The determinants of foreign direct investment into European transition economies

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Using a panel dataset of bilateral flows of foreign direct investment (FDI), we study the determinants of FDI from Western countries, mainly in the European Union (EU), to Central and Eastern European ones. We find the most important influences to be unit labor costs, gravity factors, market size, and proximity. Interestingly, host country risk proves not to be a significant determinant. Our empirical work also indicates that announcements about EU Accession proposals have an impact on FDI for the future member countries. Journal of Comparative Economics 32 (4) (2004) 775–787.

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1. Introduction

Foreign direct investment (FDI) became an increasingly important element in global economic development and integration during the 1990s (UNCTAD, 2003). This development occurred contemporaneously with the process of transition from socialism to capitalism and the integration of the Central and Eastern European countries (CEEC) into the world economy through trade and capital flows, as Di Mauro (1999) and Buch et al. (2003) discuss. FDI into transition economies may facilitate growth, promote technical innovation, and accelerate enterprise restructuring in addition to providing capital account relief (EBRD, 2002). However, actual FDI flows to transition economies have been modest; in 2002, FDI to CEEC represented only 4.4% of world FDI, although it did increase from 2% in 1999 (UNCTAD, 2003).

Our aim is to use panel data on bilateral flows from individual source to host economies between 1994 and 2000 to analyze empirically the determinants of inward FDI to CEEC by focusing on proximity, concentration advantages, and factor costs. These FDI flows are disproportionately regional, coming mainly from continental Europe; several of the major global actors, i.e., the US, Japan, and the UK, are under-represented significantly, as Estrin et al. (1997) demonstrate. Re-integration into Europe, which is symbolized in many CEEC by membership in the European Union (EU), is an important political and economic signal as Mayhew (1998) contends. Therefore, prospective EU membership may be an important determinant of FDI. We explore this issue empirically by testing for announcement effects of prospective EU membership on FDI flows.¹

FDI can accelerate the transition process by forming a basis for more effective corporate governance and by promoting enterprise restructuring, which is crucial to the transition process as Djankov and Murrell (2002) argue. Barrell and Pain (1999) provide evidence from transition economies indicating that productivity, R & D expenditure, innovation, and company performance are higher in foreign-owned firms. Hence, the transition process may be susceptible to virtuous and vicious circles in which one group of countries enjoys positive initial conditions so that it attracts substantial FDI at the early stage of transition and, as a result, achieves superior economic performance. In contrast, another group of countries that are less attractive to foreign investors may perform relatively less well throughout the process due to this initial disadvantage. In practice, FDI flows to the region have been concentrated highly in only three economies, namely, Poland, the Czech Republic, and Hungary (UNCTAD, 2002).

Our empirical strategy follows the models of Helpman (1984) and Brainard (1997) by taking account of factor endowments, including institutions, and by viewing FDI as determined by the trade-off between advantages of proximity and concentration. We employ data on FDI flows from 18 market economies to 11 transition ones from 1994 to 2000.² We include variables to capture proximity and concentration advantage in describing the

¹ The literature on the impact of supra-national agreements on FDI includes Baldwin et al. (1997), who use the Spanish experience to argue that FDI flows will be increased considerably by membership in a supra-national organization like the EU primarily because of the reduction in country-specific risk.

² FDI flows prior to 1994 are too small and too volatile in most transition countries to be used in econometric work. Flows to the entire region were less than $100m before 1990 and, between 1990 and 1995, many countries
characteristics of source and host countries, following the literature in using proxy variables such as GDP, input costs, geographical distance, and institutional and legal factors, e.g., trade and political stability (Jun and Singh, 1996). Brenton et al. (1999) and Meyer (1998) suggest several additional variables to take account of special institutional characteristics, e.g., the form of privatization, capital market development, and the state of the legal framework. We capture these factors in a single variable, namely country-risk.

The economies of the CEEC represent a useful laboratory to test hypotheses about the determinants of FDI because such flows were virtually unknown before the fall of Communism in the early 1990s and the host countries are differentiated by size, level of economic and institutional development, and proximity to Western Europe (EBRD, 1994; World Bank, 1996, 2002). Several empirical studies of FDI into transition economies use aggregate inflow data, e.g., Brenton et al. (1999), or enterprise surveys, e.g., Meyer (1998). Others focus on particular issues; for example, Wheeler and Mody (1992) and Resmini (2001) investigate the impact of institutional factors on FDI. Few studies investigate bilateral flows or use panel data methods to investigate whether FDI is motivated by factor cost or market opportunity.

In our empirical work, we find that FDI between developed Western and transition countries is determined by unit labor costs, host and source country size, and proximity. Country risk proves not to be a significant factor. We also establish that an announcement about timetables for admission to the EU increases levels of FDI to the prospective members. The remainder of the paper is organized as follows. In the next section, we outline our conceptual framework. The data and the empirical specifications are discussed in the third section. We report our findings in the fourth section and conclude with policy implications.

2. The theoretical framework

Beginning with Caves (1982), economists have speculated on the reasons for the emergence of multinational firms. If companies from abroad are identical to domestic ones, it would not be profitable for them to enter host markets, given the likelihood of additional transactions costs of operating in a foreign environment. Examples of such costs include communications costs, training costs for personnel, and barriers caused by language, customs, and unfamiliarity with local business and government practice. Dunning (1981) argues that three conditions must be satisfied simultaneously for FDI to occur. The firm must have both an ownership (O) advantage and an internalization (I) advantage, while the foreign market must offer a locational (L) advantage. Ownership advantages take the form of firm-specific assets both tangible, e.g., products or technologies; and intangible, e.g., patents or brands. Hence, the firm is able to more than offset the incremental transaction costs of multinational operation because of the cost or demand benefits conferred by the ownership advantage. Multinational firms also need an internalization advantage in the sense that benefits accrue to the enterprise from exploiting the ownership advantage from

received virtually no inflows in most years. However, a few recorded a large inflow in a particular year, which was often related to a privatization. Data for 2001 were not yet available at the time of completion of this paper.
choosing to produce abroad internally, rather than through the market by franchising or licensing the product or process internationally. Obviously, location advantages are relevant in determining where the firm chooses to manufacture its products. These include factor prices, access to customers, government regulations with respect to trade, exchange rates, capital flows, and institutional and political stability.

This model provides a useful organizing framework but it has not succeeded in explaining observed phenomenon, e.g., the rapid increase in FDI since the mid–1980s and the growth of regional integration (Di Mauro, 1999). The new theory of FDI integrates OLI with general equilibrium models that focus on relative factor endowments (Helpman, 1984), proximity and concentration advantages (Brainard, 1997), and with gravity models of trade and FDI (Hejazi and Safarian, 1999). Following Buch et al. (2003), we estimate a general gravity model but we also include variables to take account of comparative advantage and institutional factors in transition economies.

A multinational’s decision to locate in a foreign market depends on the trade-off between the incremental fixed costs of investing in production capacity abroad and the costs of exporting output from the domestic source country. The gravity approach suggests that these elements are captured by the relative market sizes of the two economies and their distance from each other. Distance can be viewed as a measure of the transactions costs of undertaking foreign activities. For example, the costs of transport and communications, the costs of dealing with cultural and language differences, the costs of sending personnel abroad, and the informational costs of institutional and legal factors, e.g., local property rights, regulations and tax systems are all assumed to increase with distance.

Denoting the year by \( t \), the source country by \( i \) and the host country by \( j \), we estimate the following specification:

\[
FDI_{ij} = f\left( GDP_i^t, GDP_j^t, \text{distance}_{ij}, \text{trade}_j^t, ULC_j^t, r_{ij}^t, \text{risk}_j^t \right),
\]

where \( GDP_i^t \) represents the size of the source (host) country, \( ULC_j^t \) is unit labor costs in the host country, \( r_{ij}^t \) measures the interest rate differential between the source and host countries, \( \text{trade}_j^t \) measures the openness of the host economy, and \( \text{risk}_j^t \) captures a vector of institutional, legal, and political factors in the host country. Hence this form of the gravity equation controls for factor cost, openness, and institutional development. Most likely, FDI reacts to these explanatory variables only with a lag because the process of choosing and implementing investments abroad is time consuming. Hence, FDI flows occur some time after decisions have been made. Moreover, some of the information becomes available only with a lag, e.g., risk or unit labor costs. Therefore we estimate Eq. (1) both in contemporaneous form and with a one-year lag for the independent variables.

The market size of the source and host economies in the country is a proxy for product demand and the potential for growth and the capacity to supply. Thus, we expect the coefficients of both GDP variables to be positive. Expected profitability will be higher if input costs are lower in the host country than in the source economy; hence, we expect negative coefficients on \( ULC_j^t \) and \( r_{ij}^t \). Studies of FDI in emerging markets stress the importance of including indicators of institutional development and economic and political risk, e.g., Henisz (2000). These consist of macroeconomic stability, e.g. the variance in growth rates, inflation or exchange rate stability, institutional stability reflected in policies towards FDI,
tax regimes, the transparency and effectiveness of the commercial legal code, and the extent of corruption and political stability, represented by measures of political freedom. We consider these factors to be captured by the risk index, which we expect to be inversely related to FDI. Finally, the discussion of internalization suggests relationships between trade and FDI flows are important as Helpman (1984) argues. FDI and the openness of the economy should be positively related because FDI is encouraged if the trade regime of the host economy is liberal and because, given internalization advantages for investing firms, multinational firms have a higher propensity to export. Hence, we predict a positive coefficient for the trade available.

Inward FDI to transition economies has included significant flows from particular source countries in the EU that are not normally major foreign investors, namely, Italy, Austria, Sweden and Greece (UNCTAD, 2003). The trade and FDI literature emphasizes the impact of host country involvement or potential involvement in free trade agreements, customs unions, and supra-national economic structures because these affect transactions costs between foreign production and exports. For example, third-party countries may invest in host economies within customs unions to avoid tariffs on exports. In addition, Baldwin et al. (1997) argue that the enhanced growth and trade from economies of scale of integration may provide a stimulant to demand in the host economy. The EU was discussing admission of these transition economies throughout the period considered. Moreover, a policy emerged in which countries were placed into one of three categories, those that are those likely to join the EU very soon, i.e., the Czech Republic, Hungary, and Poland, those that will probably join but only after a longer period, i.e., Bulgaria, and Romania, and those that are unlikely ever to join, e.g., Ukraine.

EU accession entails membership in the single European market and offers firms located in current EU member countries the opportunity to relocate production to countries with lower labor costs. Moreover, the prospect of EU membership may be viewed by potential investors as reducing country risk because meeting the requirements for admission involves an external validation of the quality of economic management and institutional development and because EU membership provides implicit guarantees with respect to future macroeconomic stability through membership in the Euro area, a well-developed institutional and legal environment,3 and political stability. Therefore, we investigate the relationship between FDI flows and EU pronouncements about enlargement because these announcements may influence FDI flows both from existing EU economies and from third parties.

To this end, we specify a second function to be estimated with and without lags as:

\[
\text{FDI}_{ij}^t = f(GDP_i^t, GDP_j^t, ULC_j^t, r_{ij}^t, \text{trade}_j^t, \text{risk}_j^t, \text{distance}_{ij}, \text{Announcement dummy}_j),
\]

\[\text{(2)}\]

\[3\] EU membership requires the adoption of EU legislation across the range of commercial and civil law, including trade rules, financial regulation, and competition policy.
in which we expect countries with positive announcements about prospective EU membership, which are reflected by the country-specific announcement dummy variable, to have enhanced FDI flows.

3. The data and the empirical specification

Our dataset covers the period from 1994 to 2000; the data sources are identified in the appendix. Each observation point constitutes an FDI flow in thousands of Euros between a source country \( i \), i.e., the EU-14 with Belgium and Luxembourg merged, Korea, Japan, Switzerland or the US, and a recipient country \( j \), i.e., Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, Slovenia or Ukraine. The selected source countries are the major suppliers of FDI flows; their combined FDI outflows in 1998 accounted for 87 percent of total world FDI outflows. The selected host countries received 82 percent of total FDI inflows to CEEC in 1998 (UNCTAD, 1999). Information on FDI flows to transition countries is incomplete during this period so that we concentrate on those countries that are involved in the enlargement process. Extending the data to other donor or source countries would result in a high proportion of zeros or missing values. We exclude Russia and much of the CIS, as well as countries from the former Yugoslavia, because conditions during much of this period make them special cases that would require country-specific explanations.

Considering the first specification, we use the unit labor cost in the host country denominated in Euros because multinational enterprises evaluate alternative locations based on real costs to ensure that a lower wage is not compensated for by reduced labor productivity or by an overvalued currency. Distance \( d_{ij} \) is measured by the distance between the capital cities of country \( i \) and country \( j \) in kilometers. The trade variable is designed to capture the openness of the host economy. However, for many transition economies, trade in the Communist era was distorted by the dictates of Soviet planners. Hence, only trade with the West is unambiguously relevant; given our interest in the impact of EU membership and after some experimentation, we decided to focus on trade with the EU. The trade variable is the proportion of total imports by the host country that were sourced from EU member states as a percentage of the host country’s GDP. Moreover, in assessing an applicant’s readiness for accession, the EU considers factors such as product licensing. Hence, potential collinearity exists between EU exports, trade shares, and announcement variables so that we use import shares as the trade variable. To capture differences in capital costs and the impact of financial and capital constraints on FDI, we include an indicator of the rel-

\[ \text{4 We excluded all the non-European CIS countries, because of our focus on the EU and because many of these countries, e.g. Belarus, Georgia, Turkmenistan and Armenia, have made only modest progress in transition and received very limited FDI flows (EBRD, 2002).} \]

\[ \text{5 Bevan et al. (2004) provide an example of the peculiarities affecting FDI in the Russian case. Similar to the situation in Kazakhstan and Azerbaijan, FDI to Russia is influenced significantly by the natural resource base.} \]

\[ \text{6 Although it would be preferable to use relative unit labor cost, i.e., the differential in unit labor costs between the source and the host country, data constraints would dictate that we eliminate the final year of observations. In other work on a similar dataset but for a shorter duration, Bevan et al. (2004) find results that are qualitatively unchanged if this relative specification of unit labor costs is used.} \]

\[ \text{7 The main results are not affected if export shares are used instead.} \]
ative opportunity cost of capital in the source and host countries. We take the differential between the end-year bond rate yield in source country $i$ and the end-year deposit rate in host country $j$ as an appropriate measure.

Jun and Singh (1996) suggest that the riskiness of the economic environment within the host country may deter investment in emerging markets. Previous studies use many different variables to capture this effect, e.g., variability in growth and inflation, exchange rate risk, and indicators of institutional development (Resmini, 2001). However, these various indicators are highly collinear so that some authors concentrate on one particular variable to the exclusion of other relevant factors while others construct ad hoc indices of risk using principal components methods (Wheeler and Mody, 1992) or a count method (Resmini, 2001). To address this issue, we use an evaluation of riskiness of the host economy that can be purchased by multinational enterprises to assist them in making their location decisions. These risk ratings are ex ante market evaluations of country-specific risk rather than ex post constructions by researchers.\footnote{We regressed our risk variable on the private sector share of GDP, the perceived quality of privatization, the percentage annual increase in consumer prices, the general government budget balance, the external debt, gross official reserves, the share of industrial output in GDP, and an indicator for corruption, namely, the so-called bribe tax. Many of the explanatory variables were significant but the regression equation did not explain much of the variation in risk. Moreover, our risk variable is not correlated with the cost of capital variable, perhaps because the former varies by host country only and the latter varies bilaterally.}

We use the credit rating of country $j$ derived from various issues of Institutional Investor (Anon., 1994–2000), which is published biannually in March and September; it ranges from 0 indicating the riskiest countries to 100 indicating a country with the highest creditworthiness. The ratings are based on assessments of the likelihood of default risk by bankers from between 75 and 100 leading international banks. The surveyed banks are updated every six months and they are not permitted to assess their home countries.\footnote{The responses are weighted by an undisclosed formula that depends on the level of experience of each bank and the sophistication of their country analysis.}

Using the second specification, we evaluate the impact on FDI of announcements about the possibility of host country $j$ joining the EU. Several possible variables could be used to capture the impact of the key intergovernmental conferences and major announcements from the European Commission during the 1990s. For example, the criteria for accession were outlined at Copenhagen in June 1993 and the EU’s pre-accession strategy was determined at Essen in December 1994. However, countries were only separated into the three categories after the Amsterdam meeting (Agenda 2000) in 1997 and only with precision after the Cologne meeting in 1998. Our approach is to develop an integrated announcement variable. Rather than a single-period time dummy reflecting a particular announcement, we construct our dummy variable by assuming that the announcement led to a structural shift from the impact date until the end of our time horizon. Thus, the announcement dummy variable, which we call Cologne, takes the value zero for all countries until 1998. We then assign a value of 3 to the Czech Republic, Hungary, Poland and Estonia because they were told at that time that they had satisfied the Copenhagen criteria for EU admission and could begin entry negotiations. A value of 2 is assigned to countries that were evaluated as having exhibited good progress and, therefore, were likely to be invited to begin negotiations,
namely Latvia, Lithuania and the Slovak Republic. However, at those meetings, Bulgaria and Romania were not deemed to have made sufficient progress to begin formal negotiations and so we assign a value of one to the dummy variable for those two countries after 1998. Finally, we set the dummy variable at a value of zero for the countries that were, at that time, excluded from the EU, i.e., Ukraine.

4. The empirical results

We estimate regression equations based on specifications (1) and (2). Random effects were used because Hausman specification tests do not support the use of fixed effects. In Table 1, we report the coefficient estimates for the basic equation with contemporaneous explanatory variables in column (1) and with a one-year lag on all independent variables, except distance and the constant, in column (2). The Chi-square values allow us to reject the null hypothesis of joint insignificance of the coefficients.\(^{10}\) The positive and significant

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>( FDI_{ij} ) (levels)</th>
<th>( FDI_{ij} ) (lagged form)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( GDP_i )</td>
<td>0.02***</td>
<td>0.02***</td>
</tr>
<tr>
<td></td>
<td>(3.66)</td>
<td>(3.72)</td>
</tr>
<tr>
<td>( GDP_j )</td>
<td>0.003***</td>
<td>0.003***</td>
</tr>
<tr>
<td></td>
<td>(10.65)</td>
<td>(10.45)</td>
</tr>
<tr>
<td>( r_{ij} )</td>
<td>0.32</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>(0.55)</td>
<td>(0.52)</td>
</tr>
<tr>
<td>( trade_j )</td>
<td>221.70</td>
<td>293.37*</td>
</tr>
<tr>
<td></td>
<td>(1.46)</td>
<td>(1.71)</td>
</tr>
<tr>
<td>( risk_j )</td>
<td>0.69</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>(0.53)</td>
<td>(0.33)</td>
</tr>
<tr>
<td>( Distance_{ij} )</td>
<td>-0.06</td>
<td>-0.06*</td>
</tr>
<tr>
<td></td>
<td>(-4.28)</td>
<td>(-4.52)</td>
</tr>
<tr>
<td>( ULC_{ij} )</td>
<td>-272.29**</td>
<td>-255.15*</td>
</tr>
<tr>
<td></td>
<td>(-2.19)</td>
<td>(-1.86)</td>
</tr>
<tr>
<td>Constant</td>
<td>160.40</td>
<td>134.72</td>
</tr>
<tr>
<td></td>
<td>(1.20)</td>
<td>(0.88)</td>
</tr>
</tbody>
</table>

No. of obs. 981 829
No. of groups 198 198
\( R^2 \): within 0.1339 0.1357
between 0.2712 0.2672
overall 0.2163 0.2318
Wald \( \chi^2 \) 197.52 187.88

Note. The parentheses contain the \( t \)-statistics.

* Significance at the 10% level.
** Idem., 5%.
*** Idem., 1%.

\(^{10}\) The discrepancy between the maximum number of observations available in the dataset and the number reported in the regressions is due primarily to incomplete FDI data from Greece and Ireland. Greece reports FDI flows to Poland only for 1996 to 1998 and Ireland omits Estonia and Latvia. In all probability, the gaps indicate zero flows; however, in the absence of information, we treat them as missing values. In addition, a few other values are missing, e.g., FDI flows from Finland to Poland in 1994.
coefficients for source and host GPD and the negative and significant coefficient for distance indicate that FDI is determined by gravity factors.\textsuperscript{11} Hence, our results are consistent with a transactions cost analysis of FDI in which flows are attracted between relatively large economies, but the gains from overseas production diminishes with distance from the source economy.\textsuperscript{12} We also find that unit labor costs are negative and significant indicating that FDI flows are greater to locations with relatively lower unit labor costs, independent of distance or host country size. However, relative capital costs are not a significant determinant of FDI flows, perhaps because investing companies rely on their own resources and capital markets in their home countries for financial resources. Given the relatively low level of development of capital markets in transition economies during this period (EBRD, 2002), this result is not surprising.

Our finding that unit labor costs are negatively associated with FDI supports the hypothesis that foreign investors are cost sensitive. Resmini (2001) does not obtain this result for transition economies, perhaps because her tests use manufacturing wages and do not control for productivity or exchange rates. Our work suggests that we observe unexpectedly high levels of FDI between particular CEEC and countries of Western Europe that have not previously been major sources of FDI because of the differential in real unit labor costs and the relatively short distances between countries, e.g. between Germany and Poland, between the Czech Republic, or Hungary and Austria, and between Finland and Estonia. Estrin et al. (1997) reach a similar conclusion from case studies and survey findings.

From Table 1, FDI and trade are complementary because countries having higher trading shares with EU countries also receive significantly more FDI. However, this result holds only in the lagged specification indicating that FDI decisions rely on past, rather than contemporaneous, information about the host economies. For all other variables, the estimated coefficients and their standard errors are robust using the current or the lagged specification. However, the fit of the equation is better in the lagged form, which suggests that current FDI flows rely on lagged information rather than on contemporaneous information.

Somewhat surprisingly, FDI flows to these transition economies are not influenced significantly by market evaluations of country-specific risk. One possible explanation is that important elements in companies’ evaluation of risks are already contained in the other variables. For example, exchange rate risk is included, to some extent, in the unit labor cost variable and the distance variable may account for the difficulty in assessing an unfamiliar environment and culture. The simple correlation coefficient between the risk measure and FDI is positive and significant, even though the risk effect becomes insignificant when the other variables are included in the regression. However, the strength and significance of the simple correlation declines over time and it becomes insignificant by the final period. Perhaps the transition countries are able to attract FDI inflows irrespective of their assessed level of sovereign default risk because investors believe that the accession process is too

\textsuperscript{11} Simple gravity models are often estimated in log-linear form with measures of population included. Our equation includes other factors relevant to transition countries and has a better fit than an equation using logarithms. Moreover, population and GDP are collinear.

\textsuperscript{12} In other regressions, we tested for the non-linearity of distance and found the quadratic form to be insignificant.
big to fail. Moreover, the risk of sovereign default may be more of a concern for investors engaged in portfolio flows or currency speculation. Foreign direct investors are more likely to be influenced by the stability of the underlying business environment rather than by the ability of governments to service their external debt. Therefore, a more appropriate measure would be expropriation risk, but this variable is not available.

Table 2 reports the regressions with the impact of EU announcements included in specification (2). Comparing these results with those in Table 1 indicates that the common variables have coefficients that are very similar in sign, significance, and value. The overall measures of fit and significance are also similar. As before, FDI levels are related positively to host and source GDP and related negatively to distance and unit labor costs. The Cologne announcement dummy is positive and significant in both current and lagged formulations. Therefore, we conclude that EU announcements about potential accession have significant independent effects on FDI flows to transition countries by increasing FDI to countries whose likelihood of accession is enhanced, even after controlling for gravity fac-

<table>
<thead>
<tr>
<th>Variable or change in variable</th>
<th>$FDI_{ij}$ (levels)</th>
<th>$FDI_{ij}$ (lagged form)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$GDP_i$</td>
<td>0.02***</td>
<td>0.02***</td>
</tr>
<tr>
<td></td>
<td>(3.62)</td>
<td>(3.72)</td>
</tr>
<tr>
<td>$GDP_j$</td>
<td>0.003***</td>
<td>0.003***</td>
</tr>
<tr>
<td></td>
<td>(10.58)</td>
<td>(10.07)</td>
</tr>
<tr>
<td>$rij$</td>
<td>0.41</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>(0.69)</td>
<td>(0.68)</td>
</tr>
<tr>
<td>trade$_j$</td>
<td>159.17</td>
<td>171.76</td>
</tr>
<tr>
<td></td>
<td>(1.04)</td>
<td>(0.97)</td>
</tr>
<tr>
<td>risk$_j$</td>
<td>−0.74</td>
<td>−0.74</td>
</tr>
<tr>
<td></td>
<td>(−0.46)</td>
<td>(−0.46)</td>
</tr>
<tr>
<td>Distance$_{ij}$</td>
<td>−0.06***</td>
<td>−0.06***</td>
</tr>
<tr>
<td></td>
<td>(−4.31)</td>
<td>(−4.6)</td>
</tr>
<tr>
<td>$ULC_{ij}$</td>
<td>−268.41**</td>
<td>−249.54*</td>
</tr>
<tr>
<td></td>
<td>(−2.18)</td>
<td>(−1.82)</td>
</tr>
<tr>
<td>Cologne</td>
<td>32.95***</td>
<td>32.61**</td>
</tr>
<tr>
<td></td>
<td>(2.65)</td>
<td>(2.52)</td>
</tr>
<tr>
<td>Constant</td>
<td>220.38</td>
<td>186.17</td>
</tr>
<tr>
<td></td>
<td>(1.63)</td>
<td>(1.22)</td>
</tr>
<tr>
<td>No. of obs.</td>
<td>981</td>
<td>829</td>
</tr>
<tr>
<td>No. of groups</td>
<td>198</td>
<td>198</td>
</tr>
<tr>
<td>$R^2$: within</td>
<td>0.1408</td>
<td>0.1342</td>
</tr>
<tr>
<td>between</td>
<td>0.2541</td>
<td>0.2593</td>
</tr>
<tr>
<td>overall</td>
<td>0.2189</td>
<td>0.2369</td>
</tr>
<tr>
<td>Wald $\chi^2$</td>
<td>207.28</td>
<td>196.26</td>
</tr>
</tbody>
</table>

Note. The parentheses contain the $t$-statistics.
* Significance at the 10% level.
** Idem., 5%.
*** Idem., 1%.
tors and factor costs. Moreover, the insignificant coefficient on the risk variable changes sign, which is consistent with the conjecture that investors use the accession as a signal of creditworthiness.

5. Conclusion

In this paper, we use information about flows between source and host economies to analyze FDI between developed Western countries, primarily those of the EU, and several transition countries. We identify the determinants of both the choice of investment and the location decision, including gravity factors. We found that FDI is related positively to both source and host country GDP and related inversely to the distance between the countries and to unit labor costs. Hence, investment to the region has been both market seeking and efficiency seeking. Moreover, the unusual pattern of FDI flows to transition countries, with limited investments by the major source countries, e.g., UK, and Japan, and unusually large investment by smaller continental European countries, e.g., Austria and Sweden, may be explained by EU firms seeking lower labor costs and perceiving relatively low transaction costs in managing production facilities over a short distance.

Our analysis suggests that integration with the EU is important for FDI in transition economies. We find that EU announcements about accession prospects increase FDI inflows to countries that are evaluated positively. Hence, the processes determining EU membership, which are based on an evaluation of progress in transition, and announcements concerning potential membership may create vicious and virtuous circles of growth, EU membership, and FDI. Countries that have implemented transition policies successfully are promised relatively speedy EU membership, which further accelerates FDI that generates more growth and development. In contrast, countries that are less successful in implementing transition policies are given longer timetables to EU accession, which may discourage FDI inflows.

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Appendix A. Data sources

FDI data are derived from various issues of the International Direct Investment Statistics Yearbook published by the OECD, supplemented with data from the US Chamber of
Commerce and from Central Banks and Central Statistical Offices in the Baltic States to obtain the required level of disaggregation.

\[ GDP_i^t, \text{ and } GDP_j^t \] are the Gross Domestic Product of source country \( i \) and host country \( j \) in thousands of Euros, taken from IMF *International Financial Statistics Yearbook*. 

\( ULC_j \), which is the source country unit labor cost in manufacturing, is calculated as the ratio of the annual average wage in manufacturing to annual GDP per capita, using data from *EBRD (2003)*. 

\( r_{ij} \) is the differential between the end-year bond yield rate in source country \( i \) and the end-year deposit rate in host country \( j \), both of which are from the IMF *International Financial Statistics Yearbook*. 

\( Trade_j \), which is the percentage of total imports of host country \( j \) from the EU-15, is calculated from data in IMF *International Financial Statistics Yearbook* for the period 1994–1997 and for the year 1998. 

\( RISK_j \) represents the credit rating of host country \( j \) derived from various issues of *Institutional Investor*. 

\( Distance_{ij} \) represents the distance between capital cities of source country \( i \) and recipient country \( j \) in kilometers.

**References**


