the population about the existence of a certain level of corruption in society. Although they are not absolutely accurate, they can still be taken as a good indicator of the level of corruption.

In this paper, the authors use the Corruption Perceptions Index (CPI), which is based on measuring corruption among government officials and politicians where such activities are potentially the most dangerous. The indicators are calculated on yearly basis, which makes them suitable for application in scientific research. The CPI is designed to obtain data from multiple sources and independent institutions where a value of 100 means the absence of corruption while a value of 0 indicates a completely corrupt com-munity. On the other hand, FDI includes equity investments, retained earnings and debt relationships between residents and non-residents. An owner must acquire at least 10% of a stake in a company in order for such an investment to be considered an FDI, where the investment can be made by a resident abroad as well as a non-resident in Croatia. Thus, FDIs include investments in a company outside the country where the company is based.

The authors added indicators on the level of FDI for the level of corruption in Croatia to the beforementioned indicators which were statistically processed. In this linear regression model $Y = a + bX + u$, the dependent variable Y = FDI is

- net acquisition of financial assets (equity and debt instruments)
- net acquisition of financial assets (by country)
- net acquisition of financial assets (by activities)
- net commitments (equity and debt instruments)
- net commitments (by country)
- net commitments (by activities).

while the independent variable corruption is X = CPI, a, b = parameters while u = deviation from the functional relationship.

The regression analysis is performed based on a total of 614 different values of variables X and Y: (x1, y1), (x2, y2), ..., (xn, yn), where the FDI of individual countries is put in relation with Croatia on a yearly basis, and the CPI was measured in those countries in the same year as in Croatia. Croatia's FDI in other countries was statistically processed and was put in relation to the CPI in other countries in the same year.

3. RESULTS OF RESEARCH

In the period from 1999 to 2019, Croatia had a satisfactory level of FDI, but the problem was in the structure of the investments. Most of the FDI was related to brownfield in-vestments, and much less to greenfield investments. The foreign investors were primarily interested in investing in large and profitable Croatian companies through privatization. Unfortunately, the funds were spent on patching up deficits in the state budget, not on a new investment cycle. A further disadvantage of such investments is the increase in domestic market control by foreign multinational companies whose interest was not to raise the export competitiveness of the Croatian economy. The restructuring of the acquired companies led to a decrease in employment, i.e., to the lay-off of redundant workers. In-stead

of investing in manufacturing, the foreign investors mostly invested in real estate, banks, other financial institutions, trading companies, etc., which did not result in an in-crease in exports, competitiveness of the economy, etc. The measured level of corruption in Croatia, net commitments, and capital in the companies in which direct investments were made can be seen in Table 1.

Table 1. Corruption and foreign direct investment in the Republic of Croatia in the period from 1999 to 2019.

Year	CPI	Net commitments (expressed in millions of EUR)	Capital in companies in which direct investments were made (expressed in millions of EUR)
1999	27	1338	1209.0
2000	37	1077.4	749.1
2001	39	1158.9	911.1
2002	38	1048	718.3
2003	37	1611.5	762.4
2004	35	1060.8	320.3
2005	34	1451.4	800.6
2006	34	2491.7	1415.5
2007	41	3433.6	2188.1
2008	44	3685.6	1882.8
2009	41	2182.6	448.2
2010	41	1153.7	261.9
2011	40	894.8	1845.8
2012	46	1015.1	784.8
2013	48	734.6	666.1
2014	48	2309.9	2232.2
2015	51	30.8	1958.9
2016	49	373	691.2
2017	49	444.8	599.9
2018	48	1073.5	740.1
2019	47	1277.6	612.0

Source: Transparency International (n.d.)

In the observed period, the perception of corruption in Croatia ranged from the highest measured level (lowest CPI) of 27 points in 1999 to the lowest measured level of corruption (highest CPI) of 51 points in 2015. The average CPI score was 41.6, which cannot be considered satisfactory, and it is necessary to take measures to reduce corruption in Croatia. The average amount of net commitments was EUR 1,421.3 million, with the average amount of capital in the direct investment companies amounting to EUR 1,038,014 million, which contributed to better capitalization of Croatian companies. However, Table 2 clearly shows that there is a very weak positive correlation between the reduction of corruption and capital in the companies in which direct investments are made, and a weak negative correlation between the reduction of corruption and commitments for the period from 1999 to 2019. The level of corruption in Croatia is not a significant factor that affects these economic categories.

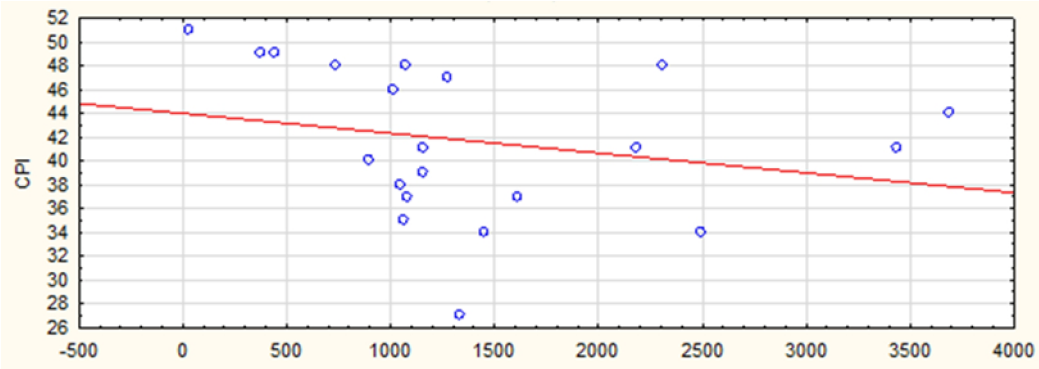
Table 2. Regression results of corruption and foreign direct investment in the period from1999 to 2019.

Corruption and net commitments 1999-2019 Regression results				
R=0,2429	**F = 1,1916**	**R^2= 0,0590**	**df = 1,19**	no. of cases:21
adj. R^2= 0,0095	p = 0,2886	st. err. of est:925,7582	inter.:2896,3951	std. err: 1366,334
t(19) = 2,1198	p = 0,0474	var1 b*= -0,24		
Corruption and capital in the companies in which direct investments are made 1999-2019 Regression results				
R = 0,1124	F=0,2433	R^2= 0,0126	df = 1,19	no. of cases:21
adj.R^2=-0,0393	p = 0,6275	st. err. of est: 6,4997	inter:40,4212	std. err: 2,8122
t(19)=14,3730	p = 0,00001	var1 b*= 0,1120		

Source: Author's calculation,

Legend: st. err. of est = standard error of estimate, inter = y-axis intercept, df = degrees of freedom, no. of cases = number of cases, std. err. = standard error, var1 = independent variable.

Figure 1. Corruption and direct investments (commitments) for the period from 1999 to 2019
FDI commitments



Source: Author's calculation,

Furthermore, the research statistically covered a total of 614 cases (value pairs), in which the impact of corruption in these countries was measured by the CPI, and the FDI of Croatia's commitments towards these countries were investigated. The measured level of corruption in countries that are investment-related to Croatia ranged from very low corruption in Denmark of 100 CPI in 1999 to very high corruption in Serbia of 13 CPI in 2000. Croatia's FDI commitments towards partner countries ranged from 2419.5 million Euros in the Netherlands in 2014 to negative -1331.2 million Euros in Austria in 2016. It is clear that the established degree of correlation is almost negligible and amounts to only 0.061. Therefore, a statistical analysis was made on corruption and FDI of certain groups of countries with which the Republic of Croatia is politically, economically, geographically, and in other ways linked. Thus, a very weak negative correlation was found between the reduction of corruption and the total FDI of EU countries of only -0.17.

Table 3. Corruption in EU and FDI countries - Net acquisition of financial assets (by country) from 1999 to 2019.

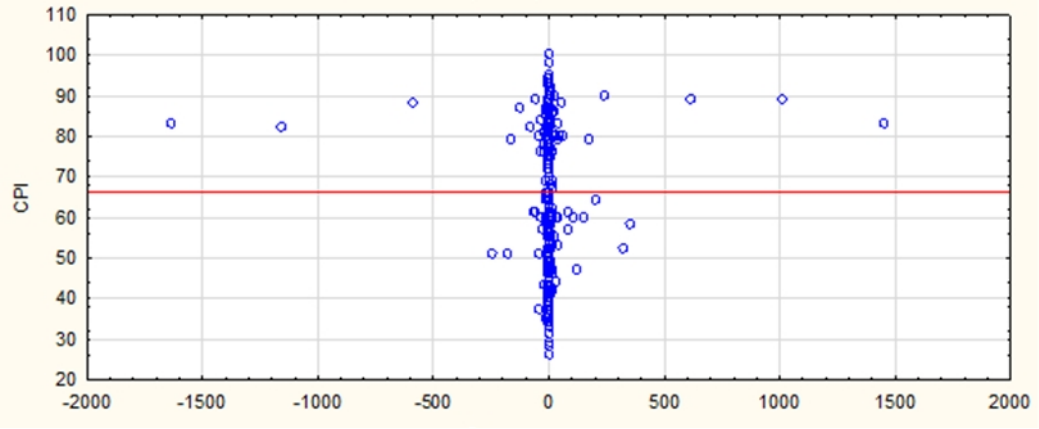
Country	Net acquisition of financial assets	Average CPI
Slovenia	896.9	60.5
Poland	84.6	49.2
Germany	72	79
Austria	54.1	77.8
Malta	83.9	57.9
Italy	6.3	47.4
Hungary	46.8	46.7
Luxembourg	39.4	84
Romania	44.2	37.5
Denmark	34	93
Belgium	29.9	72.1
Slovakia	22.6	44.1
Czech Republic	20.7	51.4
Cyprus	12.1	59.9
Great Britain	0.2	80.9
Sweden	1	90.3
Ireland	3.3	74.4
The Netherlands	-195	86.5

Source: Author's calculation, Hrvatska narodna banka (n.d.)

Furthermore, the authors investigated whether there is a link between Croatian corruption and the FDI net acquisition of financial assets of the EU countries. A total of 369 value pairs were linked from 18 EU countries with which Croatia is connected by investments. The results of this research

showed that Croatian corruption is not related to the size of the FDI net acquisition of financial assets in Croatia. After that, the authors investigated whether there is a connection between corruption in the EU countries and FDI, and the net acquisition of financial assets in Croatia. A total of 369 value pairs were linked from 18 EU countries with which Croatia is connected by investments. The results of this research showed that corruption in Croatian partner countries has no impact on the size of FDI in Croatia.

Figure 2. Corruption in EU countries and FDI (assets by investment country) in Croatia FDI of EU member states (in millions of Euros)



Source: Author's calculation

However, the decrease in corruption shows a slightly higher, but still a weak connection with the FDI from countries in the Croatian regional environment in the amount of 0.277, which is interesting because of the relatively higher level of corruption in these countries. This is shown in Table 4.

Table 4. Regression results for the ratio of corruption and foreign direct investment from 1999 to 2019.

Corruption in foreign countries and foreign direct investment commitments from 1999 to 2019 Regression results				
R = 0,0613	**F = 2,3092**	**R^2= 0,0038**	**df = 1,612**	no. of cases:614
adj. R^2= 0,0021	p = 0,1291	st. err. of est:228,6616	inter.:0,9146	std. err: 31,0299
t(612) = 0,0294	p = 0,9765	var1 b*= 0,061		
Corruption and total foreign investment of EU countries from 1999 to 2019 Regression results				
R = 0,1708	F=0,4808	R^2= 0,0291	df = 1,16	no. of cases:18
adj.R^2=-0,0314	p = 0,4979	st. err. of est: 17.9992	inter:67,2388	std. err: 4,4731
t(16)=15,032	p = 0,0000	var1 b*= -0,17		
Corruption and FDI of countries in the region from 1999 to 2019 Regression results				
R = 0,2766	F = 0,2486	R^2= 0,0765	df = 1,3	no. of cases: 5
adj.R^2= -0,2312	p = 0,6523	st. err. of est.:487,6367	inter: 244,3575	std. err: 845,226
t(3) = 0,2891	p = 0,7913	var2 b*= 0,277		
Corruption in Croatia and FDI, net acquisition of financial assets from 1999 to 2019 Regression results				
R = 0,0245	F = 0,2199	R^2= 0,0007	df = 1,367	no. of cases:369
adj.R^2= -0,0021	p = 0,6394	st. err. of est:152,1024	inter:28,5019	std. err: 54,0992
t(367) =0,5268	p = 0,5986	var2 b*= -0,02		
Corruption in EU member states and FDI, net acquisition of financial assets, (by country) of EU countries in millions of Euros Regression results				
R = 0,0002	F = 0,0000	R^2= 0,0000	df = 1,367	no. of cases: 369
adj.R^2= -0,0027	p = 0,9964	st. err. of est:152,1479	inter: 3,5363	std.err:30,2309
t(367) = 0,1169	p = 0,9069	var2 b*= -0,001		

Source: Author's calculation

Legend: st. err. of est = standard error of estimate, inter = y-axis intercept, df = degrees of freedom, no. of cases = number of cases, std. err. = standard error, var1, var2 = independent variables.

The average CPI and FDI (net acquisition of financial assets) were included in the re-search for 25, 15, 10, and 7 countries with which Croatia has the most investment (St. Vincent and the Grenadines, British Virgin Islands, Liechtenstein, Marshall Islands, Antigua, and Barbuda are not included), and interesting results were obtained. Table 4 clear-ly shows that corruption and FDI are more closely linked as the number of observed countries with which Croatia has the most investment is reduced. Namely, a weaker negative correlation of -0.23 was found between the average CPI in 25 foreign countries and Croatia FDI, which is gradually strengthening as the number of countries with which Croatia has the most investment is reduced, so for 15 countries it is -0.30, for 10 countries -0.34 and for 7 countries such a relationship becomes significant and is -0.58. It is clear that a corrupt environment in which Croatia has direct investment is an important factor that economic participants must properly consider in doing their business.

Table 5. Regression results for the ratio of corruption and foreign direct investment from 1999 to 2019.

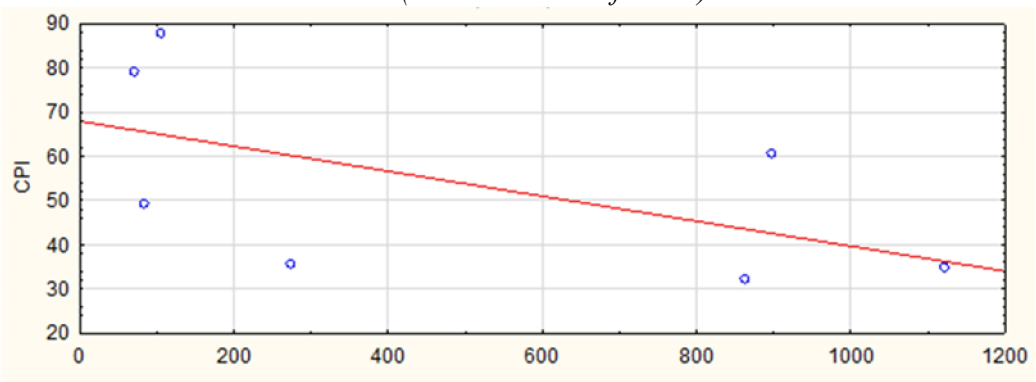
Average CPI in 25 foreign countries and Croatia FDI from 1999 to 2019 Regression results				
R = 0,2288	**F=1,2709**	**R^2= 0,05236604**	**df = 1,23**	no. of cases:25
adj. R^2=0,0112	p =0,2712	st. err. of est:306,4066	inter.:350,1984	std. err: 176,2765
t(23) = 1,9866	p = 0,059	var1 b*= -0,23		
Average CPI in 15 foreign countries and Croatia FDI from 1999 to 2019 Regression results				
R = 0,3031	F=1,3152	R^2= 0,0918	df = 1,13	no. of cases:15
adj.R^2=0,0220	p =0,2721	st. err. of est:367,2352	inter: 546,1116	std. err: 266,7772
t(13)= 2,0471	p =0,0614	var1 b*= -0,30		
Average CPI in 10 foreign countries and Croatia FDI from 1999 to 2019 Regression results				
R = 0,3440	F=1,0739	R^2= 0,1183	df = 1,8	no. of cases: 10
adj.R^2= 0,0081	p =0,3303	st. err. of est:416,9620	inter: 693,5848	std.err:340,5928
t(8) = 2,0364	p =0,0761	var2 b*= -0,34		
Average CPI in 7 foreign countries and Croatia FDI from 1999 to 2019 Regression results				
R = 0,5750	F=2,4702	R^2= 0,3306	df = 1,5	no. of cases:7
adj.R^2=0,1968	p =0,1768	st. err. of est:407,1008	inter:1121,7531	std. err: 431,3110
t(5)= 2,6008	p =0,0482	var1 b*= -0,58		

Source: Author's calculation

Legend: st. err. of est = standard error of estimate, inter = y-axis intercept, df = degrees of freedom, no. of cases = number of cases, std. err. = standard error, var1, var2 = independent variables.

Average CPI in 7 foreign countries and Croatian direct investment for the period from 1999 to 2019 can be seen in Figure 3.

Figure 3. Average CPI in 7 foreign countries and Croatian direct investment for the period from 1999 to 2019 (FDI in millions of Euros)



Source: Author's calculation

Given that the countries in which Croatia has the largest share of its investments are very different in the degree of their economic development, GDP per capita as a control variable was used in the regression analysis. This can be seen in Table 6.

Table 6. Direct investment, assets (by country)from 1999 to 2019.

Countries	FDI in millions of euros	average CPI	GDP per capita current prices US$ (average)
Bosnia and Herzegovina	1122.5	34.9	3972.564
Slovenia	896.9	60.5	20378,894
Serbia (Yugoslavia)	863.3	32.2	4953.676
Montenegro (Yugoslavia)	273.7	35.7	5707.727
Poland	84.6	49.2	10615.210
Switzerland	106.3	87.6	67185,746
Germany	72	79	38939.676

Source: WEO data

By entering GDP per capita as a control variable in the statistical analysis, the data contained in table no. 7 are obtained.

Table 7. Multiple Regression Results

Dependent: FDI	Multiple R = 0,57533857	F = 0,9896013
	R^2= 0,33101447	df = 2,4
No. of cases: 7	adjusted R^2= -0,00347830	p = 0,447542
Standard error of estimate: 455,03685325		
Intercept: 1158,3230149	Std.Error: 943,1758	t(4) = 1,2281 p = 0,2867
CPI b*= -0,63	GDP p/c b*= 0,058	

Source: Author's calculation

It is clear that the control variable has no significant influence (correlation coefficient 0.058) on the change in the strong link between corruption and Croatia foreign direct in-vestment in these countries. Thus, Croatia FDI is increasing in countries that have a higher level of corruption. This type of corrupt activity can be considered "corruption as grease", but it represents a potential risk for increasing business activities in countries with little or low levels of corruption.

Croatian economic environment has a relatively significant degree of corruption that contaminates economic flows and can be a limiting factor for those economic actors who do not want to be a part of corrupt operations. In the period from 1993 to 2019, FDI (net acquisition of financial assets) is the most significant in neighboring countries, namely Bosnia and Herzegovina, amounting to 1,279.5 million Euros, Slovenia 1,034.4 million Euros, Serbia 876.5 million Euros, Montenegro 281.8 million Euros, which have a higher level of corruption (lower CPI). In the fifth place is Poland with an FDI of 195.1 million Euros, followed by Switzerland with 134.7 million Euros and Germany with 118.5 million Euros. If we compare these data, with the data of some more successful transition countries with which Croatia wants to be compared, it is clear that their FDI is linked to a less corrupt environment than the Croatian environment. Thus, for example, the largest share of Czech foreign direct investment (data for 2018) refers to the Netherlands (29.2%), Luxembourg (23.6%), Slovakia (8.9%), Cyprus (8.7%), United Kingdom (5.6%), etc., the countries with a significantly lower level of corruption compared to the Croatian environment. The largest share of Slovenian foreign direct investment (data for 2019) is linked to Croatia, which does not have a satisfactory level of CPI, but on the other hand other countries such as the Netherlands, Germany, Austria, Italy, the Czech Republic, and others have a significantly lower level of corruption. Also, Hungarian foreign direct investment (data for 2019) is mostly focused on countries such as Switzerland, Luxembourg, Slovakia, Cyprus, and other countries, which have a lower level of corruption compared to the Croatian environment. Consequently, it is clear that economic actors in Croatia are in a much more sensitive investment

position compared to their corrupt environment, than some other comparable EU members. It can also be concluded that corruption may be a more significant factor in determining FDI than in some other countries.

Table 8. An overview of the basic determinants of regression models used in the research.

Regression model	b	p	Significance level
Corruption and net commitments	- 0,24	0,0474	Statistically significant at the level of 5%
Corruption and capital in direct investment companies	0,1120	0,00001	Statistically significant at the level of 1%
Corruption in foreign countries and foreign direct investment commitments	0,277	0,9765	Not statistically significant
Corruption and total foreign investment of EU countries	- 0,02	0,00001	Statistically significant at the level of 1%
Corruption and FDI of countries in the region	0,277	0,7913	Not statistically significant
Corruption in Croatia and FDI, net acquisition of financial assets	- 0,02	0,5986	Not statistically significant
Corruption in EU and FDI member states, net acquisition of financial assets	- 0,001	0,9069	Not statistically significant
Average CPI in 25 foreign countries and Croatia FDI	- 0,23	0,059	Statistically significant at the level of 10%
Average CPI in 15 foreign countries and Croatia FDI	- 0,30	0,0614	Statistically significant at the level of 10%
Average CPI in 10 foreign countries and Croatia FDI	- 0,34	0,0761	Statistically significant at the level of 10%
Average CPI in 7 foreign countries and Croatia FDI	- 0,58	0,0482	Statistically significant at the level of 5%

5. CONCLUSION

The modern world is characterized by the growing movement of international capital and financial globalization. FDI can significantly stimulate the economic growth and development of a country, including Croatia, but it can also be its limiting factor. The phenomenon of corruption and its relationship with the FDI is still insufficiently analyzed and there is a lack of relevant scientific literature. The research on the connection between corruption and FDI in Croatia, besides the theoretical value, also has a pragmatic character, which is reflected in the use of acquired knowledge in the implementation of appropriate economic policy as well as anti-corruption policy. The conducted research shows that the relationship between corruption and FDI can take different forms and they need to be observed in relation to the specifics of certain environments, in this case, the Croatian environment. Although the structure of FDI in Croatia in the period from 1999 to 2019 was unsatisfactory, this research showed that corruption was not a significant factor influencing FDI in Croatia. We explain this result by the fact that the majority of FDI in Croatia comes from countries with a lower level of corruption. On the other hand, the research showed that corruption also acts "as grease" and is significantly associated with most of the Croatia FDI, which is logical because Croatia makes the majority of investments in the countries in its environment that have a relatively high level of corruption. Investors must rationally include this fact in their investment policies in order to successfully make their investments. On the other hand, all economic actors in Croatia must be aware that corruption can be a limiting factor in increasing Croatia FDI in countries with low levels of corruption as well as in countries that will successfully lower corruption levels in the future.

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