

WORKING PAPER

Chinese outward foreign direct investment to the Central and Eastern European countries in the pandemic and post-pandemic world

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Abstract

The COVID-19 pandemic, an unexpected event with strong and long-lasting consequences, led to increased uncertainty among investors and collapses in commodities and financial markets. However, while some investors pulled their capital out and sold assets, others bought them back at low prices. Although less volatile, the foreign direct investment (FDI) market was also hit hard. Against this background, this paper explores the effect of the pandemic on Chinese FDI in Central and Eastern European (CEE) countries that are strategically important to China. The paper uses the Coordinated Direct Investment Survey by the International Monetary Fund (IMF), the Statistical Bulletins of China's Outward Foreign Direct Investment, the OECD.Stat FDI data, and the China Global Investment Tracker. The paper finds that the pandemic did not have a negative impact on Chinese outward FDI to the CEE countries. The structure of Chinese outward FDI to the CEE countries changed in favor of more indirect FDI. Moreover, the paper shows that there are still huge discrepancies between the IMF data and the Chinese national statistics, which suggests that further work in the direction of statistical harmonization is necessary. As for the future of Chinese investment in the region, the paper anticipates China's continued strategic interest in the region with increasing competition from other geopolitical centers.

Introduction

Central and Eastern Europe (CEE) is gaining increased attractiveness among Chinese investors (Szunomár, 2018). China is successfully rediscovering the region through the 16 + 1 framework and the Belt and Road Initiative (BRI) (Góralczyk, 2017; Xiaozhong, 2017). On the one hand, the CEE region as a gateway offers an access to the rest of the European market, in particular, the European Union (EU) countries, and, on the other hand, it is a highly prospective market itself (Ramasamy & Yeung, 2022; Bieliński et al., 2019). Against the background of increasingly strong relations between China and the countries of Central and Eastern Europe,

the literature has examined various aspects of Chinese investment in the region. For example, Matura (2019) finds a positive relationship between Chinese investments to a CEE country and the political relations between China and this CEE country, which guarantees better investment protection and more investment opportunities. Horváth (2020) notes that Chinese FDI to the CEE countries remain low in comparison to the rest of Europe, which signals a potential for growth. Chinese investors are still behind investors from Germany, Japan, South Korea, and the United States in many of the CEE countries (Matura, 2021). Chinese FDI in the region is also not spread evenly with some countries receiving the largest FDI share, whereas other countries are underrepresented as host countries (Jacoby, 2014), which again indicates a growth potential. Chinese FDI to the CEE countries is both efficiency-seeking, market-seeking, and strategic-asset-seeking (Yue, 2018). It is found that the previous major crisis – the global financial crisis – accelerated economic relationships between China and the CEE countries given the CEE interest in new sources for the recovery (Szunomár et al., 2017; Éltető, 2016). This would suggest that the COVID-19 pandemic, which requires huge resources alike, could motivate the CEE countries to deepen their cooperation with China. In support of this, Goreczky (2022) finds that trade between China and the CEE countries proved to be resilient to the pandemic, and the post-pandemic recovery opens new cooperation opportunities for China and the CEE (Jing, 2020).

Given the extreme character of the pandemic and its potential negative effects on the economies and on FDI, in particular, a strand of literature has emerged, which looks into the effects of the COVID-19 pandemic on FDI, though the topic remains underresearched. Adarov and Hunya (2020) find on average a 35% decline of FDI flows to the CEE countries in the first six months of 2020, which is less than the global decline of 49%. Hysa et al. (2022) argue that FDI inflows play an important role in the recovery after the pandemic and measures should be taken by the governments to attract investors. Tanjangco et al. (2021) see positive development of Chinese outward FDI in the BRI countries, and Fang et al. (2021) expect China to increase its outward FDI to the BRI countries following the pandemic. Xia & Liu (2021) look at Chinese FDI to Germany and estimate that the pandemic has a temporary limited negative effect with Chinese investors being further attracted to the German market. Duan et al. (2020) also find a short and limited effect of the pandemic on Chinese outward FDI and discuss opportunities brought by the pandemic. When talking about the effects of the COVID-19 pandemic on FDI, the effect may differ across varying types of FDI. The severity of the pandemic in host countries affects both greenfield FDI and cross-border mergers and acquisitions (M&A) in the manufacturing sector but only greenfield FDI in the service sector (Hayakawa et al., 2022). Fu

et al. (2021) find no effect of the pandemic on FDI in the mining and agricultural sectors, but an effect in the service sector. The effect also very much depends on the particular COVID-19 situation in each of the countries. Doytch et al. (2021) show that the pandemic had a negative effect on greenfield FDI in the manufacturing, extractive, and utility industries, whereas service industries demonstrated resilience. Adarov and Hunya (2020) find that manufacturing was the most vulnerable sector.

Against the background of the two seemingly antagonistic trends – Chinese interest in the CEE region, which is expected to have a positive effect on Chinese outward FDI in the region, and the COVID-19 pandemic, which is expected to have a negative effect on FDI – this paper studies how Chinese outward FDI to the CEE countries changed in 2020. Moreover, the paper compares four varying datasets on Chinese outward FDI for robustness. The paper finds that Chinese outward FDI to the CEE countries increased in 2020. This finding suggests that the attractiveness of the CEE market for China outweighed the potential negative effects of the pandemic. The analysis of the varying datasets reveals that there are still huge discrepancies between them, and common international efforts are necessary to bring the statistics to a common denominator. In addition, the paper identifies that indirect investments from China to the CEE countries, i.e., investments from China to the CEE countries via some third conduit countries, increased in 2020. This is, especially, to consider given the fact that China reports large FDI in- and outflows/stocks via Hong Kong, British Virgin Islands, Cayman Islands, and other countries regarded as international financial centers or tax havens. The paper also discusses the future of Chinese investment in the CEE. The emerging geopolitical environment, with the division of the world into so-called fortresses, will lead to increased competition with other geopolitical decision-making centers. The region will continue to be strategic for Chinese investment, but there will be a marked increase in the level of control and possibly restrictions by countries.

Data and Methods

When talking about Central and Eastern European countries, this paper refers to Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Montenegro, North Macedonia, Poland, Romania, Serbia, Slovakia, and Slovenia.

To analyze Chinese FDI to the CEE countries, the paper uses two datasets. The first dataset comes from the Coordinated Direct Investment Survey by the International Monetary

Fund (further: IMF data). It is based on the data reported to the IMF by the CEE countries and shows Chinese FDI from the perspective of the CEE countries as inward FDI. The second dataset is based on the Statistical Bulletins of China's Outward Foreign Direct Investment published by the Ministry of Commerce of the People's Republic of China, the National Bureau of Statistics, and the State Administration of Foreign Exchange (further: MOFCOM data). It shows Chinese FDI from the perspective of China as outward FDI to the CEE countries. Given that the largest currently available timeline for the IMF data is 2009-2020, the MOFCOM data is taken for this period for the sake of comparability. When looking at the raw data we see noticeable differences between the two datasets (see Table A1 in the Appendix). The correlation coefficient between the two datasets is 0.55. The issue has been discussed in the literature as a well-known challenge (Ding et al., 2021). The cited reasons include different treatment of offshore financial centers and varying definitions of what is reported as FDI (Schwarzenberg, 2020; Anderson et al., 2020; Dreger et al., 2017; OECD, 2008). Against this background, the paper uses both datasets to increase the robustness of its findings.

Given that traditional FDI data may be largely distorted by pass-through capital, the OECD distinguishes between ultimate and immediate FDI, where ultimate investing country is the country where FDI starts its journey, and immediate FDI is the last step on the investment journey (see Fig. A1 in the Appendix for a graphical explanation). The difference between ultimate and immediate FDI is indirect FDI. If indirect FDI from country B to country A is greater than zero, than country B invests into country A via some third countries. If indirect FDI from country B to country A is less than zero, than country B is used by some third countries to invest into country A. Until now, only a limited number of OECD countries report FDI positions by both ultimate and immediate investor. Among these countries, there are several CEE countries as well. These are Czech Republic (2013-2020), Estonia (2013-2020), Hungary (2014-2019), Lithuania (2015-2020), Poland (2013-2020), and Slovenia (2017-2020) with the reporting years in brackets. This data allows figuring out how much China invests on a direct route to the respective CEE countries and how much it forwards via some third conduit countries. Another data source, which could provide more insights into the topic is the China Global Investment Tracker by the American Enterprise Institute and the Heritage Foundation. Its limitations are that it covers investment transactions worth 100 million US dollars and more, and it does not allow evaluating FDI stocks in the respective countries.

To estimate the impact of the pandemic on Chinese FDI to the CEE countries, the paper uses an ordinary least squares (OLS) model with FDI in million US dollars as the dependent variable, pandemic dummy variable equal to 1 in 2020 as the independent variable as well as

year- and country-fixed effects. This paper assumes that given the timeframe of the study, year-fixed effects and country-fixed effects perform well in absorbing the effects of other potential covariates. Their inclusion allows capturing the effect of the pandemic variable. Robust standard errors are used to take into account the heteroscedasticity of the residuals. In addition, a regression with logged FDI is conducted to have a model invariant to the scale and a much less heteroskedastic or skewed distribution as well as to limit the effect of outliers. Some of the observations, which have negative values, are eliminated for the logarithmic regression.

$$FDI_{i,t} = \beta_0 + \beta_1 Pandemic_t + \gamma_i + \gamma_t + \varepsilon_{i,t}$$

$$\ln(FDI_{i,t}) = \beta_0 + \beta_1 Pandemic_t + \gamma_i + \gamma_t + \varepsilon_{i,t}$$

Results

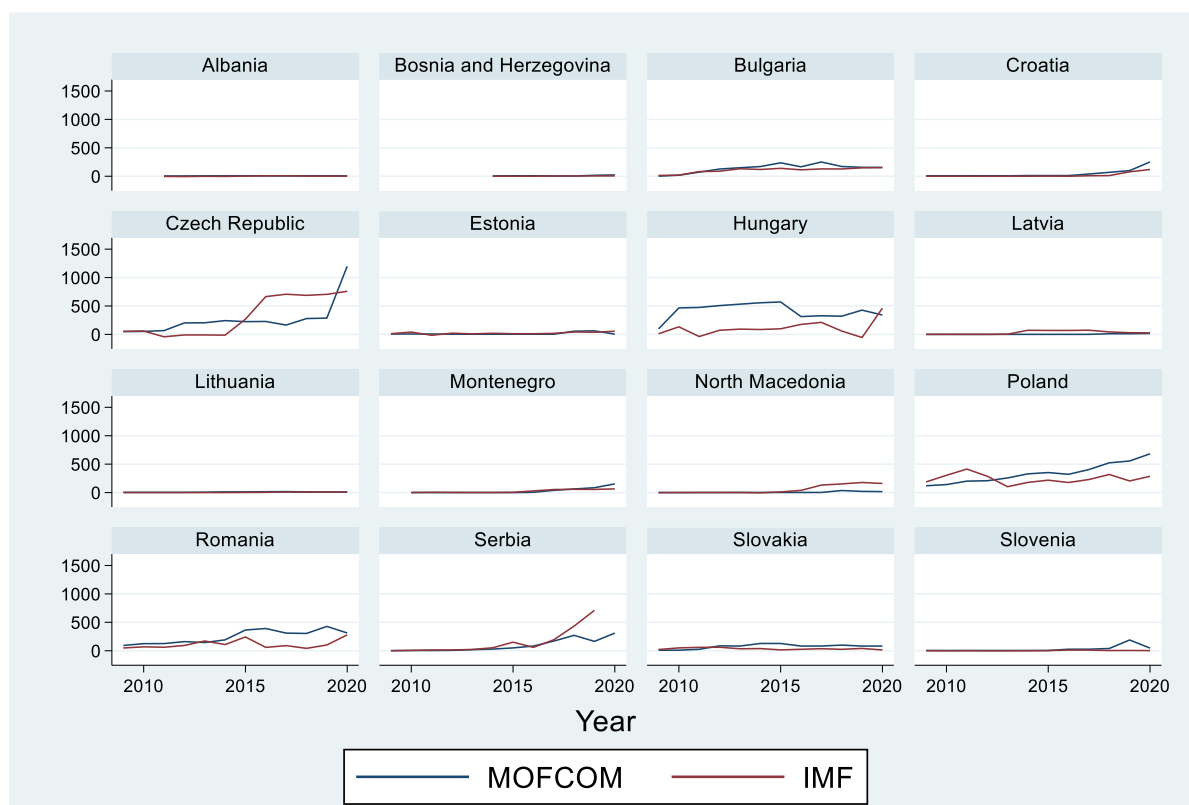
Table 1 reports the results from the regression of Chinese outward FDI to the CEE countries from the IMF, and the MOFCOM data. We see that the pandemic has a positive and highly significant effect on Chinese outward FDI to the CEE countries in both linear and logarithmic regressions, though there is a difference in coefficients depending on the data source. This confirms the above discussion that discrepancies remain between the data reported by China as home country (outward FDI) and by the CEE countries as host countries (inward FDI). Figure 1 illustrates the development of Chinese outward FDI to the CEE countries from both the IMF and the MOFCOM data, which allows us seeing the discrepancies between the two data sources also graphically.

Table 1. Regression results for the Chinese outward FDI to the CEE countries as dependent variable (in million US dollars, and logged)

	IMF	Logged IMF	MOFCOM	Logged MOFCOM
Pandemic dummy	157.02*** (43.24)	2.26*** (0.39)	220.42*** (70.94)	2.69*** (0.42)
Constant	-77.42** (30.13)	-0.62 (0.46)	-108.34*** (35.53)	0.11 (0.38)
Year fixed effects	Yes	Yes	Yes	Yes
Host country fixed effects	Yes	Yes	Yes	Yes
Number of observations	180	157	183	183
R-squared	0.51	0.94	0.71	0.91

Note: Levels of significance: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors.

Figure 1. Chinese outward FDI to the CEE countries (in million US dollars, IMF and MOFCOM data)



Indirect FDI

One limitation of the above data is that companies are required to register the immediate but not the ultimate destination of their international transactions (Casanova et al., 2015). This likely explains that more than 50% of Chinese OFDI reportedly goes to Hong Kong, with 30% of Chinese OFDI going through Hong Kong all over the world (Casanova et al., 2015). According to the MOFCOM data, in 2020 about 56% of Chinese outward FDI went to Hong Kong, 18% to the Cayman Islands, and 6% to the British Virgin Islands, which suggests existence of indirect routes chosen by Chinese investors. For this reason, the OECD data, which distinguishes between ultimate and immediate investors is used, as described above. Table A2 in the Appendix summarizes the OECD data for the reporting CEE countries. We see that China invests indirectly in Czech Republic, Hungary, Lithuania, Poland, and Slovenia (indirect FDI greater than zero). In most of the reported years, some third-country investors invested through China to Estonia (indirect FDI less than zero).

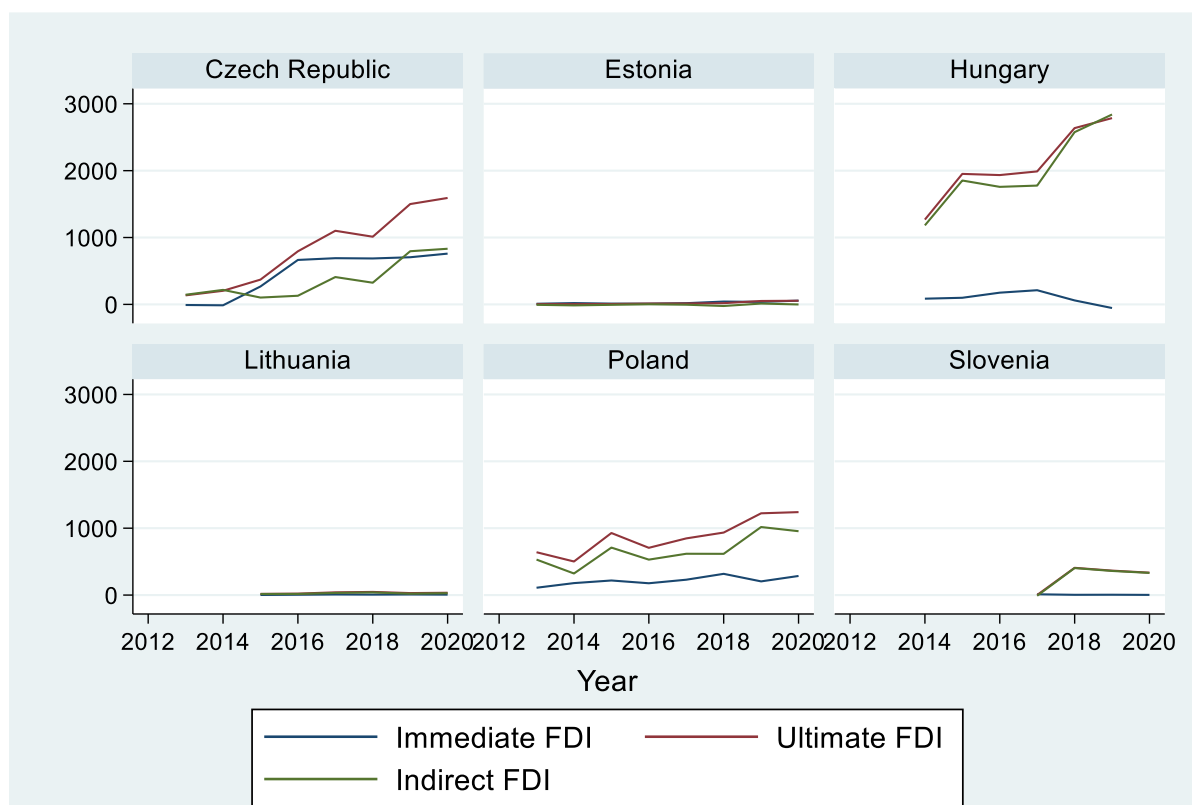
Table 2 reports the regression results of immediate, ultimate, and indirect FDI on the pandemic variable. There was a significant increase in the year of the pandemic onset (2020) in

both ultimate, immediate, and indirect FDI. We see a larger significant increase in ultimate FDI than in immediate FDI, which suggests that Chinese investors invested more indirectly in 2020. Figure 2 illustrates the development of ultimate, immediate, and indirect FDI. The significant share of indirect FDI suggests that statistical work is necessary in this direction either in order to have a clearer picture of who is really investing where, i.e., in this particular case to know exactly how much China invests in the CEE countries including through third conduit countries.

Table 2. Regression results for the Chinese immediate, ultimate, and indirect FDI to the CEE countries as dependent variable (in million US dollars, and logged)

	Ultimate FDI	Logged Ultimate FDI	Immediate FDI	Logged Immediate FDI	Indirect FDI	Logged Indirect FDI
Pandemic dummy	633.39** (251.62)	1.98*** (0.51)	303.40* (152.19)	1.05*** (0.25)	329.98* (118.98)	0.96*** (0.33)
Constant	519.74** (238.36)	5.42*** (0.40)	269.59 (168.52)	5.56*** (0.17)	250.15*** (87.55)	5.22*** (0.25)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Host country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	40	40	40	37	40	33
R-squared	0.92	0.89	0.73	0.96	0.93	0.97
Note: Levels of significance: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors.						

Figure 2. Chinese outward ultimate, immediate, and indirect FDI to the CEE countries (in million US dollars, OECD data)



The China Global Investment Tracker also provides evidence that Chinese investors use indirect investment channels. Table A3 in the Appendix lists Chinese investment projects in the CEE countries. E.g., we see an investment of 350 million US dollars in Bosnia and Herzegovina in 2019, and 110 million in 2020. It is to expect that these projects would increase Chinese FDI stocks in the country, but both the IMF and the MOFCOM report much lesser FDI stocks in these years. If we look at Hungary, there were investments of more than 3000 million US dollars between 2010 and 2012. However, again the stocks reported by both the MOFCOM and the IMF are noticeably lower, and only the OECD data comes close enough.

Outlook

Positive effects from FDI on host economies like additional financial resources, employment growth, innovations, etc. make it desirable for host economies to attract more FDI. For China, for its part, investment is a direct tool to increase its influence in the world¹. By

¹ In this context, it is important to differentiate between Chinese state-owned and private enterprises, which are found to have different patterns of investing abroad (Amighini et al., 2013). Whereas private investments are more business driven, state-owned investments rather follow strategic needs of China and are an instrument to promote

investing huge amounts of money in key industries and infrastructure worldwide, China gains pivotal importance in these countries. This helps China more actively and firmly embed itself in the changing multipolar world and claim its right to participate in it. This cannot but cause concern for the West, especially the U.S. and the EU, which are constantly expressing worries about China's growing influence in the world and in the CEE region in particular. As a response, they adopt their programs and reforms and a number of countries become an apple of discord in geopolitics. According to various observations, the modern world is moving towards a system of competing coalitions – so-called blocks or fortresses, which will unite around geopolitically and geo-economically strong countries. China's investment policy is one important step toward creating such a fortress around itself. Participation in it is a win-win strategy. It is beneficial not only for China itself, but also for participating countries. The CEE countries, on their part, are interested in additional funds for the recovery process, as also the post-financial crisis recovery has shown, and thus are highly likely to further welcome Chinese investors.

Conclusion

The paper looks at four different datasets for Chinese FDI to the CEE countries – Chinese outward FDI statistics, CEE inward FDI statistics, OECD data on immediate and ultimate FDI, and data on specific Chinese investment projects. The paper finds that the pandemic did not have a negative effect on Chinese outward FDI to the CEE countries in 2020. On the contrary, Chinese outward FDI to the CEE countries increased in 2020. The paper also finds that Chinese investors chose more indirect routes in 2020. As far as the future of Chinese FDI to the CEE countries is concerned, it is highly likely that the market will remain of strategic interest for China, but the competition over it will grow with other global geopolitical centers.

Additionally, the paper identifies that there are still huge discrepancies between Chinese outward statistics and the statistics of the host countries on inward FDI they receive from China. This signals that future efforts are necessary to harmonize the statistics to a common international standard to understand who is really investing where, to compare countries in terms of their investment attractiveness, and to design efficient investment policies.

Chinese foreign policy (Stone et al., 2022). According to the MOFCOM data, private and state-owned outward FDI from China plays an almost equal role (MOFCOM, 2021). In 2021, about 52% of Chinese outward FDI was state-owned, and 48% was private, with the state-owned FDI likely to increase (Alon et al., 2014).

A limitation of the study is data availability until 2020, and future research is necessary to analyze how Chinese FDI to the CEE countries developed in 2021 and 2022 when the data becomes available. However, the lack of a negative effect of the COVID-19 pandemic in 2020 when the pandemic hit the most suggests that there might not be any effect in the subsequent periods either. Another potential limitation is that decision on FDI is often made by a committee or a group of board members, and investment in 2020 may be decided in 2019 or much earlier when there was no pandemic. However, the fact that there are studies that find a decline in FDI following the pandemic and this study does not find such an effect supports the finding that Chinese investment interest in the CEE region remained despite the pandemic.

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Appendix

Table A1. Comparison of Chinese outward FDI data by IMF and MOFCOM (in million US dollars)

Country	Year	IMF	MOFCOM
Albania	2020	3	6
Albania	2019	2	7.11
Albania	2018	3	6.42
Albania	2017	9	4.78
Albania	2016	7	7.27
Albania	2014	-3	7.03
Albania	2013	-1	7.03
Albania	2012	-6	4.43
Albania	2011	-4	4.43
Bosnia and Herzegovina	2020	6	22.86
Bosnia and Herzegovina	2019	6	16.7
Bosnia and Herzegovina	2018	5	4.34
Bosnia and Herzegovina	2017	4	4.34
Bosnia and Herzegovina	2016	1	8.6
Bosnia and Herzegovina	2015	1	7.75
Bosnia and Herzegovina	2014	1	6.13
Bulgaria	2020	152	155.84
Bulgaria	2019	148	156.81
Bulgaria	2018	128	171.09
Bulgaria	2017	129	250.46
Bulgaria	2016	113	166.07
Bulgaria	2015	139	235.97
Bulgaria	2014	119	170.27
Bulgaria	2013	132	149.85
Bulgaria	2012	89	126.74
Bulgaria	2011	82	72.56
Bulgaria	2010	19	18.6
Bulgaria	2009	14	2.31
Croatia	2020	119	252.64
Croatia	2019	78	98.4
Croatia	2018	12	69.08
Croatia	2017	9	39.08
Croatia	2016	1	11.99
Croatia	2015	3	11.82
Croatia	2014	1	11.87
Croatia	2013	0	8.31
Croatia	2012	0	8.63
Croatia	2011	1	8.18
Croatia	2010	1	8.13
Croatia	2009	1	8.1
Czech Republic	2020	759	1198.43
Czech Republic	2019	705	287.49

Czech Republic	2018	687	279.23
Czech Republic	2017	707	164.9
Czech Republic	2016	665	227.77
Czech Republic	2015	268	224.31
Czech Republic	2014	-13	242.69
Czech Republic	2013	-9	204.68
Czech Republic	2012	-9	202.45
Czech Republic	2011	-42	66.83
Czech Republic	2010	59	52.33
Czech Republic	2009	54	49.34
Estonia	2020	56	5.32
Estonia	2019	38	63.33
Estonia	2018	43	56.84
Estonia	2017	18	3.62
Estonia	2016	11	3.5
Estonia	2015	12	3.5
Estonia	2014	20	3.5
Estonia	2013	10	3.5
Estonia	2012	22	3.5
Estonia	2011	-15	7.5
Estonia	2010	41	7.5
Estonia	2009	13	7.5
Hungary	2020	461	341.87
Hungary	2019	-54	427.36
Hungary	2018	60	320.69
Hungary	2017	212	327.86
Hungary	2016	176	313.7
Hungary	2015	99	571.11
Hungary	2014	86	556.35
Hungary	2013	93	532.35
Hungary	2012	73	507.41
Hungary	2011	-37	475.35
Hungary	2010	133	465.7
Hungary	2009	11	97.41
Latvia	2020	27	16.81
Latvia	2019	30	11.63
Latvia	2018	44	11.7
Latvia	2017	74	1.02
Latvia	2016	70	0.94
Latvia	2015	70	0.94
Latvia	2014	73	0.54
Latvia	2013	4	0.54
Latvia	2012	0	0.54
Latvia	2011	0	0.54
Latvia	2010	1	0.54
Latvia	2009	0	0.54
Lithuania	2020	7	12.23

Lithuania	2019	9	9.81
Lithuania	2018	7	12.89
Lithuania	2017	9	17.13
Lithuania	2016	5	15.29
Lithuania	2015	2	12.48
Lithuania	2014	1	12.48
Lithuania	2013	1	6.97
Lithuania	2012	1	3.93
Lithuania	2011	1	3.93
Lithuania	2010	1	3.93
Lithuania	2009	1	3.93
Montenegro	2020	65	153.08
Montenegro	2019	56	85.09
Montenegro	2018	58	62.86
Montenegro	2017	54	39.45
Montenegro	2016		4.43
Montenegro	2015	5	0.32
Montenegro	2014	2	0.32
Montenegro	2013	2	0.32
Montenegro	2012	3	0.32
Montenegro	2011	5	0.32
Montenegro	2010	2	0.32
North Macedonia	2020	160	17.1
North Macedonia	2019	177	21.09
North Macedonia	2018	152	36.3
North Macedonia	2017	132	2.03
North Macedonia	2016	39	2.1
North Macedonia	2015	11	2.11
North Macedonia	2014	-4	2.11
North Macedonia	2013	1	2.09
North Macedonia	2012	2	0.26
North Macedonia	2011	2	0.2
North Macedonia	2010	1	0.2
North Macedonia	2009	1	0.2
Poland	2020	286	682.31
Poland	2019	205	555.59
Poland	2018	318	523.73
Poland	2017	230	405.52
Poland	2016	177	321.32
Poland	2015	218	352.11
Poland	2014	179	329.35
Poland	2013	104	257.04
Poland	2012	288	208.11
Poland	2011	414	201.26
Poland	2010	304	140.31
Poland	2009	188	120.3
Romania	2020	279	313.16

Romania	2019	102	428.27
Romania	2018	42	304.62
Romania	2017	90	310.07
Romania	2016	59	391.5
Romania	2015	243	364.8
Romania	2014	109	191.37
Romania	2013	172	145.13
Romania	2012	93	161.09
Romania	2011	62	125.83
Romania	2010	69	124.95
Romania	2009	49	93.34
Serbia	2020		310.57
Serbia	2019	711	164.73
Serbia	2018	434	271.41
Serbia	2017	192	170.02
Serbia	2016	60	82.68
Serbia	2015	151	49.79
Serbia	2014	52	29.71
Serbia	2013	23	18.54
Serbia	2012	14	6.47
Serbia	2011	13	5.05
Serbia	2010	6	4.84
Serbia	2009	0	2.68
Slovakia	2020	14	82.87
Slovakia	2019	41	82.74
Slovakia	2018	25	99.29
Slovakia	2017	36	83.45
Slovakia	2016		82.77
Slovakia	2015	15	127.79
Slovakia	2014	38	127.79
Slovakia	2013	35	82.77
Slovakia	2012	62	86.01
Slovakia	2011	60	25.78
Slovakia	2010	50	9.82
Slovakia	2009	22	9.36
Slovenia	2020	3	46.8
Slovenia	2019	5	189.6
Slovenia	2018	4	40.09
Slovenia	2017	12	27.25
Slovenia	2016	12	26.86
Slovenia	2015	3	5
Slovenia	2014	0	5
Slovenia	2013	-1	5
Slovenia	2012	-1	5
Slovenia	2011	0	5
Slovenia	2010	-1	5
Slovenia	2009	1	5

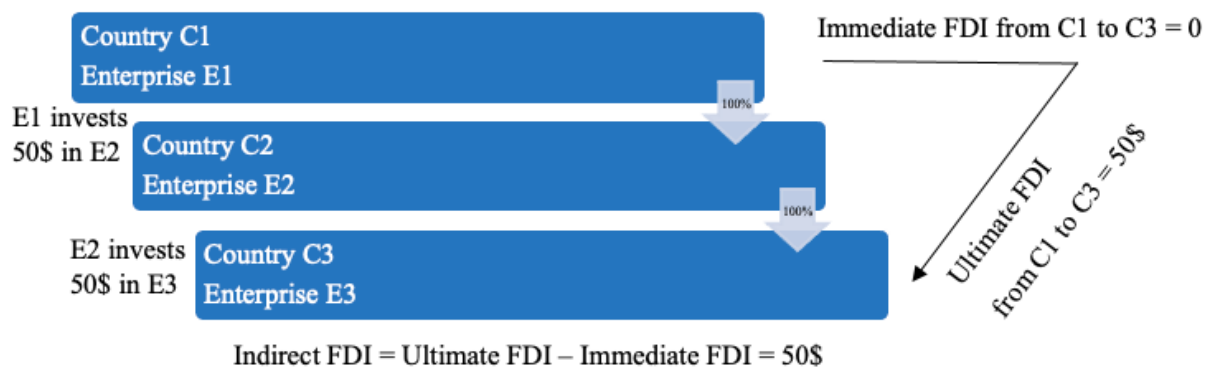
Table A2. Data on Chinese outward immediate and ultimate FDI to the CEE countries provided by the OECD (in million US dollars)

Year	Reporting country	Immediate FDI	Ultimate FDI	Indirect FDI
2013	Czech Republic	-9	136	144
2014	Czech Republic	-13	204	217
2015	Czech Republic	268	371	102
2016	Czech Republic	665	794	129
2017	Czech Republic	691	1101	410
2018	Czech Republic	687	1012	325
2019	Czech Republic	705	1501	795
2020	Czech Republic	759	1592	832
2013	Estonia	10	4	-6
2014	Estonia	20	5	-15
2015	Estonia	12	6	-6
2016	Estonia	11	13	2
2017	Estonia	18	14	-4
2018	Estonia	43	19	-24
2019	Estonia	38	51	13
2020	Estonia	56	55	-1
2014	Hungary	86	1268	1182
2015	Hungary	99	1952	1853
2016	Hungary	176	1934	1758
2017	Hungary	212	1989	1777
2018	Hungary	60	2636	2576
2019	Hungary	-54	2786	2840
2015	Lithuania	2	18	16
2016	Lithuania	5	22	17
2017	Lithuania	9	41	32
2018	Lithuania	7	47	40
2019	Lithuania	9	30	21
2020	Lithuania	7	35	28
2013	Poland	110	641	531
2014	Poland	179	502	323
2015	Poland	218	928	710
2016	Poland	177	707	530
2017	Poland	230	848	618
2018	Poland	318	935	617
2019	Poland	205	1223	1018
2020	Poland	286	1241	955
2017	Slovenia	12	2	-10
2018	Slovenia	4	408	404
2019	Slovenia	5	366	361
2020	Slovenia	3	335	332

Table A3. Chinese investment projects in the CEE countries provided by the Chinese Global Investment Tracker (in million US dollars)

Country	Year	Sector	Amount	Investor
Bosnia and Herzegovina	2021	Energy	150	China General Technology (Genertec), Power Construction Corp (PowerChina)
Bosnia and Herzegovina	2020	Metals	110	China National Machinery Industry (Sinomach), China Nonferrous Metal Mining
Bosnia and Herzegovina	2019	Transport	350	Shandong Gaosu
Bulgaria	2009	Transport	120	Great Wall Motor
Croatia	2018	Energy	220	China North Industries (Norinco)
Czech Republic	2018	Finance	350	China International Trust and Investment (CITIC)
Czech Republic	2016	Real estate	310	CEFC China Energy
Czech Republic	2015	Finance	100	CEFC China Energy
Czech Republic	2015	Finance	100	CEFC China Energy
Hungary	2021	Transport	120	Nanjing Chervon
Hungary	2019	Energy	110	China General Technology (Genertec)
Hungary	2017	Technology	210	Ex-Im Bank
Hungary	2012	Technology	1200	Huawei Technologies
Hungary	2011	Chemicals	260	Wanhua Industrial
Hungary	2011	Chemicals	1660	Wanhua Industrial
Hungary	2010	Chemicals	190	Wanhua Industrial
Poland	2019	Health	100	Yifan Pharmaceuticals
Poland	2017	Consumer	100	Hongbo Group
Poland	2017	Other	110	Shanghai Inesa
Poland	2016	Utilities	140	Everbright
Poland	2015	Energy	340	Three Gorges
Poland	2014	Energy	200	Ex-Im Bank
Poland	2012	Transport	100	Guangxi Liugong Machinery
Serbia	2021	Metals	410	Zijin Mining
Serbia	2020	Metals	360	Zijin Mining
Serbia	2019	Metals	380	Zijin Mining
Serbia	2019	Metals	120	Hebei Steel
Serbia	2018	Transport	950	Shandong Linglong Tire
Serbia	2018	Other	260	China Communications Construction
Serbia	2018	Metals	690	Zijin Mining
Serbia	2018	Energy	140	Shanghai Electric
Serbia	2016	Metals	120	Hebei Steel
Serbia	2014	Energy	970	China National Machinery Industry (Sinomach)
Slovakia	2021	Agriculture	130	WH Group (formerly Shuanghui)
Slovenia	2018	Consumer	340	Hisense Group
Slovenia	2017	Entertainment	1050	Zhejiang Jinke

Figure A1. A simple example of immediate investing country and ultimate investing country



Enterprise E1 in country C1 is the ultimate investor in all enterprises below (E2, E3) and the immediate investor for E2. E2 is only the immediate investor for E3 and is used as a conduit by E1 when investing in E3. Traditional FDI statistics shows immediate investor linkages whereas the new dataset allows figuring out the ultimate investor identified by proceeding up the immediate direct investor's ownership chain until an enterprise is reached not controlled by another entity (more than 50% of the voting power is not owned by another entity). Immediate FDI country is the last step on an investment journey, and ultimate FDI country is where FDI has started its journey. The differences between ultimate and immediate FDI are indirect FDI.