

Do friends follow each other? The role of connections in FDI site selection - evidence from Europe

Márta Bisztray ¹ Gábor Békés ²

¹IE CERS-HAS

²CEU, IE CERS-HAS and CEPR

10th FIW Research Conference 'International Economics', Vienna
November 9, 2017

Research question

- Are existing investments of connected firms make it more likely for a new FDI to locate close?
- Attracting FDI is an important policy goal.
- A rational behind: indirect effects, as
 - knowledge spillovers to local firms (e.g. Javorcik, 2004)
 - **FDI attracts further FDI**. Policy tries attracting firms with high potential.
- Motivations for co-location:
 - information, supplier links, agglomeration externalities, BUT: higher competition for local resources.
- What we do:
 - look at all greenfield FDI to CEE5 (2003-2014),
 - find some evidence that investors choose a specific country with a higher probability if **related firms** already have FDI in the country.

Background and contribution

- FDI location choice literature
 - Blonigen-Ellis-Fausten (2005, JIE) and Head-Ries-Swenson (1995, JIE): role of the keiretsu in FDI of Japanese firms (supplier and info):
 - Cheng-Kwan (2000, JIE): strong reinforcing effect of FDI in China;
 - Gazaniol (2015, TWE): internat. experience of other affiliated firms;
 - Lefilleur-Maurel (2010, EcSys): access to suppliers in CEE matters.
- Our contribution:
 - Generalize Blonigen et al. (2005)
 - looking at all the multinationals doing investments in European countries.
 - Compare the effect for various forms of relationship:
 - heterogeneity by the strength of link within business group,
 - additional links outside the business groups
 - heterogeneity by the type of the business group (as planned).

Data

- fDiMarkets: crossborder investment monitor from the Financial Times.
 - Worldwide greenfield investment projects from 2003-2014.
 - Collected from press announcements.
 - Information on
 - local investing company (name, country, city)
 - parent company (name, country, city),
 - industry (NAICS 2-4) and activity,
 - capital investment and # workplaces created,
 - motivation and market coverage for a fraction of projects.
- Amadeus (Bureau van Dijk): firms in Europe.
 - balance sheet data,
 - country, city and industry,
 - global ultimate owners,
 - shareholders.

Identification

- If firm A invests in PL and firm B in HU in $t=1$, then are B-connected firms relatively more likely to invest in HU than A-connected?
- Conditional logit estimation,
 - following Blonigen et al. 2005.
 - Is the probability of investing in country C in period 2 higher if there is a firm in the same ownership group which invested in country C in period 1?
- We focus on CEE5: HU, CZ, SK, RO, PL,
 - advantage: (1) lot of FDI previously but decreasing tendency, (2) can assume IIA.
 - Extension: "European periphery": PT, ES, GR, BG, HR, RS, TR, UA.

Defining related firms

- Within business group:
 - (1) A and B have the same global ultimate owner;
 - (2) A and B are at most 2-steps away based on ownership links:
 - A is a direct shareholder of B (or vica versa),
 - A is an indirect shareholder of B (or vica versa),
 - A and B have a common direct shareholder,
 - A and B have a common indirect shareholder,
 - A and B have a common direct subsidiary,
 - A and B have a common indirect subsidiary;
 - (3) A and B are at most 2-steps away based on strong ownership links (> 50%).
- Outside the business group:
 - same source country and industry,
 - both having previous FDI in the same country and within-country region.

Matching

- Primarily based on firm name within country.
 - Exact matching on the first part of the name.
 - Company forms are included in Amadeus but not in fDiMarkets.
 - Last part of the name trimmed in Amadeus if there is a special character.
 - Latin vs Cyrillic or Greek, w/wo special accents.
 - From multiple matches choose based on industry and city.
 - Exploit information on firm-parent links.
- Current version: 62% of all parent firms can be matched.
- Next step: allow for fuzzy matching.

Main estimation strategy

- Conditional logit estimation.
- For each FDI project going into CEE5 create 5 observations:
 - which country did the investor choose from the available?

- Estimate

$$FDI_{ict} = \alpha + \beta_1 DF_{ict} + \beta_2 DO_{ict} + \beta_3 DCI_{ict} + \beta_4 DPI_{ict} + X_{ict} + \epsilon_{ict}$$

- FDI_{ict} : firm i invested in country c in year t , conditional on investing in CEE5 in t .
- DF_{ict} : same firm had an investment in c before t .
- DO_{ict} : another firm of the same owner had an investment in c before t .
- DCI_{ict} : another firm from the same country and industry but with a different owner had an investment in c before t .
- DPI_{ict} : another firm having FDI in the same third-country region had an investment in c before t .
- X_{ict} : destination country FE, industry-specific FDI stock.
- # obs. = # projects · 5

Main results for CEE5

Dep.var.: FDI in country

	(1)	(2)	(3)	(4)	(5)
Same investor	1.513*** (0.101)				1.480*** (0.100)
Same business group		0.512*** (0.103)			0.311*** (0.100)
Same country and ind.			0.497*** (0.067)		0.385*** (0.065)
Same pre. FDI location, other country and ind.				0.877** (0.408)	0.723* (0.432)
Country FE	YES	YES	YES	YES	YES
Observations	32,925	32,925	32,925	32,925	32,925

Standard errors clustered by industry

Heterogeneity by the industry of the investor

Dep.var.: FDI in country			
	(1)	(2)	(3)
Same investor same ind.	1.668*** (0.111)		1.660*** (0.111)
Same investor other ind.	0.844*** (0.098)		0.839*** (0.101)
Same business group same ind.		0.529*** (0.133)	0.326*** (0.115)
Same business group other ind.		0.491** (0.219)	0.266 (0.204)
Country FE	YES	YES	YES
Observations	32,925	32,925	32,925

Standard errors clustered by industry

Heterogeneity by the region of the business group

Dep.var.: FDI in country	Investor	Right-hand side var.: Same-	
		Business group	Country-ind.
Investor from Europe	1.488*** (0.118)	0.341*** (0.112)	0.391*** (0.070)
Investor from America	1.278*** (0.192)	-0.007 (0.198)	0.399*** (0.146)
Investor from Asia-Pacific	1.813*** (0.244)	1.437*** (0.327)	0.339** (0.138)
Country FE			YES
Observations			32,840

Coefficients are presented from a single regression. Standard errors clustered by industry.

Heterogeneity by the link within the business group

Dep. var: FDI in country

	(1)	(2)	(3)	(4)
Same business group, close & strong links	0.573** (0.239)		0.345 (0.220)	
- Direct shareholder & strong links		1.089** (0.486)		0.759** (0.328)
- Indirect shareholder & strong links		-0.310* (0.163)		-0.284*** (0.109)
- Common direct shareholder & strong links		0.280 (0.558)		0.075 (0.582)
- Common indirect shareholder & strong links		0.189 (0.517)		0.185 (0.551)
- Common indirect subsidiary & strong links		0.305 (0.269)		0.334* (0.189)
Same business group, close & weak links	0.349*** (0.100)	0.281*** (0.097)	0.212** (0.083)	0.191** (0.078)
Same business group, far & same ultimate owner	0.942*** (0.148)	0.928*** (0.139)	0.737*** (0.145)	0.734*** (0.143)
Other 3 related firm experience indicators	NO	NO	YES	YES
Country FE	YES	YES	YES	YES
Observations	32,925	32,925	32,925	32,925

Standard errors clustered by industry

Identification concerns

- With agglomeration economies A the profitability of region r for investor j : $\theta_r + \alpha_i \cdot A_{jr}^i + \epsilon_{jr}$.
 - θ_r is a region-specific effect, i is a specific source of agglomeration economies.
- Countries are attractive for specific types of FDI (from a country/industry).
- Governments might try to attract FDI of related firms.
- We have no information on FDI before 2003.
- Ownership groups imprecisely measured.
 - Information on the ultimate owner for a fraction of firms, using the parent company instead.
 - No matching if different versions of the same firm name, or firm missing in Amadeus.
- fDIMarkets also includes FDI planned but not carried out.

Alternative estimation strategies

- Linear probability or logit with fixed effects:
 - pro: can include more fixed effects (country-year, industry-year)
 - con: doesn't take into account the condition of having FDI in one of the countries.
- "Case study":
 - Take pairs of FDI
 - going to different countries in the same year,
 - with parents from the same country and industry,
 - but from different business groups,
 - having no previous FDI in the other country.
 - Look at their related firms having no FDI in either countries:
 - Is the relative probability of making an FDI in the same country higher compared to the other country?

Conclusion

- There is tentative evidence on the role of related firms existing FDI influencing FDI location choice.
- Within-firm and within-business-group links matter the most.
 - There is heterogeneity by the type of the link within business group.
- Some evidence on the role of other connections.
- Next steps:
 - Further refinement of the business group measurement.
 - Heterogeneity by the type of the business group.
 - Alternative identification strategies.
 - Include supplier-industry firms separately,
 - Focus on within-country location choice.



Appendix

The stories we think about

- equality of the investor company (e.g. Audi AG sets up plant A in Hungary and plant B in Hungary)
- membership in a business group (Volkswagen sets up a plant in Slovakia following Audi's plant)
- sharing the same background - HQ country and main industry (A French car maker builds a plant in Romania following another, unattached French car maker)
- evidence of previous co-located activities (Continental and Magna invest in Poland, when they both had investment in car industry in a specific region within Australia)

Preview of our findings

- Same investor: largest effect.
- Same ownership group: large effect.
- Same background/ competitors (same source country and industry): positive effect.
- Firms having shared experience elsewhere (previous FDI in a same within-country region): less clear effect.
- Suppliers (not now).

Controlling for FDI stock

Dep.var.: FDI in country	5 countries		13 countries	
	(1)	(2)	(3)	(4)
Same investor	1.525*** (0.102)	1.528*** (0.103)	1.597*** (0.107)	1.593*** (0.107)
Same business group	0.325*** (0.110)	0.341*** (0.108)	0.439*** (0.130)	0.441*** (0.131)
Same country and ind.	0.439*** (0.066)	0.440*** (0.066)	0.623*** (0.059)	0.621*** (0.058)
Same pre. FDI location, other country and ind.			0.032 (0.353)	0.034 (0.347)
FDI stock in country-ind.		0.059*** (0.021)		0.041** (0.016)
Country FE	YES	YES	YES	YES
Observations	22 815	22 815	116,558	116,558

Sample: FDI in 2008-2014. Standard errors clustered by industry.

Main results for 13 countries

Dep.var.: FDI in country	(1)	(2)	(3)	(4)	(5)
Same investor	1.579*** (0.095)				1.525*** (0.091)
Same business group		0.635*** (0.115)			0.421*** (0.113)
Same country and ind.			0.692*** (0.071)		0.578*** (0.054)
Same pre. FDI location, other country and ind.				0.412 (0.282)	0.485* (0.269)
Country FE	YES	YES	YES	YES	YES
Observations	159,952	159,952	159,952	159,952	159,952

Standard errors clustered by industry

Heterogeneity by the link within the business group, full table

Dep. var: FDI in country	(1)	(2)	(3)	(4)	(5)	(6)
Same business group, close	0.399*** (0.108)			0.241*** (0.092)		
Same business group, close & strong links		0.573** (0.239)			0.345 (0.220)	
- Direct shareholder & strong links			1.089** (0.486)			0.759** (0.328)
- Indirect shareholder & strong links			-0.310* (0.163)			-0.284*** (0.109)
- Common direct shareholder & strong links			0.280 (0.558)			0.075 (0.582)
- Common indirect shareholder & strong links			0.189 (0.517)			0.185 (0.551)
- Common indirect subsidiary & strong links			0.305 (0.269)			0.334* (0.189)
Same business group, close & weak links		0.349*** (0.100)	0.281*** (0.097)		0.212** (0.083)	0.191** (0.078)
Same business group, far & same ultimate owner	0.941*** (0.145)	0.942*** (0.148)	0.928*** (0.139)	0.736*** (0.143)	0.737*** (0.145)	0.734*** (0.143)
Same investor				1.479*** (0.100)	1.478*** (0.100)	1.479*** (0.100)
Same country and ind.				0.380*** (0.065)	0.380*** (0.065)	0.379*** (0.065)
Same pre. FDI location, other country and ind.				0.732* (0.432)	0.730* (0.432)	0.733* (0.431)
Country FE	YES	YES	YES	YES	YES	YES
Observations	32,925	32,925	32,925	32,925	32,925	32,925

Standard errors clustered by industry

Linear probability estimates with fixed effects

Dep.var.: FDI in country	(1)	(2)	(3)	(4)	(5)	(6)
Same investor	0.050*** (0.004)		0.045*** (0.004)		0.043*** (0.004)	
Same business group	0.037*** (0.006)		0.032*** (0.006)		0.031*** (0.006)	
Same investor same ind.		0.046*** (0.004)		0.041*** (0.004)		0.039*** (0.004)
Same investor other ind.		0.100*** (0.010)		0.095*** (0.010)		0.094*** (0.010)
Same business group same ind.		0.050*** (0.008)		0.040*** (0.008)		0.040*** (0.008)
Same business group other ind.		0.016** (0.008)		0.016** (0.007)		0.016** (0.007)
Country FE	NO	NO	YES	YES	NO	NO
Year FE	NO	NO	YES	YES	NO	NO
Industry FE	NO	NO	YES	YES	NO	NO
Country-year FE	NO	NO	NO	NO	YES	YES
Industry-year FE	NO	NO	NO	NO	YES	YES
Observations	141,075	141,075	141,075	141,075	141,075	141,075
R-squared	0.011	0.012	0.031	0.032	0.035	0.036

Standard errors are clustered by country-industry

Linear probability estimates with fixed effects, using 13 countries

Dep.var.: FDI in country	(1)	(2)	(3)	(4)	(5)	(6)
Same investor	0.060*** (0.003)		0.051*** (0.003)		0.049*** (0.003)	
Same business group	0.032*** (0.004)		0.026*** (0.004)		0.025*** (0.004)	
Same investor same ind.		0.059*** (0.003)		0.050*** (0.003)		0.047*** (0.003)
Same investor other ind.		0.074*** (0.005)		0.065*** (0.005)		0.064*** (0.005)
Same business group same ind.		0.045*** (0.005)		0.037*** (0.005)		0.034*** (0.005)
Same business group other ind.		0.016*** (0.004)		0.013*** (0.004)		0.013*** (0.004)
Country FE	NO	NO	YES	YES	NO	NO
Year FE	NO	NO	YES	YES	NO	NO
Industry FE	NO	NO	YES	YES	NO	NO
Country-year FE	NO	NO	NO	NO	YES	YES
Industry-year FE	NO	NO	NO	NO	YES	YES
Observations	618,111	618,111	618,111	618,111	618,111	618,111
R-squared	0.016	0.017	0.031	0.031	0.037	0.037

Standard errors are clustered by country-industry

The number of projects by year

	Number of projects	
	CEE5	13 countries
2006	1,015	1,654
2007	1,007	1,684
2008	998	1870
2009	569	1143
2010	742	1343
2011	720	1369
2012	558	1189
2013	504	1120
2014	472	932
Total	6,585	12,304

The number of projects and investors by destination country

	Number of projects		Number of parents		Number of owners	
	CEE5	13 countries	CEE5	13 countries	CEE5	13 countries
Czech Republic	1,030	1,004	676	652	663	641
Hungary	1,080	1,040	708	675	695	661
Poland	2,234	2,118	1,382	1,285	1,344	1,248
Romania	1,676	1,463	955	831	934	810
Slovakia	565	545	394	380	390	375
Bulgaria		675		427		423
Croatia		199		148		145
Greece		228		180		177
Portugal		268		211		207
Serbia		555		387		383
Spain		2,665		1,607		1,571
Turkey		977		739		729
Ukraine		567		416		413
Total	6,585	12,304	3,135	5,283	3,034	5,097

The number of projects by industry and destination country 1.

	Number of projects						13 countries Tot.
	CEE5					Tot.	
	CZ	HU	PL	RO	SK	Tot.	Tot.
Aerospace	6	4	23	5	2	40	88
Alternative/Renewable energy	21	26	52	82	14	195	453
Automotive Components	133	117	143	119	63	575	708
Automotive OEM	37	26	34	34	21	152	301
Beverages	3	4	19	21	4	51	118
Biotechnology	4	2	1	1	0	8	26
Building & Construction Materials	8	13	28	51	6	106	184
Business Machines & Equipment	10	7	20	7	8	52	120
Business Services	60	55	143	99	20	377	923
Ceramics & Glass	6	11	18	11	3	49	78
Chemicals	12	38	65	25	14	154	338
Coal, Oil and Natural Gas	21	18	28	40	8	115	244
Communications	40	68	77	75	18	278	513
Consumer Electronics	16	21	53	18	16	124	214
Consumer Products	28	35	60	21	17	161	266
Electronic Components	50	51	77	46	35	259	418
Engines & Turbines	2	3	13	5	0	23	52
Financial Services	98	58	132	152	24	464	1,079
Food & Tobacco	24	47	107	81	7	266	517

The number of projects by industry and destination country 2.

	Number of projects						13 countries Tot.
	CZ	HU	CEE5			Tot.	
			PL	RO	SK		
Healthcare	1	2	30	23	0	56	73
Hotels & Tourism	20	18	31	21	5	95	242
Industrial Machinery,Equip.,Tools	73	77	119	76	40	385	638
Leisure & Entertainment	1	7	1	6	1	16	29
Medical Devices	14	18	12	3	9	56	108
Metals	29	44	91	72	44	280	431
Minerals	0	0	1	2	1	4	14
Non-Automotive Transport OEM	3	7	10	3	1	24	69
Paper, Printing & Packaging	10	22	59	15	7	113	171
Pharmaceuticals	24	28	43	19	4	118	239
Plastics	41	34	92	26	30	223	326
Real Estate	58	59	215	225	46	603	940
Rubber	9	16	16	26	8	75	108
Semiconductors	6	9	2	6	3	26	42
Software & IT services	70	60	186	138	27	481	1,076
Space & Defence	0	1	1	0	0	2	7
Textiles	9	16	24	12	10	71	192
Transportation	72	41	158	79	39	389	764
Warehousing & Storage	10	11	25	11	6	63	126
Wood Products	1	6	25	20	4	56	69
Total	1,030	1,080	2,234	1,676	565	6,585	12,304

The number of projects by activity and destination country

	Number of projects						13 countries
	CZ	HU	CEE5			Tot.	Tot.
			PL	RO	SK		
Business Services	143	97	248	242	44	774	1,761
Construction	66	68	217	215	46	612	983
Customer Contact Centre	10	13	27	29	6	85	164
Design, Developm., Testing	46	40	102	83	16	287	524
Education & Training	17	14	7	5	2	45	89
Electricity	16	22	49	89	13	189	424
Extraction	1	4	4	4	0	13	42
Headquarters	20	9	27	26	6	88	265
ICT & Internet Infrastruct.	23	17	22	25	9	96	174
Logistics, Distrib., Transport.	85	86	233	123	60	587	1,044
Maintenance & Servicing	21	8	27	13	3	72	154
Manufacturing	371	506	769	518	271	2,435	3,734
Recycling	5	4	13	10	3	35	66
Research & Development	9	25	17	8	2	61	140
Sales, Marketing & Support	176	129	375	231	70	981	2,448
Shared Services Centre	14	26	72	27	9	148	174
Technical Support Centre	7	12	25	28	5	77	118
Total	1,030	1,080	2,234	1,676	565	6,585	12,304

The number of investors by business group

Nr. of investors	Number of business groups	
	CEE5	13 countries
1	2,941	4,939
2	86	134
3	6	20
4	1	3
5	0	1
Total	3,034	5,097

The number of countries in which the same investor or investors from the same business group invest

Nr. countries	Number of countries with FDI by the same			
	investor		business group	
	CEE5	13 countries	CEE5	13 countries
1	2,508	4,029	2,411	3,853
2	396	657	384	649
3	133	280	134	274
4	74	124	80	118
5	24	61	25	60
6		52		54
7		44		44
8		18		23
9		10		10
10		3		5
11		1		2
12		5		5
Total	3,135	5,284	3,034	5,097

Number and share of observations with connected firms having previous FDI in the country

Baseline specification with FDI in all previous years	Number of observations		Share of observations (%)	
	total	with FDI	total	with FDI
Total	32,925	6,585	100	100
With previous FDI in the same country				
by the same investor	8,329	2,731	25.3	41.5
- in the same industry	6,594	2,339	20.0	35.5
- only in a different industry	1,735	392	5.3	6.0
by another investor from the same business group	1,381	368	4.2	5.6
- and no FDI by the same firm	541	109	1.6	1.7
by an investor in another business group				
- in the same industry and from the same country	22,147	4,868	67.3	73.9
- in the same industry but from another country	31,824	6,436	96.7	97.7
- and no FDI in same industry and from same country	10,583	1,694	32.1	25.7
- in another industry but from the same country	32,667	6,554	99.2	99.5
- and no FDI in same industry and from same country	9,749	1,579	29.6	24.0
by an investor in another business group with previous co-located FDI outside CEE5				
- in the same industry and from the same country	12,029	2,571	36.5	39.0
- in the same industry but from another country	20,121	4,084	61.1	62.0
- and no FDI in same industry and from same country	8,322	1,555	25.3	23.6
- in another industry but from the same country	19,523	3,992	59.3	60.6
- and no FDI in same industry and from same country	7,629	1,447	23.2	22.0
- in a different industry and from a different country	22,372	4,481	67.9	68.0
- and no FDI in same industry or from same country	792	130	2.4	2.0

Number and share of observations with connected firms having FDI in the country in the previous 3 years

Alternative specifications with FDI in previous 3 years	Number of observations		Share of observations (%)	
	total	with FDI	total	with FDI
Total	32,925	6,585	100	100
With previous FDI in the same country				
by the same investor	6,250	2,157	19.0	32.8
- in the same industry	4,760	1,778	14.5	27.0
- only in a different industry	1,490	379	4.5	5.8
by another investor from the same business group	780	205	2.4	3.1
- and no FDI by the same firm	411	92	1.2	1.4
by an investor in another business group				
- in the same industry and from the same country	18,635	4,202	56.6	63.8
- in the same industry but from another country	32,235	6,502	97.9	98.7
- and no FDI in same industry and from same country	13,743	2,322	41.7	35.3
- in another industry but from the same country	31,294	6,366	95.0	96.7
- and no FDI in same industry and from same country	12,738	2,178	38.7	33.1
by an investor in another business group with previous co-located FDI outside CEE5				
- in the same industry and from the same country	10,195	2,230	31.0	33.9
- in the same industry but from another country	19,404	3,969	58.9	60.3
- and no FDI in same industry and from same country	9,548	1,797	29.0	27.3
- in another industry but from the same country	18,802	3,876	57.1	58.9
- and no FDI in same industry and from same country	8,750	1,677	26.6	25.5
- in a different industry and from a different country	22,351	4,478	67.9	68.0
- and no FDI in same industry or from same country	1,039	167	3.2	2.5

Number and share of observations with connected firms having previous FDI in the country, using 13 countries

Baseline specification with FDI in all previous years	Number of observations		Share of observations (%)	
	total	with FDI	total	with FDI
Total	159,952	12,304	100	100
With previous FDI in the same country				
by the same investor	25,773	4,559	16.1	37.1
- in the same industry	19,731	3,896	12.3	31.7
- only in a different industry	6,042	663	3.8	5.4
by another investor from the same business group	4528	637	2.8	5.2
- and no FDI by the same firm	2355	205	1.5	1.7
by an investor in another business group				
- in the same industry and from the same country	86,327	8,618	54.0	70.0
- in the same industry but from another country	154,156	12,160	96.4	98.8
- and no FDI in same industry and from same country	68,872	3,578	43.1	29.1
- in another industry but from the same country	147,319	11,862	92.1	96.4
- and no FDI in same industry and from same country	61,494	3,308	38.4	26.9
by an investor in another business group with previous co-located FDI outside the 13 countries				
- in the same industry and from the same country	46,543	4,448	29.1	36.2
- in the same industry but from another country	88,599	7,247	55.4	58.9
- and no FDI in same industry and from same country	44,015	2,896	27.5	23.5
- in another industry but from the same country	86,441	7,124	54.0	57.9
- and no FDI in same industry and from same country	40,567	2,736	25.4	22.2
- in a different industry and from a different country	106,184	8,199	66.4	66.6
- and no FDI in same industry or from same country	7,000	317	4.4	2.6

Share of choices with a connected firm having FDI in a specific number of countries within CEE5

Share of choices having a connected firm with previous FDI in X countries (%)						
Type of connection	X=0	X=1	X=2	X=3	X=4	X=5
same investor	45.38	21.14	11.45	9.78	8.17	4.09
- in the same industry	52.1	21.55	10.24	8.64	5.16	2.31
- only in a different industry	84.12	9.84	2.98	1.97	0.84	0.26
same business group (other firm)	89.89	4.63	2.43	1.66	0.47	0.93
another business group						
- same industry and country	11.36	7.99	10.36	13.85	16.16	40.29
- same industry, other country	0.03	0.11	0.06	0.47	2.22	97.11
- other industry, same country	0.74	0.9	0.97	1.56	3.37	92.45
previous co-located FDI outside CEE5 (other business group)						
- same industry and country	53.23	5.57	4.01	5.32	6.24	25.63
- same industry, other country	35	1.61	1.38	2.03	4.77	55.2
- other industry, same country	36.19	1.72	2.08	2.48	4.53	53.01
- other industry and country	31.86	0.03	0.06	0.14	0.38	67.53

The number of projects by the continent of the owner and by the top3 source countries within each continent

Continent of the owner	Top 3 countries in the continent	Number of projects	
		CEE5	13 countries
America		1,086	2,335
	USA	1,004	2,059
	Canada	37	107
	Bermuda	21	
	Cayman Islands		32
Asia-Pacific		711	1,447
	Japan	259	494
	South Korea	111	173
	China	100	190
Europe		4,771	8,442
	Germany	1,199	2,072
	Austria	527	
	UK	488	1,008
	France		1,065
Other		17	80
Total		6,585	12,304

Main results using investments of connected firms in the previous 3 years only

Dep.var.: FDI in country	(1)	(2)	(3)	(4)	(5)
Same investor	1.344*** (0.095)				1.322*** (0.095)
Same business group		0.264* (0.137)			0.126 (0.132)
Same country and ind.			0.399*** (0.050)		0.320*** (0.047)
Same pre. FDI location, other country and ind.				0.830*** (0.295)	0.744** (0.307)
Country FE	YES	YES	YES	YES	YES
Observations	32,925	32,925	32,925	32,925	32,925

Standard errors clustered by industry

Main results using only new investments

Dep.var.: FDI in country	(1)	(2)	(3)	(4)	(5)
Same investor	1.082*** (0.111)				1.049*** (0.107)
Same business group		0.450*** (0.099)			0.284*** (0.094)
Same country and ind.			0.436*** (0.073)		0.367*** (0.067)
Same pre. FDI location, other country and ind.				0.960** (0.382)	0.920** (0.391)
Country FE	YES	YES	YES	YES	YES
Observations	24,650	24,650	24,650	24,650	24,650

Standard errors clustered by industry

Main results excluding FDI with “Sales, marketing and support” activity

Dep.var.: FDI in country	(1)	(2)	(3)	(4)	(5)
Same investor	1.700*** (0.114)				1.670*** (0.113)
Same business group		0.390*** (0.108)			0.220* (0.113)
Same country and ind.			0.500*** (0.067)		0.374*** (0.070)
Same pre. FDI location, other country and ind.				0.747* (0.397)	0.449 (0.448)
Country FE	YES	YES	YES	YES	YES
Observations	28,030	28,030	28,030	28,030	28,030

Standard errors clustered by industry

Alternative specification: logit with fixed effects

Dep.var.: FDI in country	(1)	(2)	(3)	(4)	(5)	(6)
Same investor	1.019*** (0.078)		0.977*** (0.078)		0.920*** (0.079)	
Same business group	0.597*** (0.077)		0.487*** (0.072)		0.494*** (0.071)	
Same investor same ind.		0.967*** (0.082)		0.919*** (0.082)		0.858*** (0.083)
Same investor other ind.		1.542*** (0.090)		1.524*** (0.096)		1.515*** (0.097)
Same business group same ind.		0.729*** (0.093)		0.556*** (0.093)		0.578*** (0.090)
Same business group other ind.		0.297** (0.122)		0.313*** (0.117)		0.289** (0.124)
Country FE	NO	NO	YES	YES	NO	NO
Year FE	NO	NO	YES	YES	NO	NO
Industry FE	NO	NO	YES	YES	NO	NO
Country-year FE	NO	NO	NO	NO	YES	YES
Industry-year FE	NO	NO	NO	NO	YES	YES
Observations	141,075	141,075	141,075	141,075	140,627	140,627

Standard errors are clustered by country-industry

Alternative specification: logit with fixed effects, 13 countries

Dep.var.: FDI in country	(1)	(2)	(3)	(4)	(5)	(6)
Same investor	1.811*** (0.074)		1.478*** (0.081)		1.389*** (0.083)	
Same business group	0.828*** (0.064)		0.606*** (0.066)		0.600*** (0.067)	
Same investor same ind.		1.791*** (0.076)		1.453*** (0.084)		1.358*** (0.086)
Same investor other ind.		1.992*** (0.077)		1.719*** (0.082)		1.703*** (0.085)
Same business group same ind.		0.982*** (0.076)		0.694*** (0.081)		0.690*** (0.080)
Same business group other ind.		0.533*** (0.092)		0.431*** (0.094)		0.420*** (0.097)
Country FE	NO	NO	YES	YES	NO	NO
Year FE	NO	NO	YES	YES	NO	NO
Industry FE	NO	NO	YES	YES	NO	NO
Country-year FE	NO	NO	NO	NO	YES	YES
Industry-year FE	NO	NO	NO	NO	YES	YES
Observations	618,111	618,111	618,111	618,111	612,566	612,566

Standard errors are clustered by country-industry