

FDI in Russia from CESEE and Central Asia: A Micro-Level Perspective

Svetlana Ledyeva,
Päivi Karhunen,
Riitta Kosonen,
Julia Wörz¹

In this paper we study FDI in Russia originating from Central, Eastern and Southeastern Europe (CESEE) and Central Asia. We describe patterns of FDI and examine the determinants underlying these patterns, basing our analysis on firm-level data for the period from 1997 to 2011 obtained from Rosstat, Russia's Federal State Statistics Service. We split the investor countries under review into two subgroups, i.e. Central Eastern Europe, Baltics and Balkans (CEEBB) and Eastern Europe, Caucasus and Central Asia (EECCA). We find that Belarus and Ukraine are the largest contributors of FDI into Russia among the countries under review. However, firms established by investors from Estonia, Poland and Lithuania are more profitable than those established by investors from Belarus and Ukraine. In our empirical test of locational determinants influencing the choice of a particular Russian region as an FDI destination we, among other things, find evidence against the institutional distance argument, which maintains that FDI flows are more limited among countries that exhibit greater differences in terms of their regulatory and normative business environment.

JEL classification: D22, F15, F23

Keywords: Foreign direct investment, Russian regions, former communist countries

Economic reintegration of the countries of the former Soviet Union has become a topical issue recently with the establishment of the Eurasian Economic Union between Russia, Belarus and Kazakhstan, which will become operational in January 2015 (EEC, 2014). The “Eurasian” integration process started much earlier, soon after the dissolution of the Soviet Union in 1991, as an attempt to save the economic and business relations among the newly independent states of the Soviet Union (EEC, 2013). The early initiatives, such as the Commonwealth of Independent States (CIS), were however largely declarative in nature. The Eurasian Customs Union, which became operational in 2010, was a more tangible attempt to foster economic integration among its member states Russia, Belarus and Kazakhstan (Dragneva and Wolczuk, 2012). These three countries also form the core of the Eurasian Economic Union, which aims at enlarging its member base by including other former Soviet Union countries in the future (EEC, 2014).

The Eurasian integration can be viewed as a reaction to the integration of some former socialist countries of Central, Eastern and Southeastern Europe (CESEE) into the European Union (EU) (Dragneva and Wolczuk, 2012). The most striking example of integration pressures faced by some countries is the situation in Ukraine, where the question of closer cooperation with the EU versus Russia and the Eurasian bloc was one of the triggers of the political crisis that started in late 2013. The ensuing trade sanctions between the EU and Russia were felt in other CESEE countries as well, in particular in the Baltic states, which joined the EU as early as 2004 but at the same time retained close foreign trade relations with Russia.

In this paper we empirically address the issue of economic integration among former socialist countries in CESEE and Central Asia from the perspective of

¹ *Aalto University School of Business, Center for Markets in Transition and Department of Economics, svetlana.ledyaeva@aalto.fi, paivi.karhunen@aalto.fi and riitta.kosonen@aalto.fi; Oesterreichische Nationalbank, Foreign Research Division, julia.woerz@oebn.at. The authors would like to thank Peter Backé, René Dell'mour, Markus Eller and an anonymous referee for helpful comments and valuable suggestions.*

foreign direct investment (FDI) from these countries into Russia. Although our sample of investor countries is only responsible for a relatively small share of FDI into Russia, their investments generally represent genuine foreign investment projects with a lasting interest. In contrast, the vast majority of FDI from large investor countries like Cyprus and the British Virgin Islands often reflects round-tripping of Russian investments. Our choice of sample countries is also interesting from a historical perspective, as we analyze investment decisions among countries which share historic ties but have experienced a more recent period of economic disintegration, and partly reintegration.

FDI is a potentially important channel of shock transmission, which is however less prominently discussed than the trade and financial channels in the current debate on the effects of sanctions and countersanctions in the context of the Russia-Ukraine crisis. While we do not attempt to assess the importance of the FDI channel in this context, we can add to a better understanding of the possible impact of the current developments by analyzing the determinants of FDI into Russia for those countries that are potentially most affected by sanctions.

We conduct a micro-level descriptive analysis of the magnitude as well as the industrial and regional distribution of FDI originating from CESEE and Central Asian countries on the basis of data on foreign-owned firms in Russia. Further, we analyze the determinants of FDI in Russia originating from these countries, focusing on the relevance of institutional determinants to explain the location choice of these firms across Russia.

The paper is structured as follows: The relevant literature is reviewed in section 1. Patterns of FDI from CESEE and Central Asia in Russia are described in detail in section 2, based on firm-level data obtained from Rosstat. Section 3 describes the research design for the empirical analysis; the results are presented and discussed in section 4. Section 5 concludes.

1 Literature Review

1.1 Determinants of FDI Location

The strong growth of FDI in recent decades has inspired extensive research on determinants of FDI. The most prominent theory in this field, Dunning's eclectic (or OLI) paradigm (e.g. Dunning, 1993), suggests three primary motivations for FDI, distinguishing between foreign market-seeking investments, efficiency-seeking and resource-seeking investments (Dunning, 1977 and 1993). The more recent FDI literature has acknowledged the importance of institutions as determinants of FDI location choice. Accordingly, recent elaborations of Dunning's paradigm explicitly recognize home and host country institutions as important determinants of inward FDI (Dunning and Lundan, 2008).

1.2 Determinants of Inward FDI in Russia

There have been several studies which empirically analyze the determinants of FDI across Russia's different regions.

Brock (1998) analyzes FDI determinants during early transition (1993–1995), identifying market size and crime as important influences on FDI decisions. Broadman and Recanatini (2001) analyze determinants of FDI inflows from 1995 to 1999 using a generalized least squares estimation for panel data and an ordinary least squares estimation for cross-sectional data. They show that market size, the extent

of infrastructure development and prevailing policy frameworks explain most of the observed variations in FDI flows across Russian regions. Iwasaki and Suganuma (2005) suggest a model for the regional distribution of FDI in Russia based on panel and yearly cross-sectional data from 1996 to 2003. The authors conclude that resource endowments, market factors, degree of industrialization and infrastructure factors hold high significance and explanatory power in their empirical analysis. They further suggest that business climate and regionally favorable FDI measures may affect investment. Ledyeva (2009) studies the determinants of FDI inflows into Russia before and after the 1998 financial crisis, using a spatial autoregressive model of cross-sectional and panel data. The important determinants of FDI inflows into Russian regions since the start of transition appear to be market size, the presence of large cities and seaports, oil and gas availability, proximity to European markets, and political and legislative risks.

Finally, the empirical model of this study is largely based on the recent study of locational determinants of FDI across Russia by Ledyeva et al. (2013a). Using the same kind of firm-level data for the period from 1996 to 2007 and a set of explanatory variables similar to the one used in this study, Ledyeva et al. (2013a) examine the effects of subnational variations in corruption and democratization on the location decisions of foreign investors in Russian regions. They conclude that foreign investors from less corrupt and more democratic countries tend to invest into less corrupt and more democratic Russian regions, while their counterparts from more corrupt and less democratic countries tend to locate in more corrupt and less democratic regions. In the present study we apply the framework set out in Ledyeva et al. (2013a) to study determinants of post-socialist countries' FDI in the different Russian regions.

2 Patterns of FDI in Russia Originating from CESEE and Central Asia

We examine FDI from CESEE and Central Asia in Russia based on firm-level data taken from Rosstat (Russia's Federal State Statistics Service). For our analysis, we split the investor countries under review into two subgroups: "Central Eastern Europe, Baltics and Balkans (CEEBA)" comprises all current EU Member States and the Western Balkan countries; "Eastern Europe, Caucasus and Central Asia (EECCA)" comprises the remaining countries from the former Soviet Union in our sample.²

Generally speaking, FDI from former socialist countries into Russia is dwarfed by FDI from countries like Cyprus or the British Virgin Islands. In total, inward FDI stocks from our sample of countries amounted to a mere 1.1% of the total inward FDI stock in Russia in 2012.³ It has to be mentioned, however, that a substantial part of FDI from investors such as Cyprus or the British Virgin Islands represents round-tripping of Russian investment. This can be concluded from the strong correlation of inward and outward investment flows between Russia and these countries (see Ledyeva et al., 2013b). In contrast, FDI from our sample of

² Our sample includes the following investor countries: Central Eastern Europe, Baltics and Balkans (CEEBA): Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia; Eastern Europe, Caucasus and Central Asia (EECCA): Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

³ Source: wiiw FDI database. This figure refers to 2012, the latest year for which data are available, but the share has been constant since 2009.

countries is likely to represent genuine foreign investment with a lasting interest. Outward FDI to Russia is economically most important for Estonia and Latvia, where it amounts to 1% to 2% of GDP. For all other countries in our sample, outward FDI to Russia ranges from 0% to 1% of GDP (Husain et al., 2014).

The full Rosstat dataset contains information on 20,165 firms with foreign capital which were registered in Russia in the period from 1997 to 2011 and which provided their balance sheet information to Rosstat in 2011. Thus, our dataset does not include firms which existed in this period but where dissolved before 2011. The dataset includes firms of two ownership types: full ownership by foreign entities and joint ventures of foreign owners (foreign entities and foreign citizens) with Russian private owners (Russian entities and citizens). The Rosstat dataset does not have a specific threshold for joint ventures; thus also minority holdings of foreign investors are included (in contrast to the wiiw FDI data). However, firms with foreign ownership of less than 10% amount to less than 5% of the full dataset.

For our analysis we only use the data on firms established by investors from CEEBB and EECCA. This yields a data sample of 2,983 firms representing about 15% of the total number of firms in the full dataset.⁴ The time dynamics of established firms illustrate a rising share of CEEBB- and EECCA-owned firms over the observation period, from 11% in 1998 to 27% in 2011.⁵

The average degree of foreign ownership in our sample is 60% but the distribution is strongly skewed. For the majority of firms (52%) the degree of foreign

Table 1

Number and Revenues of CEEBB and EECCA Firms in Russia by Investing Country

Country	Number of firms, cumulated from 1997 to 2011		Share in total revenues, cumulated from 1998 to 2011	Country	Number of firms, cumulated from 1997 to 2011		Share in total revenues, cumulated from 1998 to 2011
	Absolute	%			Absolute	%	
Belarus*	740	24.81	29.38	Serbia	47	1.58	1.23
Ukraine*	614	20.58	17.54	Slovenia	40	1.34	4.65
Latvia	217	7.27	3.24	Hungary	27	0.91	0.32
Kazakhstan*	194	6.50	2.91	Slovakia	26	0.87	0.82
Lithuania	190	6.37	6.61	Kyrgyzstan*	19	0.64	0.05
Estonia	149	4.99	2.49	Georgia*	17	0.57	0.15
Czech Republic	145	4.86	8.84	Croatia	14	0.47	1.68
Uzbekistan*	145	4.86	3.52	Tajikistan*	10	0.34	0.01
Poland	142	4.76	10.49	Bosnia and Herzegovina	8	0.27	0.05
Armenia*	61	2.04	1.05	Turkmenistan*	6	0.20	0.00
Bulgaria	58	1.94	0.63	Montenegro	5	0.17	0.11
Azerbaijan*	53	1.78	1.07	Romania	5	0.17	0.00
Moldova*	51	1.71	3.17	Total	2,983	100	100

Source: Rosstat and authors' calculations.

Note: EECCA countries are marked with an asterisk.

⁴ This share is considerably larger than these countries' share in Russia's total inward FDI stock (see above).

⁵ As mentioned above, the share of firms chosen for our sample in the full Rosstat dataset is relatively small compared to the shares of major single contributors of FDI into Russia: e.g. 30% of all firms in the full Rosstat dataset have been established by investors from Cyprus; the corresponding figures for the British Virgin Islands and Germany are 8% and 5%, respectively.

ownership ranges from 10% to 50.9%, less than one-third have reported foreign ownership between 51% and 99.9%. Around 16% of the firms are 100% foreign owned, while a foreign ownership share below 10% is reported for only around 1% of all firms and can thus be seen as negligible. In table 1 we present the structure of this sample country by country.

As shown in table 1, there are two EECCA countries, Belarus and Ukraine, which stand out as the largest investors both in terms of number of firms and share in cumulative revenues. Every fourth firm in the sample is (partially) owned by Belarusian investors; taken together Belarusian firms account for almost one-third of total revenues in our sample. Interestingly, the comparable share is considerably smaller for Kazakhstan, the third member of the Eurasian Union, which has an even lower share than the most important CEEBB investor country.⁶ The leading investors among the CEEBB countries include Latvia, Lithuania and Estonia, which may indicate a heritage from their Soviet past. The two other CEEBB countries with a considerable number of firms in our sample are the largest CEEBB economies: Poland and the Czech Republic.

When comparing cumulative shares, the share in the total number of firms is somewhat larger for EECCA countries (63%) than their share in total revenues (59%). This indicates that EECCA-owned firms in Russia are smaller on average than CEEBB-owned firms (see also chart 3 below). Furthermore, the lion's share of investments comes from a few countries in both groups. In the EECCA group, 90% of the cumulative revenues within the group are generated by firms with

Table 2

Number and Revenues of CEEBB and EECCA Firms in Russia by Receiving Industry

Industry	Full sample		EECCA				CEEBB					
	Number of firms, cumulated from 1997 to 2011		Share in total revenues, cumulated from 1998 to 2011		Number of firms, cumulated from 1997 to 2011		Share in total revenues, cumulated from 1998 to 2011		Number of firms, cumulated from 1997 to 2011		Share in total revenues, cumulated from 1998 to 2011	
	Absolute	%	Absolute	%	Absolute	%	Absolute	%	Absolute	%	Absolute	%
Agriculture, hunting, forestry, fishing	87	2.9	0.5	0.5	57	3.0	0.5	0.5	30	2.8	0.5	0.5
Resource extraction	31	1.0	0.2	0.2	16	0.8	0.3	0.3	15	1.4	0.0	0.0
Manufacturing industries	495	16.6	24.5	24.5	291	15.2	21.6	21.6	204	19.0	28.7	28.7
Electricity, gas and water	11	0.4	0.2	0.2	7	0.4	0.3	0.3	4	0.4	0.0	0.0
Construction	258	8.7	4.9	4.9	156	8.2	3.8	3.8	102	9.5	6.6	6.6
Trade and repair	1,461	49.0	60.6	60.6	1026	53.7	65.2	65.2	435	40.5	54.0	54.0
Hotels and restaurants	36	1.2	1.3	1.3	24	1.3	1.9	1.9	12	1.1	0.3	0.3
Transport and communications	191	6.4	2.5	2.5	95	5.0	2.6	2.6	96	9.0	2.4	2.4
Financial activities	48	1.6	2.7	2.7	26	1.4	1.6	1.6	22	2.1	4.2	4.2
Real estate	321	10.8	2.6	2.6	178	9.3	2.0	2.0	143	13.3	3.4	3.4
Others	44	1.5	0.2	0.2	34	1.8	0.4	0.4	10	0.9	0.0	0.0
Total	2,983	100	100	100	1,910	3.0	100	100	1,073	100	100	100

Source: Rosstat and authors' calculations.

⁶ In contrast to this result, data on inward FDI stocks from the Bank of Russia (compiled according to the asset/liability principle laid down in the sixth edition of the IMF's Balance of Payments Manual – BPM6) show Kazakhstan as the largest EECCA investor in our sample. This points toward relatively low revenues of Kazakh investments in relation to the sum of invested equity, reinvested earnings and loans.

owners from Belarus, Ukraine, Kazakhstan or Uzbekistan. In the CEEBB group concentration is slightly less than in the case of EECCA investors, with the Baltic States, Poland and the Czech Republic accounting for 71% of cumulative revenues within the group.

As can be seen from table 2 the industrial structure of the investments in our sample is dominated by trade and repair; nearly half of all firms, accounting for 60% of total revenues, report this as their main activity. The second largest receiving industry is manufacturing, which accounts for roughly one-quarter of cumulative revenues. Investment in the trade and repair sector seems to be slightly more attractive for EECCA firms, while investors from CEEBB countries invest more strongly in the manufacturing sector, both in terms of the number of established firms and their cumulative revenues. CEEBB investors also show more investments into Russia's real estate sector than their EECCA counterparts. With 1.6% of all firms in the sample and 2.7% of cumulative revenues, the financial sector plays a rather small role in our overall sample but is considerably more important for CEEBB firms.

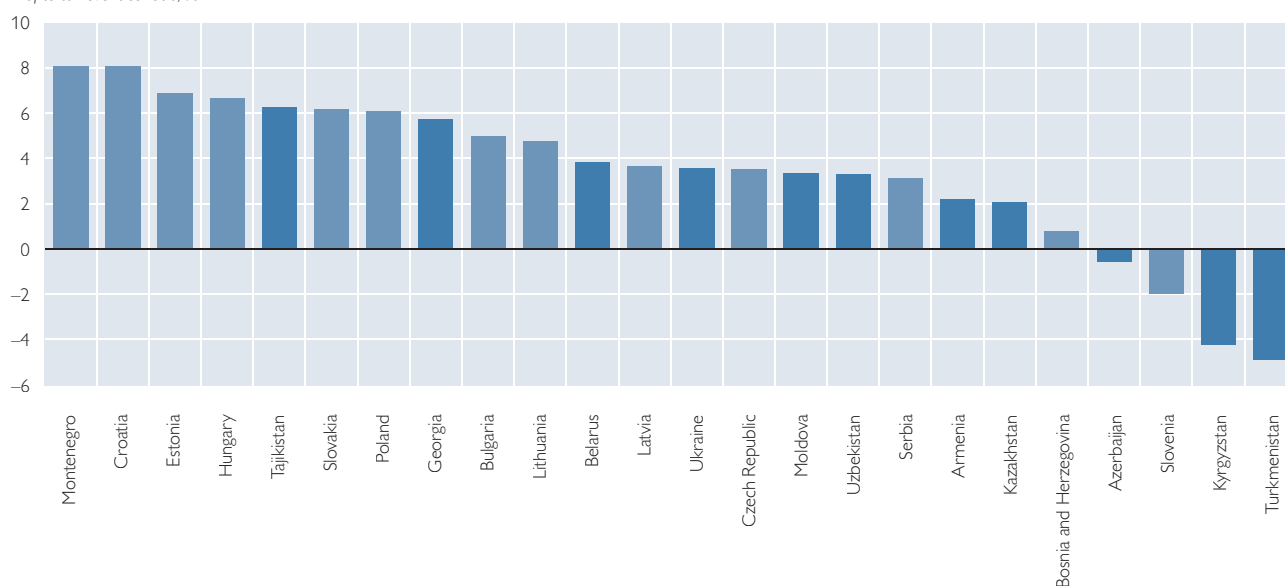
Belarus is not only the leading investor country in terms of cumulative revenues and number of established firms in our sample (table 1) but also in terms of profits, followed by Poland and Ukraine. Further, Lithuanian and Czech firms show relatively high cumulative profits over the period from 1998 to 2011.

Rather than looking at cumulative profits alone, a better measure of the profitability of firms is the ratio of cumulative profits to cumulative revenues. When interpreting chart 1, one should keep in mind that the number of observations for some countries (such as Montenegro) is very small, which may create a bias. If we focus only on those investor countries with more than a hundred firms in Russia, one can conclude that Estonian-, Polish- and Lithuanian-owned firms (CEEBB

Chart 1

Average Profitability of Firms by Investor Country

Profits-to-revenues ratio, %

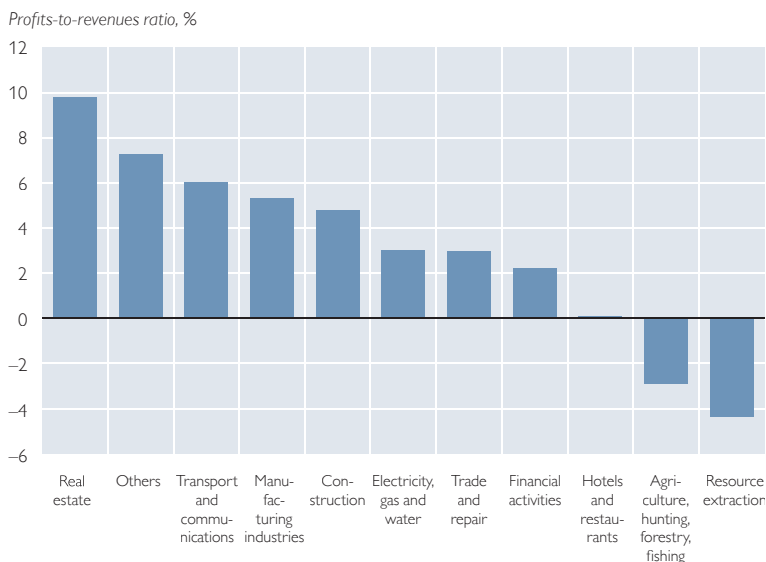


Source: Rosstat and authors' calculations.

Note: Ratio of cumulative profits to cumulative revenues, 1998–2011 average in %; the dark blue bars indicate EECCA countries.

Chart 2

Average Profitability of Firms by Receiving Industry



Source: Rosstat and authors' calculations.

Note: Ratio of cumulative profits to cumulative revenues, 1998–2011 average in %.

group) are more profitable in aggregate terms than firms with owners from the largest EECCA countries Belarus and Ukraine. The weakest performers (with negative profitability) are firms with owners from the least developed EECCA countries, Kyrgyzstan and Turkmenistan, but also Slovenian firms feature in this group.

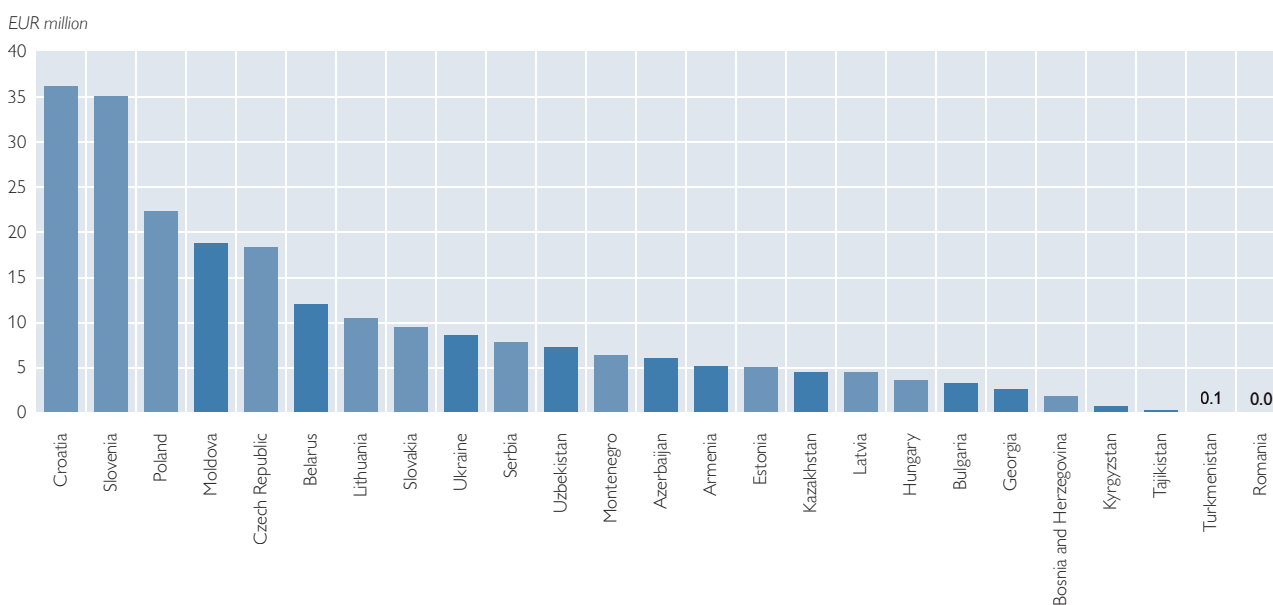
Comparing the profitability by receiving industry (chart 2) for our sample, investments in Russian real estate are the most profitable, while the performance of investments in natural resource-based operations is the worst.

As noted previously, there are differences in the average firm size between the two groups of investor countries (CEEBB and EECCA), and also within the groups (see chart 3). The average firm size in terms of revenues in the CEEBB group is EUR 11 million and,

in the EECCA group, EUR 6 million. At the same time, there is larger variance in the CEEBB group, as the largest and smallest country averages are found for investments from this group.

Chart 3

Average Firm Size by Investor Country



Source: Rosstat and authors' calculations.

Note: Average firm size is measured by cumulative revenues in 1998–2011 in EUR million divided by the number of established firms in 1997–2011 for each country; the dark blue bars indicate EECCA countries.

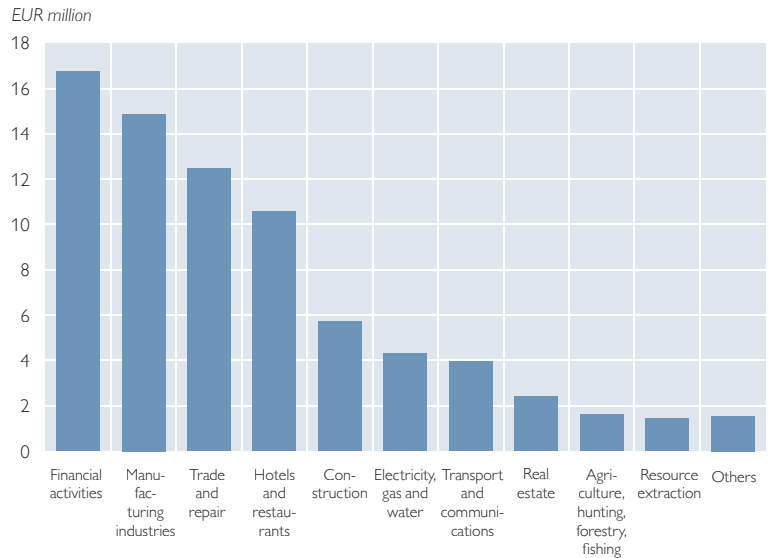
When analyzing the average firm size by receiving industry (chart 4), we observe that the volume of investment is largest in the financial activities category. At the same time the number of investments in this industry is only a fraction of those in the manufacturing or trade and repair sectors (table 2). Somewhat surprisingly, the average size of firms with foreign ownership is considerably larger in the labor-intensive hotel and restaurant sector than in the capital-intensive resource extraction sector. This may indicate that it is easier for foreign firms to enter the service sector, and to expand their operations there, than in the resource extraction sector, which is under closer political and regulatory control (see also Karhunen et al., 2014).

Chart 5 shows the increasing importance of Belarus and Ukraine as sources of FDI into Russia. The number of firms with Belarusian ownership increased steadily until the global financial crisis in 2008, which caused a drop in 2009. In 2010, FDI into Russia recovered again, however. In the case of Ukraine, the number of firms increased until 2006, after which it remained relatively stable until 2010 and increased sharply again in 2011. For the other countries, growth dynamics have been less pronounced.

Another interesting observation relates to the amount of foreign control in foreign-owned firms in Russia. The information given in chart 6 can be analyzed

Chart 4

Average Firm Size by Receiving Industry

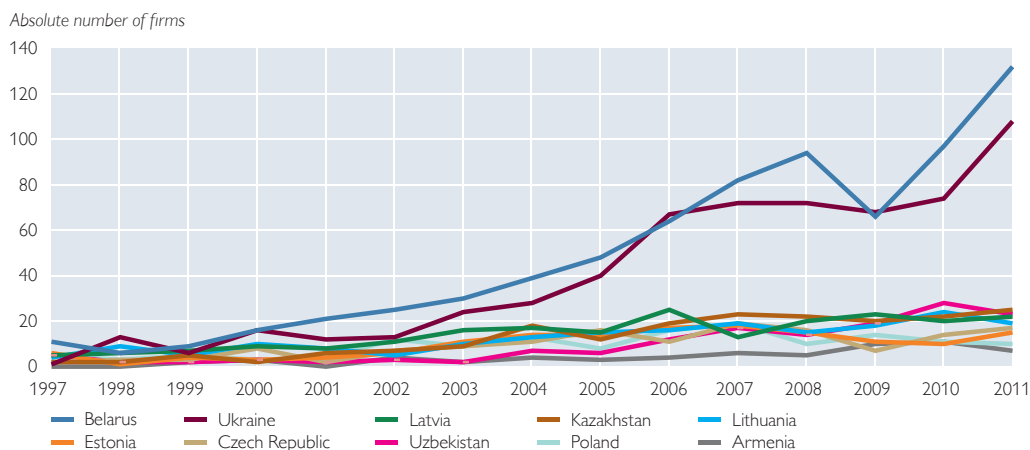


Source: Rosstat and authors' calculations.

Note: Average firm size is measured by cumulative revenues in 1998–2011 in EUR million divided by the number of established firms in 1997–2011 for each industry.

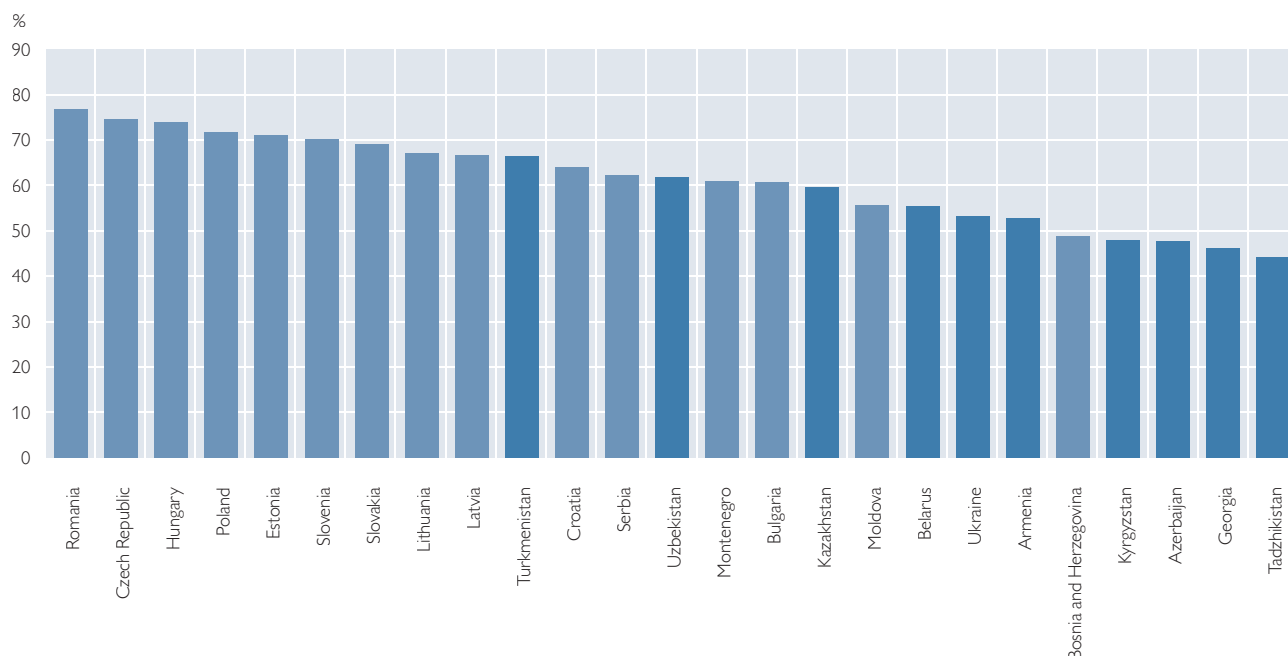
Chart 5

Number of Firms in Russia Owned by the Top Ten Investor Countries: 1997–2011



Source: Rosstat and authors' calculations.

Average Degree of Foreign Ownership by Investor Country



Source: Rosstat and authors' calculations.

Note: Degree of foreign ownership in the firms established by the respective CEEBB and EECCA investors in the period 1997–2011 in %; the dark blue bars indicate EECCA countries.

against the institutional distance argument, according to which investor countries that are more different from Russia in terms of their regulatory and normative business environment (i.e. CEEBB countries) would tend to have lower ownership shares. Interestingly, our data do not support this assumption, but provide quite the contrary evidence. The average degree of ownership is in general higher in the CEEBB group than in the EECCA group. This result can be interpreted from two perspectives. First, due to their shared socialist past, the institutional distance between the countries under examination and Russia may not be as decisive as for foreign-owned firms in the full Rosstat dataset (Karhunen and Ledyeva, 2012). Second, the results may support the alternative theoretical explanation in the literature that higher institutional distance would lead to higher ownership shares, as a greater degree of ownership (and thereby control) would make it easier for a foreign firm to transfer its practices to a foreign business unit operating in a different institutional context (see e.g. Estrin et al., 2009). As a final observation, foreign ownership never exceeds the 90% threshold (which would indicate full ownership) for any of the investor countries.

Since we are not only interested in describing the patterns of FDI from CEEBB and EECCA countries in Russia, but also want to analyze the determinants of these patterns, we need to be able to identify differentiating features among FDI recipients. As we only analyze FDI into one host country, i.e. Russia, we need to distinguish between individual regions within Russia in the econometric analysis below. Hence, the final part of the descriptive analysis focuses on the distribution of FDI from our sample countries across Russian regions.

When looking at the regional distribution of firms for our sample as a whole (table 3), the dominance of the city of Moscow and the surrounding region as FDI

Table 3

Distribution of CEEBB and EECCA Firms by Russian Regions

Region	Number of firms, cumulated from 1997 to 2011		Region	Share in total revenues, cumulated from 1998 to 2011	
	Absolute	%		%	
Moscow city	1,026	34.4	Moscow city	34.8	
Moscow region	205	6.9	Moscow region	14.2	
Saint Petersburg	204	6.8	Saint Petersburg	5.8	
Smolensk region	145	4.9	Lipetsk region	5.4	
Kaliningrad region	117	3.9	Kaliningrad region	4.0	
Belgorod region	93	3.1	Smolensk region	3.6	
Bryansk region	77	2.6	Belgorod region	2.9	
Pskov region	73	2.4	Rostov region	2.4	
Rostov region	73	2.4	Bryansk region	2.0	
Novosibirsk region	61	2.0	Voronezh region	1.8	
Krasnodar region	52	1.7	Republic of Tatarstan	1.8	
Leningrad region	46	1.5	Kemerovo region	1.8	
Samara region	43	1.4	Republic of Bashkortostan	1.6	
Omsk region	41	1.4	Tyumen region	1.5	
Chelyabinsk region	34	1.1	Leningrad region	1.5	
Others	695	23.3	Others	14.9	

Source: Rosstat and authors' calculations.

Note: Cumulative number of firms for 1997–2011, cumulative revenues for 1998–2011.

destinations is obvious; together they attract over 40% of the firms in our sample and nearly 50% of the cumulative revenues. This dominance is, however, not quite as pronounced as for foreign-owned firms in the full Rosstat dataset (Ledyeva et al., 2013a). The relatively high importance of the Smolensk and Kaliningrad regions for investors from CEEBB and EECCA can be explained by geographical factors.⁷

3 Econometric Model and Methodology

In our empirical analysis, we focus on the number of firms with foreign ownership as this number reflects the decision to invest into Russia. Moreover, our study aims to enhance our understanding of the relevant factors that motivate these investment decisions. In order to find evidence on locational determinants of FDI from CEEBB and EECCA countries into the different Russian regions we estimate the following equation for our data sample (the model is adopted from Ledyeva et al., 2013a):

$$y_i = a_0 + a_1 \text{MarketSize}_i + a_2 \text{MarketPot}_i + a_3 \text{Edu}_i + a_4 \text{Roads}_i + a_5 \text{Port}_i + a_6 \text{InvRisk}_i + a_7 \text{Nat Res}_i + a_8 \text{InstPot}_i + a_9 \text{Dem}_i + a_{10} \text{Corr}_i + \varepsilon_i \quad (1),$$

where y_i is the number of firms established by investors from our sample of countries in a particular Russian region i ($i = 1, \dots, 76$ ⁸) in the period from 1997 to 2011

⁷ The Smolensk region borders on Belarus and the Kaliningrad region is a Russian enclave situated between Lithuania and Poland.

⁸ The Russian Federation is administratively divided into federal subjects, which are commonly referred to as regions. The number of regions was 89 until 2005, after which some of them merged to form larger regions. The current number of regions is 83. Due to a data availability problem, in this study we consider only 76 Russian regions. In particular, the republics of Chechnya, Ingushetia and Kalmykia are excluded, as are the autonomous okrugs of Khanty-Mansi, Yamalo-Nenets, Chukotka and Nenets.

(cumulative). Hence, the dependent variable in this study is a count variable which takes on only non-negative integer values. Poisson regression is appropriate for modeling the count data. However, our data is significantly overdispersed, which violates a basic assumption of the Poisson model (Hausman et al., 1984). Consequently, as recommended in the literature, we use negative binomial (NB) regression to model our data (Hausman et al., 1984). Still, we report Poisson model estimation results for comparison.

Our measure of market size *MarketSize* is the extracted first principal component of three variables (gross regional product, total population, and population density⁹) for a particular region *i*. This indicator for the market size in Russian regions was introduced previously in a study by Iwasaki and Sukanuma (2005). The proportion of variance of the first principal component can reach 80% and, furthermore, its eigenvector and component loading show that this measure is suitable as a general index of market size.¹⁰

We also include a surrounding-market potential variable: *MarketPot* (see Blonigen et al., 2007). For a region *i*, it is defined as the sum of the market sizes (measured using the *MarketSize* variable) of the surrounding regions, defined as neighboring (but not necessarily bordering) regions whose respective capitals lie within a distance of 500 km to the capital of region *i*. Hence, we use the same distance threshold applied in Ledyeva et al. (2013a).

Our third control variable is the educational background of the regional population: *Edu*. The educational background of the population in a region *i* is measured using a natural logarithm of the share of the population with at least a medium level of professional education compared to the share of the population with no professional education in the year 2002 (data source: 2002 Rosstat Population Census).

The fourth and fifth control variables measure the existing transport infrastructure in a particular Russian region *i*, which is assumed to have an impact on the transportation costs incurred by foreign investors. The variable *Roads* reflects the regional development of railways and highways and is measured by the average density of railways and highways in a particular region *i*. The variable *Port* is a dummy variable reflecting the presence of a seaport¹¹ in a particular Russian region *i* (at least one seaport = 1; no seaport = 0).

Next, we consider several indicators of investment risk and potential in Russian regions. Regional investment risk *InvRisk* is a qualitative indicator that simultaneously reflects political, economic, social, criminal, financial, ecological and legislative risks for investment activities in a particular region. The natural resources potential variable *NatRes* reflects the average weighted availability of balanced stocks of principal natural resources in a particular region *i*. The regional institutional potential variable *InstPot* reflects the level of development of principal market institutions in a given region. All three indicators are taken from the online *Expert RA* journal ranking¹² ranging from 1 to 89 for a particular Russian region *i* and are

⁹ The variables “*MarketSize*,” “*MarketPot*,” and “*Roads*” are all based on data obtained from Rosstat (see www.gks.ru) and are calculated as averages over the period from 1997 to 2010.

¹⁰ One referee suggested to control for regional distance between investor country and the respective Russian regions. However, regional distance largely correlates with the market size variable. In order to avoid multicollinearity and a related bias, we decided not to include this variable.

¹¹ See <http://www.searates.com/maritime/russia.html>.

¹² See <http://www.raexpert.ru> (official website of the Expert RA Rating Agency).

averaged over the period from 1997 to 2010. For *InvRisk* a value of 1 is assigned to the region with the smallest risk in Russia, and 89 is assigned to the region with the largest risk; for *NatRes* and *InstPot* a value of 1 is assigned to the region with the highest potential in Russia, and 89 is assigned to the region with the lowest potential (see footnote 8).

Finally we control for the levels of democracy and corruption in Russian regions. We measure democracy in a Russian region i , using a simple average of the Carnegie Moscow Center's Index of Democracy over the period from 2000 to 2004 to calculate the variable *Dem*. This index ranks Russian regions on the basis of expert evaluations of ten different dimensions. We exclude the corruption dimension here because we aim to assess the influence of corruption on firms' location decisions separately. Also, this dimension does not correlate strongly with the other dimensions of the index (see Ledyeva et al., 2013a). The democracy index ranges from 1.7 to 4.7, with 1.7 denoting the lowest level of democracy.

Following the above consideration, corruption in a region i – *Corr* – is measured in terms of the corruption dimension as assessed by the Carnegie Moscow Center's Index of Democracy over the period from 2000 to 2004. The democracy index applies a 5-point scale, where 1 indicates the highest level of corruption and 5 indicates the lowest. This indicator refers mainly to state corruption in a broader sense, i.e. the interconnections between political and business elites and their interventions in the political decision-making process.

4 Estimation Results

4.1 Baseline Results

In table 4 we present the estimation results of equation (1). We estimate our model for the whole sample and also separately for the CEEBB and EECCA groups. Descriptive statistics and correlation matrix of the dependent and explanatory variables are presented in the annex.

Though, in the Poisson model, all the variables are highly statistically significant, we base our conclusions on the negative binomial model since the likelihood-ratio test of alpha indicates that our data is overdispersed and is not sufficiently described by the simpler Poisson distribution. We find that foreign investors from CEEBB and EECCA countries tend to locate in Russian regions with better transport infrastructure (represented by railway and highway roads), higher institutional potential and higher level of democracy. We further find that Russian regions with a higher level of corruption appear to be more attractive for the examined foreign investors. In general, this result indicates that foreign investors from the countries under consideration here are well-equipped to cope with and even benefit from corruption in Russia, possibly due to their long-term linkages with the Russian economy in the past. While this finding corroborates the results of an earlier study (Ledyeva et al., 2013a) which reports that foreign investors from countries with a higher reported level of corruption tend to invest into Russian regions with a higher level of corruption. This finding does, however, not prove robust once we exclude the democracy variable, as we will see below.

We also find some differences in FDI determinants between CEEBB and EECCA investors. First, there is some evidence that while investors from EECCA tend to locate in Russian regions without seaports, investors from CEEBB are more likely to choose regions with ports. This result points to the conclusion that

Table 4

Baseline Estimations (Negative Binomial and Poisson Model)

Variable	All countries		EECCA		CEEBB	
	Poisson	Negative binomial	Poisson	Negative binomial	Poisson	Negative binomial
MarketSize	0.1 (0.02)***	-0.07 (0.1)	0.12 (0.02)***	-0.08 (0.13)	0.1 (0.03)***	-0.04 (0.11)
MarketPot	0.02 (0.01)***	0.04 (0.03)	0.03 (0.01)***	0.05 (0.04)	0.02 (0.01)	0.02 (0.04)
Edu	0.5 (0.14)***	0.9 (0.7)	0.48 (0.17)***	1.35 (0.77)*	0.18 (0.25)	0.66 (0.7)
Roads	0.004 (0.0002)***	0.005 (0.002)***	0.003 (0.0003)***	0.01 (0.002)***	0.01 (0.0004)***	0.004 (0.002)**
Port	-0.15 (0.07)***	-0.4 (0.3)	-0.35 (0.09)***	-0.59 (0.33)*	0.23 (0.12)*	-0.13 (0.32)
InvRisk	-0.01 (0.002)***	-0.01 (0.01)*	-0.004 (0.002)*	-0.01 (0.01)	-0.02 (0.004)***	-0.02 (0.01)**
NatRes	0.005 (0.002)***	0.005 (0.006)	0.003 (0.002)*	-0.001 (0.01)	0.01 (0.003)***	0.02 (0.01)**
InstPot	-0.02 (0.002)***	-0.03 (0.01)***	-0.02 (0.003)***	-0.04 (0.01)***	-0.0003 (0.004)	-0.02 (0.01)**
Dem	0.4 (0.06)***	0.5 (0.2)**	0.15 (0.07)**	0.19 (0.31)	0.9 (0.1)***	0.84 (0.24)***
Corr	-0.5 (0.05)***	-0.3 (0.2)*	-0.39 (0.06)***	-0.35 (0.22)*	-0.52 (0.09)***	-0.34 (0.21)*
Intercept	2.8 (0.2)***	2.4 (0.85)***	3.28 (0.19)***	3.04 (1.06)***	-0.23 (0.35)	-0.08 (0.78)
No. of observations	76	76	76	76	76	76
Pseudo R ²	0.84	0.16	0.76	0.15	0.84	0.22
Likelihood-ratio test of alpha = 0	770***		829***		173.3***	

Source: Authors' estimations.

Note: * if $p < 0.10$, ** if $p < 0.05$, *** if $p < 0.01$; standard errors in parentheses. Likelihood-ratio test of $\alpha = 0$: This is the likelihood-ratio chi-square test that the dispersion parameter α is equal to zero. The test statistic is calculated based on the difference between the log-likelihoods from the Poisson model and the negative binomial model. The large test statistic would suggest that the response variable is overdispersed and is not sufficiently described by the simpler Poisson distribution.

EECCA investors are more linked to local (Russian) consumers and suppliers while CEEBB investors are more oriented toward efficiency- or resource-seeking and hence favor regions with better international transport infrastructure. Second, CEEBB investors care more about regional investment risks, preferring regions with lower risks. For EECCA investors the relevant result is only marginally statistically significant in the Poisson regression and not statistically significant in the negative binomial regression. Finally, there is rather strong evidence that CEEBB investors locate in regions with less resource potential, while for EECCA investors this evidence is rather small. This may point toward the possibility that investors from EECCA are more likely to have access to profitable resource-based projects in Russia, which in general are rather strongly protected from foreign investment by state authorities.

4.2 Robustness Checking

4.2.1 Regressions without Democracy Variable

As a robustness check we also estimate our model without the democracy variable *Dem* to see if the result for the corruption variable *Corr* remains stable. The results are presented in table 5.

As we can see from the results, the coefficients of the corruption variable are not statistically significant anymore in the negative binomial model for any of the country groups. For CEEBB investors, the coefficient of the corruption variable in the negative binomial model even turns positive, indicating the expected negative relationship between corruption and foreign investment. For EECCA investors the result remains negative and statistically insignificant (p -value = 0.12). Thus, if at all, a positive relationship between corruption and foreign investment is more likely in the case of investors from EECCA countries.

Table 5

Estimations without Democracy Variable (Negative Binomial and Poisson Model)

Variable	All countries		EECCA		CEEBA	
	Poisson	Negative binomial	Poisson	Negative binomial	Poisson	Negative binomial
MarketSize	0.05 (0.02)***	-0.09 (0.11)	0.10 (0.02)***	-0.08 (0.13)	-0.02 (0.03)	-0.09 (0.11)
MarketPot	0.01 (0.01)	0.03 (0.04)	0.02 (0.01)**	0.05 (0.04)	-0.02 (0.01)	-0.01 (0.04)
Edu	0.82 (0.13)***	1.17 (0.66)*	0.57 (0.16)***	1.46 (0.75)*	1.03 (0.24)***	1.05 (0.75)
Roads	0.004 (0.0002)***	0.005 (0.002)***	0.004 (0.0003)***	0.005 (0.002)***	0.01 (0.0004)***	0.004 (0.002)**
Port	-0.09 (0.07)	-0.34 (0.29)	-0.32 (0.08)***	-0.58 (0.33)*	0.31 (0.12)**	0.07 (0.35)
InvRisk	-0.004 (0.002)**	-0.01 (0.01)	-0.002 (0.002)	-0.003 (0.01)	-0.01 (0.003)*	-0.01 (0.01)
NatRes	0.01 (0.002)***	0.01 (0.01)*	0.01 (0.002)**	0.00004 (0.01)	0.02 (0.003)***	0.03 (0.01)***
InstPot	-0.02 (0.002)***	-0.04 (0.01)***	-0.03 (0.002)***	-0.04 (0.01)***	-0.02 (0.003)***	-0.04 (0.01)***
Corr	-0.26 (0.04)***	-0.09 (0.17)	-0.31 (0.05)***	-0.28 (0.18)	-0.17 (0.07)**	0.17 (0.19)
Intercept	3.25 (0.15)***	3.08 (0.84)***	3.43 (0.18)***	3.37 (0.94)***	1.03 (0.27)***	0.69 (0.88)
No. of observations	76	76	76	76	76	76
Pseudo R ²	0.83	0.15	0.75	0.14	0.82	0.19
Likelihood-ratio test of alpha = 0	809***		833***		234***	

Source: Authors' estimations.

Note: * if $p < 0.10$, ** if $p < 0.05$, *** if $p < 0.01$; standard errors in parentheses. Likelihood-ratio test of alpha = 0: This is the likelihood-ratio chi-square test that the dispersion parameter alpha is equal to zero. The test statistic is calculated based on the difference between the log-likelihoods from the Poisson model and the negative binomial model. The large test statistic would suggest that the response variable is overdispersed and is not sufficiently described by the simpler Poisson distribution.

4.2.2 Regressions with Interaction Terms

In this section we run our baseline regression as specified in equation (1) for both country groups jointly, by introducing interaction terms of the explanatory variables with a regional dummy variable (1 = EECCA, 0 = CEEBA). The results are presented in table 6.

Table 6

Estimations with Interaction Terms (Negative Binomial and Poisson Model)

Variable	Poisson		Negative binomial	
	Direct coefficients	Interaction terms with regional dummy	Direct coefficients	Interaction terms with regional dummy
InstPot	-0.01 (0.004)***	-0.01 (0.05)	-0.03 (0.01)***	-0.01 (0.01)
NatRes	0.01 (0.003)***	-0.04 (0.003)	0.02 (0.01)**	-0.02 (0.01)*
Roads	0.004 (0.0003)***	0.0001 (0.0004)	0.003 (0.002)	0.01 (0.002)**
InvRisk	-0.02 (0.003)***	0.02 (0.004)	-0.03 (0.01)***	0.03 (0.01)**
MarketSize	0.08 (0.03)***	0.03 (0.04)	-0.02 (0.12)	-0.14 (0.16)
MarketPot	0.03 (0.01)**	-0.01 (0.02)	0.03 (0.04)	0.01 (0.06)
Edu	0.15 (0.24)	0.49 (0.29)*	0.23 (0.75)	1.53 (1.01)
Port	0.16 (0.11)	-0.52 (0.14)***	-0.14 (0.36)	-0.42 (0.48)
Dem	0.59 (0.1)***	-0.3 (0.12)**	0.72 (0.26)***	-0.28 (0.37)
Corr	-0.71 (0.09)***	0.38 (0.11)***	-0.41 (0.23)*	0.11 (0.31)
Intercept	2.19 (0.17)***		1.31 (0.68)*	
No. of observations	152		152	
Pseudo R ²	0.78		0.18	
Likelihood-ratio test of alpha = 0	1,080***			

Source: Authors' estimations.

Note: * if $p < 0.10$, ** if $p < 0.05$, *** if $p < 0.01$; standard errors in parentheses. Likelihood-ratio test of alpha = 0: This is the likelihood-ratio chi-square test that the dispersion parameter alpha is equal to zero. The test statistic is calculated based on the difference between the log-likelihoods from the Poisson model and the negative binomial model. The large test statistic would suggest that the response variable is overdispersed and is not sufficiently described by the simpler Poisson distribution.

From the results we can conclude (assuming that the results from the negative binomial model are more reliable) that both EECCA and CEEBB countries tend to invest into Russian regions with a higher level of corruption. Also, we find that EECCA investors are more averse to investment risks in Russia and locate in more resource-abundant Russian regions than CEEBB investors. All these findings confirm our conclusions drawn from the baseline estimation results (see section 4.1).

5 Conclusions

In this paper we empirically address the issue of economic integration between Russia and CEEBB and EECCA countries from an FDI perspective. This is of particular interest given the currently stark differences between the two country groups with respect to their economic integration with Russia. While economic sanctions between Russia and the EU have worsened Russia's economic relations with many CEEBB countries, some EECCA countries will experience deeper integration through the Eurasian Economic Union, and yet others – in particular Ukraine – are torn between both integration blocs. We do not wish to attempt to assess the impact of current political events on FDI flows from CEEBB and EECCA to Russia; rather we aim to describe the status quo of FDI links and explain their main determinants.

In particular, we provide a detailed statistical analysis of micro-level Rosstat data containing information about foreign firms established by investors from CEEBB and EECCA countries in Russia. In our empirical test we focus on the potential of institutional determinants to explain the location choice of firms with owners from CEEBB and EECCA countries.

Our main findings show that, in terms of the number or revenues of foreign-owned firms, FDI largely originates from two EECCA investor countries, i.e. Belarus (a member of the Eurasian Customs Union and the future Eurasian Economic Union) and Ukraine (which is currently in conflict with Russia). We further find that geography is a decisive factor as CEEBB and EECCA firms investing in Russia tend to locate quite often in the Smolensk region (which borders on Belarus) and the Kaliningrad region (a Russian enclave located in the EU) in addition to Moscow, one of the favorite destinations for Russian inward FDI in general.

Comparing the two subsamples of investor countries, CEEBB firms tend to be characterized by a higher degree of foreign ownership than EECCA firms. This leads us to conclude that the greater institutional distance between CEEBB countries and Russia induces CEEBB investors to ensure the transfer of business practice through better control over the foreign-owned firms. As such, our finding is in contrast to the institutional distance argument, which postulates a negative relationship between institutional distance and degree of foreign ownership. Further, our estimation results show that CEEBB investors care more about regional investment risk in Russia than EECCA investors.

From our econometric analysis, we conclude that Russian regions with better transport infrastructure (represented by railway and highway roads), lower investment risks, a higher institutional potential (measured by the level of development of key market institutions) and a higher level of democracy are positively associated with FDI from CEEBB and EECCA.

While these findings do not allow us to assess the impact of current economic sanctions between Russia and the EU/U.S.A. on FDI flows into Russia, they can

still serve to shape our view on the setting in which such FDI takes place. Spoken in general terms, the current political environment is likely to negatively affect FDI flows from CEEBB investors to Russia as increased uncertainty leads to a worsening investment climate. Foreign firms are likely to put their investment projects on hold, especially in sectors such as finance, which are targeted by the EU and U.S. sanctions, even if banking-related sanctions currently concern only banks with significant Russian state ownership.

A continuation of the conflict between Russia and the West would in all likelihood lead to a change in the geographical composition of Russia's inward FDI. The empirical evidence presented in this paper suggests that in particular FDI from CEEBB countries would dwindle, as CEEBB investors care strongly about regional investment risk in Russia. This would in particular impact on the Baltic countries, which are the only CEEBB countries where outward FDI to Russia plays a non-negligible role.

References

- Blonigen, B. A., R. B. Davies, G. R. Waddell and H. T. Naughton. 2007.** FDI in space: Spatial autoregressive relationships in foreign direct investment. In: *European Economic Review* 51. 1303–1325.
- Broadman, H. and F. Recanatini. 2001.** Where Has All the Foreign Investment Gone in Russia? Policy Research Working Paper No. 2640. Washington, D. C.: World Bank.
- Brock, G. 1998.** Foreign Direct Investment in Russia's Regions 1993–95. Why So Little, and Where Has It Gone? In: *Economics of Transition* 6(2). 349–360.
- Dragneva, R. and K. Wolczuk. 2012.** Russia, the Eurasian Customs Union and the EU: Cooperation, Stagnation or Rivalry? Chatham House Briefing Paper 2012/01. August 2012. Retrieved from: http://www.chathamhouse.org/sites/default/files/public/Research/Russia%20and%20Eurasia/0812bp_dragnevawolczuk.pdf.
- Dunning, J. H. 1977.** Trade, location of economic activity and the MNE: A search for an eclectic approach. In: Ohlin B., P. O. Hesselborn and P. M. Wijkman (eds.). *The international allocation of economic activity*. London: Macmillan. 395–418.
- Dunning, J. H. 1993.** *Multinational Enterprises and the Global Economy*. London: Sage.
- Dunning, J. H. and S. M. Lundan. 2008.** Institutions and the OLI paradigm of the multinational enterprise. *Asia Pacific Journal of Management* 25. 573–593.
- EEC. 2013.** Eurasian Economic Integration: Facts and Figures. Eurasian Economic Commission. Retrieved from: http://www.eurasiancommission.org/ru/Documents/broshura26Body_ENGL_final2013_2.pdf.
- EEC. 2014.** The Presidents of Belarus, Kazakhstan and Russia signed a Treaty on the Eurasian Economic Union in Astana. News release by the Eurasian Economic Commission (May 29, 2014). Retrieved from: <http://www.eurasiancommission.org/en/nae/news/Pages/29-05-2014-1.aspx>.
- Estrin, S., D. Baghdasaryan and K. E. Meyer. 2009.** The impact of institutional and human resource distance on international entry strategies. In: *Journal of Management Studies* 46(7). 1171–1196.
- Hausman, J. A., B. H. Hall and Z. Griliches. 1984.** Econometric Models for Count Data with an Application to the Patents-R&D Relationship. In: *Econometrica* 52(4). 909–938.
- Husain, A. M., A. Ilyina and L. Zeng. 2014.** Europe's Russian connections. *VoxEU Column* (August 29, 2014). Retrieved from: <http://www.voxeu.org/article/europe-s-russian-connections> on September 9, 2014.

- Iwasaki, I. and K. Suganuma. 2005.** Regional distribution of foreign direct investment in Russia. In: *Post-Communist Economies* 17. 153–172.
- Karhunen, P. and S. Ledyeva. 2012.** Corruption Distance, Anti-corruption Laws and International Ownership Strategies in Russia. In: *Journal of International Management* 18(2). 196–208.
- Karhunen, P., R. Kosonen and S. Ledyeva. 2014.** Institutional distance and international ownership strategies in Russia: A subnational approach. In: *Baltic Journal of Management* 9(3): 254–276.
- Ledyeva, S. 2009.** Spatial econometric analysis of foreign direct investment across Russian regions. In: *The World Economy* 32. 643–666.
- Ledyeva, S., P. Karhunen and R. Kosonen. 2013a.** Birds of a feather: Evidence on commonality of corruption and democracy in the origin and location of foreign investment in Russian regions. In: *European Journal of Political Economy* 32. 1–25.
- Ledyeva, S., P. Karhunen and J. Whalley. 2013b.** Offshore jurisdictions (including Cyprus), corruption money laundering and Russian round-trip investment. NBER Working Paper No. 19019. National Bureau of Economic Research.
- Xu, D. and O. Shenkar. 2002.** Institutional Distance and the Multinational Enterprise. In: *The Academy of Management Review* 27(4). 608–618.

Annex

Table A1

Descriptive Statistics and Correlation Matrix of the Dependent and Explanatory Variables

	Mean	Standard deviation	Minimum	Maximum	DepVar	Market Size	Market Pot	Edu	Roads	Port	InvRisk	NatRes	InstPot	Dem	Corr
DepVar	39.28	121.43	0	1026	1										
MarketSize	0.01	1.43	-0.93	10.03	0.88	1									
MarketPot	1.66	3.95	-6.13	14.07	-0.19	-0.28	1								
Edu	0.57	0.22	-0.21	1.31	0.39	0.42	-0.16	1							
Roads	142.6	102.96	1.61	489.23	0.54	0.45	0.21	0.05	1						
Port	0.21	0.41	0	1	-0.02	0	-0.25	0.33	-0.2	1					
InvRisk	40.37	20.28	4.68	80.5	-0.31	-0.31	-0.13	-0.2	-0.57	0.14	1				
NatRes	43.1	23.65	1.43	87.36	0.27	0.18	0.39	-0.12	0.55	-0.31	-0.34	1			
InstPot	39.57	22.16	1	79.43	-0.34	-0.52	0.19	-0.34	-0.27	-0.14	0.49	0.18	1		
Dem	2.96	0.64	1.67	4.67	0.15	0.23	-0.14	0.38	-0.06	0.17	-0.09	-0.12	-0.48	1	
Corr	2.76	0.71	1	5	-0.13	-0.19	0.2	0.08	-0.05	-0.19	-0.18	0.09	0.05	0.43	1

Source: Authors' calculations.

Note: The dependent variable (DepVar) is the number of FDI firms in a particular Russian region. Correlation coefficients greater than 0.5 are printed in boldface.