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FDI inflows to the Transition Economies in Eastern Europe:
Magnitude and Determinants[*]

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FDI Inflows to the Transition Economies in Eastern Europe: Magnitude and Determinants

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ABSTRACT

This paper shows that there are large differences in the volume of FDI that individual European transition economies have attracted and tries to find determinants that can explain this distribution of FDI, using panel data. This paper makes a distinction between 'traditional' determinants based on the motive for FDI and 'transition-specific' determinants. The empirical analysis contributes to earlier research by separating the transition economies into two groups, CEE and CIS countries. The CEE group consists of countries with a much higher GDP per capita than the CIS group, and this is reflected in the observation that the FDI flows to the CEE are primarily driven by a market-seeking motive while resource-seeking investment can explain the distribution of FDI among the CIS economies. This paper also concludes that transition performance and the choice of primary privatisation method are important in explaining FDI inflows to the transition economies. The analysis only finds weak evidence for efficiency-seeking FDI into the region.

Keywords: foreign direct investment, Eastern Europe, transition, privatisation
JEL classification: F21, F23, P21

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1. Introduction

The past two decades have seen a strong increase in global FDI flows. Since the Second World War the majority of FDI flows have had developed economies as both origin and destination, but during recent years the share of the flows going to developing and transition economies in Eastern Europe has increased. The general attitude towards FDI has changed from the suspicious, negative view that was prevalent until the 1980s to the current view where almost all economies allow foreign investment and most of them actively encourage inflows of FDI. UNCTAD (2004) reports that out of the total number of changes in FDI regulations between 1991 and 2003, more than 90 per cent created more favourable conditions for FDI. The reason for the present positive attitude towards FDI is the belief in the benefits provided by foreign investments. Examples of benefits that can be provided through FDI include inflow of capital, transfer of management skills, job creation, increased exports and transfer of technology. It is believed that these benefits outweigh possible drawbacks such as a loss of economic independence when a large part of the production is controlled by foreigners or increasing industrial concentration when a single MNE achieves a dominant position in an industry.[1]

While the shift in attitude towards FDI was gradual for the developing economies, it was more dramatic for the transition economies. The transition economies rapidly changed their legal frameworks from a situation where FDI was extremely restricted to a situation where potential host countries now actively compete for inflows of FDI. The characteristics of the transition economies provide a particularly interesting setting for analysing determinants of FDI. An empirical study of these economies allows for analysing both traditional determinants of FDI such as market demand but also transition-specific determinants such as privatisation. It is obvious that the inflow of foreign capital has been vital for the transition process in Eastern Europe. The region[2] is replacing a system based on administrative control of the economy with a system based on market-economy principles and democracy. While developing economies

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[1] However, the advantages might be diminished by inappropriate economic policies such as tax holidays, which may result in higher costs than benefits or export processing zones (EPZs) that may fail in their intention to establish links between the foreign investor and the local economy.
[2] This paper deals with the European transition economies. There are different ways to define which economies should be included. Appendix A describes the definition used by the EBRD and lists the 25 economies that are analysed in the paper.

historically needed inflows of capital in order to start building an industry, the transition economies were in a very different position. These economies were rather 'overindustrialised' when the transition process started. The economies were dominated by heavy industry, focusing on military and investment goods rather than consumer goods and services.

At the beginning of the transition process the problem for these economies was to replace an outdated capital stock and shift production toward goods demanded by the domestic market and goods that could be exported abroad. There still exists a great demand for inflows of capital to be used in the restructuring of enterprises in order to create competitive market economies. Domestic savings in the transition economies have been too small to cover the large demand for investments. FDI inflows have therefore fulfilled an important role as a source of capital. However, FDI also has qualitative effects. It has been shown that FDI has a potential to generate technology spillovers to the host country, see for example Sjöholm (1999). This potential can play a very important role for the transition economies, since it has been suggested technology spillovers from FDI stimulate the growth rate of the host country (Borensztein et al., 1998).

FDI inflows potentially provide several advantages to the transition economies. But what does the distribution of FDI inflows between the transition economies look like? Which economies have been most successful in attracting FDI? Furthermore, and more interestingly, what factors determine the volume of FDI that the transition economies receive? Are FDI inflows to the transition economies primarily a result of market-seeking investment to satisfy the local demand for goods? What role does efficiency-seeking FDI play as a means to minimise production costs play? Is resource-seeking FDI, with the objective of exploiting natural resources, an important motive for investment in the transition economies? Do the special economic conditions in the region imply that transition-specific determinants are important? For example, how is transition progress and privatisation related to the volume of FDI inflows? Can country characteristics explain the division between market-seeking and resource-seeking FDI flows?

The paper divides the European transition economies into two subgroups; the Central and Eastern Europe (CEE) economies and the economies of the Commonwealth of Independent States (CIS). Appendix A lists the economies that are included in these two groups. Note that the definition of CEE used in this paper differs from the one used by UNCTAD, which includes some of the CIS economies.

The objective of this paper is to find determinants of the volume of FDI inflows to the transition economies. The paper uses panel data and contributes to earlier research by analysing

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the importance of efficiency-seeking, market-seeking and resource-seeking objectives for FDI inflows to the transition economies. The CIS economies have so far only received limited attention in econometric studies of FDI flows. The paper, therefore, also adds to earlier empirical research by including the CIS economies in the analysis and comparing them to the CEE economies.

The paper is organised as follows: Section 2 describes the conditions for FDI during the period of planned economy and how the policy towards FDI has changed when the transition process started. Data for FDI inflows during the transition period are presented. Section 3 identifies determinants that are believed to be important for FDI inflows and motivates why they should be used as explanatory variables. Section 4 contains the empirical analysis. Section 5 concludes.

2. The magnitude of FDI in the transition economies

Section 2.1 describes the conditions for FDI inflows into transition economies in Eastern Europe during the period of planned economy. This is followed by Section 2.2, which presents data for the FDI inflows that have occurred since the transition to a market economy system began. Section 2.3 provides an overview of the most important source countries for the FDI flows to the region.

2.1 The heritage of an administrative economic system

To achieve inflows of FDI, the host country must have a regulatory framework allowing foreign direct investments. It is necessary to distinguish between this type of framework and policies designed to actively encourage FDI inflows. The former is usually referred to as an enabling framework while the latter is referred to as incentive policies, (UNCTAD, 2003). During the period of administrative economy, most Eastern European economies lacked such an enabling framework. Before the transition to a market-dominated economic system started in Eastern Europe, the inflows of FDI into the region were at a minimal level. The economic system and

the belief in economic self-sustenance, as well as the restricted policy adopted towards activities of foreign companies kept both FDI and trade with market economies at a minimum. McMillan (1993a) argues it was the economic system itself rather than the specific FDI policies that deterred inflows of FDI. The system of central planning and administratively set prices and wages created an environment which severely constrained the maneuvering possibilities of potential foreign MNE entrants.

However, there existed differences in degree between individual economies. The Soviet Union itself was the most deeply centralised and collectivised economy, but other economies were influenced by market economy. Hungary, for example, started to experiment with economic reforms already during the 1960s and during the beginning of the 1970s joint-venture laws that allowed FDI were introduced, (Gutman, 1993). Milanovic (1989) reports that just before transition started, the state share of production was 96 per cent in the Soviet Union while it was only around 65 per cent in Hungary and 82 per cent in Poland. While the economies of Eastern Europe in general had a very negative attitude towards FDI, they were at the same time attracted to the technology transfer inflows of FDI might bring, as pointed out by McMillan (1993b).

2.2 FDI during transition

The start of the transition process resulted in a complete turnaround of FDI policies and regulations in the transition economies. The East European governments began to eliminate the existing disincentives for MNE entry through establishment of new foreign investment laws creating enabling frameworks. The policy change has resulted in a situation where all transition economies are now actively competing for inflows of FDI through the use of incentives such as reduction of corporate taxes, tax holidays and provision of social amenities. Mah and Tamulaitis (2000) provide an overview of investment incentives in Eastern Europe.

To provide a more complete picture it is helpful to include a short description of the global development of FDI. The changes in the flows of FDI going to the transition economies can then be compared to the development in the rest of the world. Table 2.1 presents some basic data for FDI stocks including the world total as well as data for different types of economies and regions. The last row presents the stock of FDI in Central and Eastern Europe as the percentage

share of the world total. The intention is to provide an overview of both the global and the regional development since the start of the transition process.

Table 2.1 Inward stocks of FDI, millions of USD

Region	1990	1995	2000	2003
World	1 950 303	2 992 068	6 089 884	8 245 074
Developed countries	1 399 509	2 035 799	4 011 686	5 701 633
Developing countries	547 965	916 697	1 939 926	2 280 171
Central and Eastern Europe[a]	2 828	43 220	153 553	289 835
Central and Eastern Europe share of world total (%)	0.1	1.4	2.5	3.5

Source: UNCTAD (2004), Annex Table B.3

Notes:

a: CEE and CIS economies.

Table 2.1 clearly shows the dominance of the developed economies as far as the total stock of FDI is concerned, in 2003 around 69 per cent of the world stock of FDI was located in developed economies. It can also be seen from the table that the world stock of FDI grew by approximately 323 per cent from 1990 to 2003.

The transition economies have a small but rapidly increasing share of the total FDI stock. At the start of transition (around 1990), the total inward stock of FDI in Central and Eastern Europe was less than one per cent of the world total. The small FDI stock was a result of the unfavourable economic environment for foreign MNEs, as described in the previous section. However, the growth rate of the FDI stock in Central and Eastern Europe between 1990 and 2003 was much higher than the global rate, and the transition economies increased their share of the total stock of FDI to around 3.5 per cent in 2003. If the FDI stock would have been proportional to GDP, Central and Eastern Europe would have accounted for 2.4 per cent of the world stock in the year 2000, close to the actual figure of 2.5 per cent implying convergence toward more 'normal' levels of inward investment. To some extent the large increase in inward FDI to the transition economies is, therefore, explained by a very low initial level. The transition economies have been in a process of catching up due to an increasing share of total flows during the 1990s and the rising GDP share of inward FDI of GDP suggests that they are being integrated into the global economy.

Earlier studies of FDI inflows have pointed to the large variation in the amount of FDI that the transition economies attracted during the first years of the transition process, see for example McMillan (1993a), Meyer (1995) and Lankes and Venables (1996). The data for FDI inflows presented in Appendix B suggest that these differences have continued during the second half of the 1990s. Consequently, there should now be substantial variation in the size of the inward stocks of FDI that the transition economies have managed to attract. Whether this is indeed the case can be answered by Table 2.2 and Table 2.3 which present cumulative inflows of FDI in total as well as per capita to the CEE group and the CIS group, respectively. The rightmost column presents data for the inward stock of FDI as a share of GDP. The countries have been ranked according to cumulative FDI inflows per capita.

Table 2.2 Inward FDI in the CEE economies

Country	Cumulative FDI inflows 1989-2003 per capita, USD	Cumulative FDI-inflows 1989-2003 (millions of USD)	FDI inward stock as share of GDP in 2003 (%)
Czech Rep	3 710 (1)	38 243 (2)	48.0 (4)
Hungary	3 364 (2)	33 641 (3)	51.8 (2)
Estonia	2 402 (3)	3 246 (11)	77.6 (1)
Slovakia	1 894 (4)	10 185 (5)	31.5 (6)
Croatia	1 857 (5)	8 204 (6)	49.6 (3)
Slovenia	1 647 (6)	3 277 (10)	15.6 (13)
Latvia	1 454 (7)	3 372 (9)	35.1 (5)
Poland	1 355 (8)	51 906 (1)	24.9 (9)
Lithuania	1 067 (9)	3 683 (8)	27.2 (8)
Bulgaria	795 (10)	6 235 (7)	29.1 (7)
Macedonia	501 (11)	1 002 (13)	22.1 (11)
Romania	486 (12)	10 536 (4)	23.4 (10)
Albania	352 (13)	1 114 (12)	18.1 (12)
Average	1 606	13 434	34.9

Source: EBRD (2004), Table A.2.8 and UNCTAD (2004) Annex Table B.6

According to the third column of Table 2.2, it is Poland that has received the largest absolute volume of inflows of FDI, followed by the Czech Republic and Hungary. However, measuring FDI per capita provides a different picture. According to this measure it is the Czech Republic

that has been most successful in attracting FDI while Poland is only ranked as number eight of thirteen countries. When the economies are ranked according to the inward stock of FDI as share of GDP, Estonia has the highest share followed by Hungary and Croatia.

Table 2.3 presents data for the CIS economies. Kazakhstan and Azerbaijan have by far the largest inward stocks of FDI per capita. These two economies also have the largest inward stocks of FDI as share of GDP. How can these large FDI stocks relative to the other CIS economies be explained? Data from UNCTAD (2005) reveal that the petroleum industries in Kazakhstan and Azerbaijan have been the destination for the majority of the total FDI inflows. Abundance of oil resources should therefore be an important explanation for the success in attracting FDI inflows.

Table 2.3 Inward FDI in the CIS economies

Country	Cumulative FDI inflows 1989-2003 per capita, USD	Cumulative FDI-inflows 1989-2003 (millions of USD)	FDI inward stock as share of GDP in 2003 (%)
Kazakhstan	1 094 (1)	15 730 (1)	60.1 (2)
Azerbaijan	873 (2)	7 214 (2)	117.7 (1)
Armenia	277 (3)	868 (10)	31.9 (4)
Georgia	272 (4)	1 257 (7)	26.3 (6)
Turkmenistan	269 (5)	1 613 (6)	16.8 (7)
Moldova	210 (6)	893 (9)	40.5 (3)
Belarus	200 (7)	1 979 (5)	10.8 (10)
Ukraine	128 (8)	6 213 (3)	14.1 (8)
Kyrgyzstan	85 (9)	413 (11)	28.6 (5)
Uzbekistan	35 (10)	917 (8)	10.6 (11)
Tajikistan	34 (11)	223 (12)	14.1 (8)
Russia	31 (12)	4 478 (4)	12.1 (9)
Average	292	3 483	32.0

Source: EBRD (2004), Table A.2.8 and UNCTAD (2004) Annex Table B.6

What really stands out through a per capita comparison using Tables 2.2 and 2.3 are the large differences among individual economies. The Czech Republic has managed to attract almost three times more FDI per capita than Poland and almost five times more FDI than Bulgaria and Romania. Comparing the CEE group with the CIS group results in even larger differences. The

average cumulative per capita inflows are more than five times higher for the CEE group than for the CIS group. The CIS economies were more deeply influenced by the administrative economic system than the CEE economies and have had a slower transition process. They are also located farther away from Western Europe than the CEE group of economies and have a much lower GDP and GDP per capita. The empirical part of the paper tries to find determinants of FDI inflows to the transition economies.

2.3 Geographical sources of FDI flows to the transition economies

Which are the most important source countries for the FDI flows to the transition economies? Can information about source countries provide indications of what determines the volume of FDI inflows? Data for the geographical origin of inward FDI are scattered but Table 2.4 presents data for the most important source countries of FDI for nine transition economies. For each transition economy, the two most important sources of FDI are in boldface.

Table 2.4 Source countries of FDI to transition economies, per cent of total inward stock 2000

Country	Czech rep.	Estonia	Latvia	Lit.	Hungary	Poland	Armenia	Azer-baijan	Kazakh-stan[a]
EU-15	84.1	83.4	50.4	64.4	80.3	68.2	47.2	28.7	37.3
Austria	*11.1*	*0.3*	*0.5*	*0.7*	*12.2*	*1.5*	*0.0*	*0.0*	*<0.1*
France	*4.3*	*0.5*	*<0.1*	*1.1*	*6.5*	***19.2***	***19.8***	*5.0*	*1.9*
Finland	*0.6*	***29.9***	*6.2*	*6.0*	*1.6*	*0.8*	*0.0*	*0.0*	*<0.1*
Germany	***25.5***	*2.6*	*11.1*	*7.4*	***25.8***	***13.4***	*<0.1*	*1.5*	*1.3*
Netherlands	***30.1***	*2.4*	*2.8*	*1.1*	***22.5***	*8.6*	*<0.1*	*0.3*	*9.5*
Sweden	*1.4*	***39.8***	***12.6***	***17.3***	*0.9*	*4.3*	*0.0*	*0.0*	*<0.1*
United King.	*5.4*	*2.5*	*5.0*	*6.7*	*1.1*	*5.0*	*5.8*	***18.3***	***12.6***
United States	6.5	4.6	9.4	9.8	8.2	14.7	10.1	**30.4**	**40.9**
Japan	0.5	0.1	0.0	<0.1	2.1	1.0	0.0	3.6	2.2
Central and Eastern Europe	1.5	1.5	**18.1**	**11.2**	0.8	2.5	**27.0**	7.5	4.3
Sum	92.6	89.6	77.9	85.4	91.4	86.4	84.3	70.2	84.7

Source: UNCTAD (2005)

Notes

a: Data for 2002.

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Table 2.4 indicates that the EU-15 economies strongly dominate the inflows of FDI. Germany and the Netherlands are important source countries, particularly for the Czech Republic and Hungary. The flows from Finland to the transition economies have been limited with the exception of Estonia. This can be explained by similarities in language and culture and the short geographical distance between the economies. Sweden is primarily important for the Baltic economies. Austrian flows were important for the Czech Republic and Hungary. The flows of FDI from France have been rather insignificant except for Poland. The United States has a substantial share of inflows in all the included transition economies. Japan has been included among the source countries due to Japan's importance for the world economy. However, it is clear that Japan plays a very minor role for investments in the region.

For the three CIS economies, Armenia, Azerbaijan and Kazakhstan, EU-15 is less important as a source of FDI. The inward stock is instead dominated by the United States. Additional data from UNCTAD (2005) suggest that the importance of United Kingdom, the United States and Russia as source countries of FDI is a result of MNEs from these economies having invested in the petroleum industries. We try to take this into account and analyse the effect of oil abundance on FDI inflows in the empirical section.

Section 2 describes and analyses the magnitude of FDI inflows to the transition economies. What conclusions can be drawn based on the presentation of data in Section 2? At the start of transition, the inward stock of FDI in Eastern Europe was very small, but the start of the transition process triggered large subsequent inflows of FDI and the transition economies have been able to attract a rising share of global FDI flows. Tables 2.2 and 2.3 show that there are large differences in the size of the inward FDI stock. The CEE economies have been much more successful in attracting FDI inflows than the CIS economies, but there is also substantial variation within the country groups. As far as source countries for the FDI inflows are concerned, Table 2.4 indicates that the EU-15 economies are dominating the inflows of FDI to the CEE economies. Data for the CIS group are scarce but suggests that the United States, the United Kingdom and Russia are important source countries of FDI due to substantial investments in the petroleum sector.

3. Host country determinants of FDI in the transition economies

The idea is that the discussion in this section should identify variables that can be used as explanatory variables in the regression analysis of FDI determinants. Section 3.1 uses the OLI paradigm as a framework for structuring the discussion. Section 3.2 presents an overview of earlier studies of FDI inflows to the transition economies while Sections 3.3 and 3.4 discuss traditional and transition-specific determinants of FDI respectively.

3.1 The OLI paradigm and location advantages in Eastern Europe

Stephen Hymer introduced the concept of firm-specific advantages (Hymer, 1976). His argument is that to overcome the information advantage that domestic enterprises have over foreign firms, a foreign firm that enters the economy must have some offsetting firm-specific advantage. Examples of such advantages include scale economies, brand name, managerial skills or superior technology. John Dunning developed Hymer's ideas further, resulting in the so-called OLI paradigm of FDI.

The OLI paradigm was first presented in Dunning (1977). According to the OLI paradigm, a firm's decision to invest in a foreign country is determined by the existence of three different types of advantages, namely ownership-, location- and internalisation advantages. Thus, the acronym OLI. Ownership advantages are based on Hymer's concept of firm-specific advantages and come in the form of assets such as patents, technology or management that reduces the firm's production costs so that it can overcome the information disadvantage of operating in a foreign economy. Ownership advantages are possible to move between different locations and can therefore be transferred to a foreign country.

The existence or non-existence of an internalisation advantage determines how the MNE chooses to use its ownership advantage. Existence of an internalisation advantage implies that the firm's most efficient alternative of utilising an ownership advantage is to exploit it through exports or FDI. Lack of an internalisation advantage implies that the MNE will use licensing to serve demand in the foreign market.

Location advantages determine how attractive different locations are for production. A strong location advantage allows the firm to minimise production costs, take advantage of large demand or knowledge spillovers. Location advantages can never be transferred to another location but can be used by more than one firm. For example, a supply of cheap labour provides a location advantage for several labour-intensive firms. If the home country provides the strongest location advantage, production will take place in the firm's home country and the goods will be exported to meet foreign demand.

To allow focus to be put on the characteristics of the transition economies in Eastern Europe, ownership and internalisation advantages are excluded from the analysis. The paper only analyses potential determinants of FDI among variables that can be argued to constitute location advantages according to Dunning's OLI paradigm. For this study, it is therefore assumed that the MNEs that invest in Eastern Europe possess both ownership and internalisation advantages. Actual investment is therefore determined by variations in location advantages among the host economies.

There exist numerous studies investigating determinants of FDI and examples include Culem (1988), Mody and Wheeler (1992), Lucas (1993), Bevan and Estrin (2000), and Cheng and Kwan (2000). Blonigen (2005) provides an overview of previous empirical studies. Table 3.1 presents determinants of FDI that have been analysed in earlier studies with the intention of identifying variables that can be argued to constitute location advantages. Selecting location advantages rather than ownership or internalisation advantages allows focus to be put on the effects of host country characteristics on FDI inflows. The first column lists location advantages while the second column lists ownership and internalisation advantages. The rightmost column presents the expected effect of each determinant on FDI inflows.[3] The exchange rate, policies of government and trade flows variables have been assigned both plus and minus signs since the effects of these variables could be either positive or negative. The variables have also been divided according to four main categories: *Institutions*, *Transaction costs*, *Production costs*, and *Demand* and *Other*.

Table 3.1 Determinants of FDI used in empirical studies

Location advantage	Ownership / internalisation advantage / other	Expected effect on FDI inflows

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[3]This is based on a priori theoretical reasoning; there might exist empirical studies that find other results.

Demand / profit potential		
GDP / capita		+
Market size (GDP)		+
Market size growth (GDP growth)		+
Population		+
	Rates of return	+
Institutions		
	Cultural proximity	+
Corruption		-
Country risk		-
Policies of government		-/+
Privatisation		+
Transition performance		+
Production costs		
Capital		-
Labour		-
Information		-
Infrastructure		+
Agglomeration		+
Transaction costs		
Geographical distance		-
Non-tariff barriers		+
Tariff barriers		+
Other		
	Exchange rates	-/+
	Firm size	+
	Natural resources	+
	Trade flows	-/+

Source: Constructed by the author

3.2 Earlier studies of FDI inflows to the transition economies

There are many previous studies of FDI inflows, but for the purposes of this paper we are primarily interested in studies covering Eastern Europe. What earlier empirical studies focusing on FDI inflows to Eastern Europe are there? Econometric studies of FDI inflows analysing the early phase of transition such as Lansbury et al. (1996) suffered from short time series. However, surveys were used as a method to circumvent this problem. Lankes and Venables (1996) is an influential paper analysing determinants of FDI inflows into transition economies based on a survey of managers in 117 Western firms that have invested or planned to invest in Eastern Europe. The results of the survey indicate that transition progress, political stability, new market opportunities and perceived risk levels were important for management decisions about investment.

Holland and Pain (1998) use panel data and studies determinants of FDI to eleven CEE transition economies during the period 1992 to 1996. The paper finds that the method of privatisation, labour costs, trade linkages and proximity to the EU are important for FDI inflows.

Another panel data study of FDI flows to transition economies is Bevan and Estrin (2000). Their panel data set allows for identification of FDI flows from 18 individual source countries to ten CEE economies and Ukraine for the period 1994 to 1998. Only one CIS economy is included, a reason being that additional explanatory variables would be needed to account for the importance of natural resources in some of these economies. The paper finds that FDI inflows are significantly affected by market size, distance, risk and unit labour costs.

Resmini (2000) uses a unique panel data set on the sector level to study determinants of FDI in eleven CEE economies during 1990 to 1995. The study concentrates on the manufacturing sectors and the results of a fixed effects model suggest that FDI inflows are determined primarily by market variables such as population and GDP per capita.

Carstensen and Toubal (2004) analyse FDI inflows to eight CEE economies during the period 1993 to 1999 in a dynamic panel data framework. The generalised method of moments (GMM) estimation technique is used. The results indicate that market size has a positive effect on FDI flows and that the level and method of privatisation as well as country risk significantly affect the volume of FDI inflows.

The only paper that the author is aware of with a rigorous econometric framework that includes CIS economies is Kinoshita and Campos (2004). A panel dataset covering 25 CEE and CIS economies between 1990 and 1998 is used. Similarly, to Carstensen and Toubal (2004), the

paper takes advantage of the GMM technique and finds that determinants such as labour costs, natural resource abundance and institutions are important for FDI inflows.

Since the focus of this paper lies on how host country characteristics are related to FDI inflows, the effects of ownership and internalisation advantages on FDI are not discussed. The question is which location advantages that should be included. The paper distinguishes between 'traditional' determinants based on the motive for FDI and transition-specific determinants. Section 3.3 motivates the choice of explanatory variables.

3.3 Traditional determinants of FDI

The motivation that MNEs have for performing FDI in a host country provides indications of what determinants which are likely to be important. This section takes into account three major types of FDI: market-seeking, efficiency-seeking and resource-seeking. These types of FDI are attracted by a large local market demand, low production costs and natural resource abundance, respectively. The host country characteristics therefore affect both the type of FDI and the volume of inflows. The effect of the distance between the source and the host country should differ between the three types of FDI.

Market demand and market-seeking FDI

An important reason for an MNE to perform direct investment is the so-called market-seeking objective. A market-seeking MNE invests in order to serve the host country demand for goods resulting in horisontal FDI, where the same production activities are replicated in several locations to satisfy local market demand. There are two possible influences of market demand on FDI inflows. The first is obviously the size of the market, as it can be measured by absolute GDP. The second influence can be argued to come from the 'quality' of the market demand. A measure of this quality can be represented by GDP per capita. A higher GDP per capita implies a larger host country demand for more advanced types of goods of a higher quality. More developed transition economies should therefore be able to attract larger volumes of FDI, since MNEs will find it easier to sell their products in these markets. Explanatory variables functioning as proxies for the size of market demand have turned out to have a significant

positive effect on the volume of FDI inflows in most studies of host country determinants of FDI. Examples include Culem (1988), Grosse and Trevino (1996) and Brenton et al. (1999).

It is likely that market demand has explanatory power for the observed differences in FDI inflows between the transition economies. Table 3.2 tries to investigate this by presenting the cumulative FDI inflows per capita that were used in Table 2.4 as well as GDP per capita and absolute GDP for the CEE economies. The economies have been ranked according to FDI inflows per capita.

Table 3.2 Cumulative FDI inflows per capita, GDP per capita and absolute GDP for the CEE economies

Country	Cumulative FDI inflows 1989-2003, per capita, USD	GDP per capita in 2003, USD	Absolute GDP in 2002, millions of USD
Czech Rep.	3 710 (1)	8 708 (1)	73 042 (2)
Hungary	3 364 (2)	8 281 (2)	65 949 (3)
Estonia	2 402 (3)	6 720 (3)	7 056 (11)
Slovakia	1 894 (4)	6 045 (5)	24 194 (5)
Croatia	1 857 (5)	6 518 (4)	22 967 (6)
Slovenia	1 647 (6)	5 726 (6)	21 732 (7)
Latvia	1 454 (7)	4 771 (9)	9 241 (10)
Poland	1 355 (8)	5 402 (7)	190 214 (1)
Lithuania	1 067 (9)	5 281 (8)	14 109 (9)
Bulgaria	795 (10)	2 531 (11)	15 813 (8)
Macedonia	501 (11)	2 341 (12)	3 868 (13)
Romania	486 (12)	2 624 (10)	47 031 (4)
Albania	352 (13)	1 942 (13)	4 763 (12)
Average	1 606	5 145	38 460

Source: EBRD (2004)

Table 3.2 indicates that CEE economies that have received large inflows of FDI also tend to have a high GDP per capita. FDI and GDP per capita are indeed highly correlated; the correlation coefficient is 0.95 and is significant at the 1 per cent level. There does not appear to be a strong relationship between FDI inflows per capita and the size of absolute GDP, the

correlation coefficient is not significant. Table 3.3 presents the same data for the CIS economies.

Table 3.3 Cumulative FDI inflows per capita, GDP per capita and absolute GDP for the CIS economies

Country	Cumulative FDI inflows 1989-2003 per capita, USD	GDP per capita in 2003, USD	Absolute GDP in 2002, millions of USD
Kazakhstan	1 094 (1)	2 069 (2)	24 671 (3)
Azerbaijan	873 (2)	864 (6)	6 070 (6)
Armenia	277 (3)	896 (5)	2 431 (9)
Georgia	272 (4)	854 (7)	3 802 (7)
Turkmenistan	269 (5)	727 (8)	3 166 (8)
Moldova	210 (6)	451 (9)	1 623 (11)
Belarus	200 (7)	1 767 (3)	14 577 (4)
Ukraine	128 (8)	1 024 (4)	42 386 (2)
Kyrgyzstan	85 (9)	395 (10)	1 670 (10)
Uzbekistan	35 (10)	323 (11)	8 339 (5)
Tajikistan	34 (11)	239 (12)	1 172 (12)
Russia	31 (12)	2 987 (1)	343 031 (1)
Average	292	1 050	37 745

Source: EBRD (2004)

Russia has the highest GDP per capita and at the same time the smallest FDI inflow per capita. Kazakhstan has the second highest GDP per capita and the largest FDI inflow. There seems to be a weaker relationship between GDP per capita and FDI inflows for the CIS economies than the CEE economies. The correlation coefficient is 0.24 and is not significant. The correlation coefficient between FDI and absolute GDP is also insignificant.

Based on this discussion, we include proxies for market demand as explanatory variables in the panel data analysis. These variables will indicate the importance of market-seeking FDI in the transition economies.

Production costs and efficiency-seeking FDI

Efficiency-seeking FDI means that the MNE invests in order to reduce production costs. While market-seeking FDI results in horisontal investment, efficiency-seeking FDI implies vertical investment. The MNE divides the different stages of the production process between geographical locations in order to minimise production costs. For example, a production stage that is intensive in the use of unskilled labour should be located where unskilled labour is available at low cost. It was shown in Table 2.4 that the EU-15 economies strongly dominate the inflows of FDI to the transition economies. What can be said about the labour costs in the transition economies compared to the EU-15 economies? Table 3.4 presents data from EUROSTAT over labour costs in EU-15 and some of the CEE economies. The share of the labour cost in EU-15 is given in parenthesis for the CEE economies.

Table 3.4 Hourly labour costs in the manufacturing sector, EUR

Economy	1997	1999	2001	2003
EU-15	*20.75*	*21.91*	*22.88*	*24.97*
Czech Rep.	2.79 (0.13)	3.17 (0.14)	4.30 (0.19)	..
Estonia	2.05 (0.10)	2.43 (0.11)	3.01 (0.13)	3.64 (0.15)
Latvia	1.61 (0.08)	1.84 (0.08)	2.18 (0.10)	2.22 (0.09)
Hungary	2.85 (0.14)	3.05 (0.14)	3.95 (0.17)	4.88 (0.20)
Poland	3.04 (0.15)	3.57 (0.16)	4.66 (0.20)	..
Slovakia	2.51 (0.12)	2.59 (0.12)	3.14 (0.14)	3.88 (0.16)
Bulgaria	..	..	1.20 (0.05)	1.27 (0.05)
Romania	..	..	1.37 (0.06)	..

Source: EUROSTAT (2005)

Notes

".." indicates that data is not available

Table 3.4 suggests that labour costs in the CEE economies are much lower than in EU-15. In 1997, the hourly labour cost was only 15 per cent or less of the average labour cost in EU-15. Table 3.4 also clearly indicates that labour costs in the CEE economies are rising relative to EU-15. Labour market data for the CIS economies are scarce but data from ILO (2005) indicates that labour costs in the CIS economies are even lower than in the CEE economies.

Since the labour costs in the transition economies appear to be very low, it is likely that they would generate efficiency-seeking FDI from MNEs in countries that have higher labour costs such as the EU-15 economies. We try to take this into account by introducing an explanatory variable functioning as a proxy for labour costs.

Natural resource abundance and resource-seeking FDI

A firm that has a resource-seeking motive invests in order to exploit natural resources or agricultural production in the host country. Dunning (1983) argues that resource-seeking was the most important form of FDI that took place during the late nineteenth century. There is also reason to believe that resource-seeking is an important motive for FDI in some of the CIS economies. While the CEE economies generally lack important endowments of natural resources several of the CIS economies such as Kazakhstan and Russia, have large resources of oil and gas. Shiells (2003) suggests that this abundance of oil and gas is important in attracting FDI inflows. The earlier discussion related to Table 2.3 supports this hypothesis since the oil economies Azerbaijan and Kazakhstan have received substantially larger inflows of FDI than the other CIS economies. Consequently, in the empirical analysis we introduce a dummy variable for oil based on the discussion in Shiells (2003).

Distance

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Distance has long been used successfully as a variable in gravity models explaining international trade. In these models distance functions as a transport cost proxy but also as a proxy for the affinity between the trading economies. Affinity is determined by geographical proximity and similarities in culture and language. A high affinity implies that economic interaction between the economies (such as trade or FDI) can occur with reduced friction; see Johansson and Westin (1994). Distance has more recently been included as an explanatory variable in studies of FDI flows including papers focusing on transition economies, such as Kinoshita and Campos (2004).

How is distance related to FDI? Distance should have a negative effect on market-seeking FDI. Increasing distance implies lower affinity, resulting in higher costs of investment and more costly adaptions of goods to local preferences. Efficiency-seeking FDI is likely to be affected negatively by distance for the case where the components produced in the host country are shipped back to the source country, since transportation costs increase with distance. Distance can be argued to be relatively unimportant for resource-seeking investment. Resource-seeking MNEs are attracted to a limited number of geographical locations where the needed resource is available, diminishing the importance of distance for the investment decision. Consequently, a significant negative effect from distance would indicate market-seeking investment while an insignificant effect would provide support for resource-seeking FDI. We include distance as an explanatory variable in the empirical analysis to further investigate the motives for FDI in the transition economies.

3.4 Transition-specific determinants

Transition-specific determinants of FDI should be important for FDI inflows irrespective of whether FDI is market-, resource- or efficiency-seeking. This section argues that transition progress is fundamental for economies that want to attract FDI inflows. Furthermore, the section argues that the large scale privatisation that has occurred during transition and the severity of corruption should have an important effect on the size of FDI inflows an economy receives.

Transition performance

An explanation for the large differences in FDI inflows between CEE and CIS can be the variation in the speed and success of the transition process. Transition implies both democratic reforms resulting in an improvement of political freedom and civil liberties as well as economic reform (Fidrmuc, 2003). Transition as economic reform is the replacement of an administrative economic system by a market economy system, (EBRD, 1994). This type of change requires fundamental economic reforms, including macroeconomic stabilisation, price and market reform and large scale privatisation. The creation of a new economic system for generation and allocation of resources cannot be carried out unless these reforms have been successfully implemented. It is debatable whether the transition process in the Eastern European economies as of 2005 has been completed or not. Roland (2000, p XIX) argues that 'nobody can tell for sure how transitional the transition is or whether the countries engaged in this process will end up transformed into successful capitalist economies'.

How does the transition process affect an MNE's incentive to invest? A successful transition improves the conditions for MNEs to engage in profitable economic activities in the economy. The further a host economy has moved from being an administrative economy into being a market economy, the easier it will be for an MNE to operate profitably. Consequently, the conditions for MNE operations should improve and their incentives to invest should become stronger as transition progresses.

What factors should be taken into account when judging the progress of an economy's transition process? The EBRD tries to assess transition progress by constructing transition indicators. These indicators include measures of large- and small-scale privatisation of enterprises, restructuring of enterprises, price liberalisation, trade liberalisation, infrastructure, legal reform, the exchange system as well as financial indicators. The highest possible score for an indicator represents the standards and performance of advanced industrialised economies. The higher the score on a transition indicator, the closer the transition economy is to a market economy in that area.

Which of these indicators would be important for a multinational firm contemplating investment in a transition economy? Not all of the available indicators might be relevant for an MNE. Price liberalisation should be fundamental; the MNE does not want to be constrained by governmental price regulations. A situation where prices are controlled by the government would restrict the foreign firm's ability to operate. However, as of 2004, almost all of the economies in the region had achieved price liberalisation, (EBRD, 2004). Consequently, there is very little variation in this indicator between the individual economies limiting the explanatory

power. Since FDI implies production by the MNE in the host country, trade liberalisation and the foreign exchange system is also very important. The MNE wants to be able to export the goods it produces and also import intermediate goods to use in its production without restrictions, such as tariffs. It is also important that there exist well-established financial institutions providing full banking services and securities markets. Furthermore, the existence of a developed and effective infrastructure is necessary for the operations of an MNE since it reduces costs of distribution, transportation and production. Therefore, this paper argues that the following EBRD transition indicators are fundamental for MNE activities:

i)   trade and foreign exchange system

ii)   financial institutions

iii)   infrastructure

Based on these indicators, this paper constructs a measure of the transition progress (see Appendix C for details). The intention is that the transition progress measure should not represent transition performance in general but rather transition progress in areas of particular importance for MNE investment. The argument is that economies which have achieved a high score have come close to a market economy and, therefore, should be more attractive for foreign investment. Hence, they should also receive large inflows of FDI.

The interpretation of the constructed transition progress measure is somewhat arbitrary. The indicators that the measure is based on are given quite detailed interpretations by the EBRD.[4] However, for our purposes a score close to 17.2 on the transition progress measure represents approximately the same standard as in an industrialised market economy, while a score close to 4 indicates little progress from the conditions during central planning. Table 3.5 ranks the CEE economies according to the transition progress measure in 2003.

Table 3.5 Transition performance in CEE

Country	Transition progress measure 2003	Cumulative FDI inflows 1989-2003 per capita, USD

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[4]For a complete description, see EBRD (2004).

Hungary	15.7	3 364
Estonia	14.6	2 402
Poland	14.6	1 355
Czech Republic	14.3	3 710
Latvia	14.0	1 454
Croatia	13.4	1 857
Slovenia	13.3	1 647
Lithuania	13.0	1 067
Slovakia	13.0	1 894
Bulgaria	12.6	795
Romania	12.0	486
Macedonia	10.7	501
Albania	10.3	352
Average	13.2	1 606

Source: Constructed from EBRD (2004)

Table 3.5 shows that according to the transition progress measure, Hungary has come closest to the standards of a market economy. The table also indicates that there is a positive relationship between the transition progress measure and FDI inflows. The correlation coefficient is 0.78 and is significant at the 1 per cent level. Table 3.6 provides the same ranking for the CIS economies.

Table 3.6 Transition performance in CIS

Country	Transition progress measure 2003	Cumulative FDI inflows 1989-2003 per capita, USD
Armenia	10.9	277
Kazakhstan	10.9	1 094

Georgia	10.6	272
Moldova	10.6	210
Russia	10.3	31
Azerbaijan	10.0	873
Kyrgyzstan	9.9	85
Ukraine	9.3	128
Belarus	7.3	200
Uzbekistan	7.1	35
Tajikistan	7.0	34
Turkmenistan	4.0	269
Average	9.0	292

Source: Constructed from EBRD (2004)

Table 3.6 reveals that the average transition progress measure for the CIS economies is substantially lower than for the CEE economies. This implies that the CIS economies are lagging behind the CEE economies in the transition process. The correlation coefficient between the transition measure and FDI inflows is equal to 0.32 and is not significant. This suggests that transition progress cannot explain the differences in FDI inflows between individual CIS economies but that it could be used to explain the difference between the CEE and CIS groups.

An alternative for measuring the progress of transition towards market economy is to use the private sector share of GDP. The size of the private sector gives a rough indication of how far transition has come. The correlation coefficient between the transition progress measure and the private share of GDP is 0.85 and is significant at the 1 per cent level providing an indication that our transition progress measure is reasonable as a proxy for transition. Consequently, we use the transition progress measure as an explanatory variable in the empirical analysis.

Privatisation and privatisation methods

Private ownership is a cornerstone of a market economy, and privatisation of state-owned enterprises constitutes a fundamental part of the transition-process. Privatisation is important in order to increase the efficiency of the previously state-owned enterprises through creating conditions for the start of a restructuring process, Roland (2000). Aghion and Carlin (1996) argue that the choice of privatisation method has a large impact on the conditions for successfully restructuring the formerly state-owned firms. For the purposes of this paper, it is interesting to note that the privatisation process itself creates opportunities for attracting FDI according to the privatisation method that is used in a host country. Holland and Pain (1998) found that the chosen method of privatisation is fundamental for the size of FDI inflows. Carstensen and Toubal (2004) also concluded that the level and method of privatisation had a significant effect on FDI flows.

The most delicate decision, and the decision which ultimately determines the impact of privatisation on FDI inflows, is the decision on how to distribute the shares to new owners. According to OECD (2002), public offerings, where shares are sold to institutional investors and to individuals, have dominated as a privatisation method in developed economies. The lack of functioning capital markets and the small individual savings in the transition economies mean that for these economies the major part of privatisation has to be organised using alternative methods, Graham (2003). As argued by Brada (1996), all transition economies have used more than one method and consequently it is problematic to divide the economies according to the chosen method of privatisation.

According to the World Bank (1997), the most important methods are direct sales to outsiders, voucher-based mass privatisation and so-called management and employee buyouts (MEBOs). Holland and Pain (1998) found that the method that has the largest effect on FDI inflows is direct sales to outside owners. Direct sale implies that each state-owned firm is prepared individually and sold to domestic or foreign investors.

A comparison between Hungary and Poland might be instructive in showing the importance of privatisation for FDI inflows. Direct sales to outside owners have been important for the privatisation process in both of these economies according to the World Bank (1996). Therefore, the amount of privatisation that takes place during a year should affect the size of FDI inflows during the same year. Table 3.7 presents the inflows of FDI to Poland and Hungary along with the cumulative revenues from privatisation as a share of GDP.

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Table 3.7 Inflows of FDI and privatisation revenues for Hungary and Poland

Country	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Hungary										
Privatisation revenues (cum. in per cent of GDP)	3.9	8.7	12.7	20.8	23.4	27.5	28.6	29.8	30.2	30.6
Inflows of FDI, millions of USD	1 471	2 328	1 097	4 410	3 295	3 719	3 065	3 065	2 191	3 580
Poland										
Privatisation revenues (cum. in per cent of GDP)	0.4	0.9	1.7	2.6	3.6	5.1	6.6	7.9	11.6	12.5
Inflows of FDI, millions of USD	284	580	1 846	3 617	4 445	4 863	6 049	7 239	9 324	5 802

Source: EBRD (2001) and EBRD (2004) Table A.3.9 and Country assessments

Hungary managed to attract substantial inflows already in 1992 and 1993 while Poland did not. Hungary had a fast privatisation already during the early years of transition while the process was more gradual in Poland. According to EBRD (2001), large scale privatisation in Hungary began as early as 1990. This should be an important explanation for the differences in inflows during the first years. The FDI inflows into Hungary reached a peak in 1995 and then decreased sharply and stabilised on a lower level. In 1995, the cumulative privatisation revenues in Hungary as share of GDP almost doubled. After 1995, the privatisation revenue share of GDP increased at a slower rate whereas the inflows of FDI to Hungary decreased. This is likely to be an indication of the once-off effect of privatisation; when the major part of privatisation has been completed, an important motive for FDI inflows disappears. The argument is supported by the data for Poland, which also show a strong increase in inflows a few years later, delayed due to a slower pace of privatisation.

It can be concluded that the timing and method of privatisation should have a strong effect on the amount of FDI inflows that a transition economy receives. In order to analyse the relationship more formally, a dummy variable for a transition economy's primary privatisation method is included among the explanatory variables.

Corruption

Several studies have pointed to the severity of corruption in the transition economies; see for example EBRD (1999). Previous studies of the relationship between corruption and FDI, such as Wei (2000) and Smarzynska and Wei (2000) indicate that host country corruption can have a negative effect on the volume of FDI inflows since it increases the costs of operation in the host country for MNEs and reduces the profitability of investment. Chapter 3 of this dissertation concluded that host country corruption reduces FDI inflows. Table 3.8 presents some data for Transparency International's Corruption Perceptions Index (TI). The TI ranges from 0 to 10, where 10 equals a perfectly clean country while 0 indicates a country where business transactions are entirely dominated by corruption. The TI is a composite index and is based on several different sources in the form of surveys of business people and assessments by country analysts.[5] We believe that the TI is a suitable proxy for the severity of corruption since the

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[5]The Corruption Perceptions Index is described in more detail in Chapter 3 of this dissertation as well as in Transparency International and the University of Passau (2004).

incorporation of surveys of business people imply that the effect of corruption on business operations is taken into account.

Table 3.8 Corruption Perceptions Index (TI)

Country / country group	TI score 2004
Countries	
Czech Republic	4.2
Estonia	6.0
Hungary	4.8
Kazakhstan	2.2
Poland	3.5
Russia	2.8
Ukraine	2.2
Country groups	
CEE	4.1
CIS	2.4
Developed economies[a]	7.9
EU-15	7.7
Scandinavia[b]	9.3

Source: Transparency International (2004)

Notes

a: Includes the countries in the EU-15 group and Australia, Canada, Iceland, Israel, Japan, New Zeeland, Norway, Switzerland and the United States.
b: Denmark, Iceland, Norway and Sweden.

Table 3.8 reveals that corruption indeed is perceived to be substantially higher in the transition economies than in western economies. In many of the CIS economies, for example Russia and Ukraine, corruption is perceived to be very high. Table 3.8 also indicates that corruption is more

severe in the CIS group than in the CEE group. It is reasonable to assume that such a high level of corruption should reduce the inflows of FDI that these economies receive. Accordingly, we use the Corruption Perceptions Index as an explanatory variable in the empirical analysis.

4. Empirical analysis

Section 4.1 describes the data that are used and Section 4.2 presents the empirical analysis.

4.1 Data

Empirical studies of transition economies are plagued by short time series. Data are generally only available for a little more than ten years. To maximise the number of observations, this paper uses panel data. Annual data for total FDI inflows during the period 1993 to 2003 for 25 transition economies results in approximately 270 observations.[6] Unfortunately, data for bilateral flows of FDI are not available. Due to missing data, we have an unbalanced panel. The paper distinguishes itself from earlier studies by using data for both the CEE and the CIS economies. Including the CIS economies also introduces more variation to the data, possibly providing better opportunities to distinguish between efficiency-seeking, market-seeking and resource-seeking motives for FDI.

It was argued in Section 3 that both traditional determinants of FDI based on the motive for investment and transition-specific determinants of FDI should be important when analysing the FDI inflows to Eastern Europe. Section 3 motivates the choice of explanatory variables. Table 4.1 describes the variables used in the empirical study. Appendix D provides a correlation matrix for the explanatory variables while Appendix E presents summary statistics.

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[6]FDI data for earlier years exist but are too scattered to motivate inclusion.

Table 4.1 Regression variables

Variable	Explanation	Data source and period	*Expected sign of coefficient*
Dependent variable			
FDI	FDI inflows, millions of dollars	EBRD (2004), 1993-2003	*na*
Traditional independent variables			
DIST	Distance between host country capital and Brussels, kilometers	CEPII (2005)	-
GDPPC	GDP per capita, proxy for market demand	EBRD: Transition report various issues, 1993-2003	+
OIL	Dummy variable. Proxy for oil and gas abundance, equal to 1 for Azerbaijan, Kazakhstan, Russia and Turkmenistan, zero otherwise	Based on Shiells (2003), 1993-2003	+
OILPROD	Production of crude oil in thousand barrels per day. Proxy for abundance of oil in host country	EIA (2005), 1993-2003	+
POP	Host country population in millions, proxy for market demand	EBRD: Transition report various issues, 1993-2002	+
WAGE	Annual host country wage in manufacturing as a share of annual GDP per capita	Based on wage data from ILO (2005) and GDP per capita data from EBRD, 1995-2002	-
Transition-specific independent variables			
CORRUPT	Corruption Perceptions Index (TI)	Transparency International (2004), 1996-2003	-

PRIVMETHOD	Dummy variable, equal to 1 for transition economies that have used direct sales as the primary privatisation method	Based on evaluation in EBRD (2004), 1993-2003	+
TRAN	*Transition progress measure, proxy for transition performance in the host country*	*Constructed based on indicators in EBRD (2004), see Appendix C, 1993-2003*	+

The dependent variable is FDI inflows per year in millions of USD. Data are collected from the EBRD. Alternative sources of FDI data are available but it seems reasonable to use the data presented by EBRD since this institution focuses exclusively on the European transition economies. The FDI data from EBRD is based on data from the IMF, central banks as well as on EBRD's own estimates.

The data presented in Table 2.4 show that the EU-15 economies strongly dominate the inflows of FDI to most of the transition economies. Therefore the distance in kilometers between Brussels and the host country capital is used as a proxy for interaction costs and affinity, where strong affinity implies low interaction costs. DIST is expected to have a negative effect on FDI inflows for a situation where market-seeking or efficiency-seeking investments dominate.

The remaining five traditional variables are based on the MNE motives for FDI. POP and GDPPC function as proxies for market demand in the host country. Both are expected to affect FDI inflows positively, because a larger market generates a larger inflow of market-seeking FDI as discussed in Section 3. The paper uses population rather than GDP to reflect market size. The large fall in output that characterised the first years of transition could result in a strange relationship between GDP and FDI inflows. Moreover, using population rather than GDP as a proxy for market size reduces the problems of co-linearity between the explanatory variables.

Resource-seeking FDI is likely to be important for some of the transition economies due to oil abundance. Shiells (2003) suggests that among the CIS economies, Azerbaijan, Kazakhstan, Russia and Turkmenistan should be classified as energy exporters. Consequently, we introduce OIL, a dummy variable that takes the value of 1 for these four economies. The idea is to investigate whether large endowments of natural resources in a host country attract FDI inflows. We also experiment with the variable OILPROD, which functions as an alternative proxy for the abundance of oil in the host country and is represented by the produced volume of crude oil.

WAGE is host country annual wage in manufacturing as share of GDP per capita and is included in order to determine whether FDI inflows are affected by differences in labour costs. Low wages would create incentives for efficiency-seeking FDI that is performed in order to minimise production costs, and we, therefore, expect WAGE to have a negative effect on FDI inflows.[7] The data for wages are collected from ILO and have been converted from local currency to U.S. dollars. Unfortunately, only 140 observations are available.

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[7]We also experimented with an explanatory variable based on labour costs data but dropped it due to the small number of observations.

The transition-specific variables are included in order to take the special characteristics of the transition economies into account. Section 3.3 argued that transition progress, privatisation method and the severity of corruption should be important for the volume of FDI inflows. The TRAN variable is used as a proxy for transition performance and is represented by the transition progress measure which has been constructed in this paper (see Appendix C for details). PRIVMETHOD is a dummy variable. Holland and Pain (1998) argue that direct sales privatisation has the largest affect on inflow of FDI. Accordingly, we let PRIVMETHOD take a value of 1 for economies that have used direct sales as the primary privatisation method and zero otherwise. CORRUPT is used in order to try to take into account the effects of host country corruption on FDI inflows. The Corruption Perceptions Index is used as a proxy for host country corruption. For the empirical analysis, we transform the index so that high index values correspond to a large amount of corruption.[8] Corruption is expected to have a negative effect on a country's ability to attract FDI. The transition-specific variables should be important for FDI flows irrespective of the motive for investment.

4.2 Model and regression analysis

A fixed effects panel data model (FEM) is used.[9] The intercept is allowed to vary between countries but does not vary over time while the slope coefficients are assumed to be constant across countries. Such a fixed effects model allows FDI inflows to vary between host countries, while the determinants of FDI inflows should have a similar effect on all economies. The baseline fixed effects model can be expressed as:

$$
\begin{aligned}
FDI_{jt} = {} & \beta_{1j} + \beta_2 DIST_j + \beta_3 POP_{jt} + \beta_4 GDPPC_{jt} + \beta_5 OIL_j \\
& + \beta_6 OILPROD_{jt} + \beta_7 WAGE_{jt} + \beta_8 TRAN_{jt} + \beta_9 PRIVMETHOD_{jt} \\
& + \beta_{10} CORRUPT_{jt} + \varepsilon_{jt}
\end{aligned}
\tag{1}
$$

where FDI_{jt} denotes FDI inflows to country j at time t, $DIST_j$ is the distance between the capital of country j and Brussels, POP_{jt} is the population, OIL_j is a dummy variable, $OILPROD_{jt}$ is the production of crude oil, $WAGE_{jt}$ represents the labour costs, $TRAN_{jt}$ is the transition progress

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[8]The transformation is CORRUPT = 11 – TI.
[9]Using a random effects model or a pooled OLS model rather than a fixed effects model generally does not change the empirical results of the paper.

measure, PRIVMETHOD$_{jt}$ is a dummy variable for country j's primary privatisation method and CORRUPT$_{jt}$ is the TI index functioning as a proxy for host country corruption and ε_{jt} is the disturbance term

Since we are not sure what the 'true' model explaining FDI inflows to the transition economies looks like, we try different combinations of the independent variables. In addition to the fixed effects model, the study has employed identical specifications using a random effects model as well as a pooled OLS model. The results are similar to the fixed effects model (these results are not reported).

The test statistics for the slope parameters are calculated by using the White heteroscedasticity consistent variance estimator. No indications of autocorrelation problems were found. We start by analysing the effects of the traditional variables on FDI inflows. Table 4.2 presents the results for the total dataset of 25 economies.

Table 4.2 Traditional variables, fixed effects for total dataset

Independent variable	(1) FEM	(2) FEM	(3) FEM	(4) FEM	(5) FEM
POP	8.597 (2.65)***	7.390 (2.31)**	44.705 (1.99)**	8.809 (2.53)**	7.893 (2.31)**
GDPPC	0.260 (4.18)***		0.231 (3.37)***	0.258 (4.17)***	0.228 (3.18)***
DIST		-0.271 (-5.04)***			-0.815E-01 (-1.77)*
WAGE			-416.049 (-3.118)***		
OIL				-41.732 (-0.26)	99.081 (0.67)
R^2	0.22	0.15	0.30	0.22	0.23
Adjusted R^2	0.19	0.11	0.24	0.18	0.18
N	248	248	140	248	248

Note: t-statistics within parenthesis. The symbols *, ** and *** denote statistical significance at the 10, 5 and 1 per cent level, respectively.

For the first specification, we use the two variables functioning as proxies for market demand; POP and GDPPC. Both variables are significant at the 1 per cent level and have the expected positive sign; a larger host country market attracts larger volumes of FDI inflows providing support for market-seeking FDI.

The second specification includes the DIST variable. When DIST is run along with POP and GDPPC it is not significant, most likely due to the correlation between DIST and GDPPC (Appendix D). Therefore, Specification (2) only includes POP and the distance variable. The negative sign for the DIST coefficient provides further support for the importance of market-seeking FDI.

Specification (3) adds the WAGE variable. Unfortunately, the sample is reduced substantially to 140 observations. However, the WAGE variable is significant at the 1 per cent level and has the expected negative sign. There is a large increase in the size of the POP coefficient probably due to the substantial reduction in the number of observations. The negative sign of WAGE implies that labour costs are important for the volume of FDI inflows a transition economy receives, indicating that efficiency-seeking is also a motive for FDI.

The fourth specification adds the OIL dummy variable to analyse whether resource-seeking FDI is important for investment in the transition economies. OIL is insignificant and has the wrong sign. Consequently, there is no indication that abundance of natural resources in the form of oil and natural gas increases the volume of FDI inflows to the total group of transition economies. POP and GDPPC have the expected signs and are significant at the 5 and 1 per cent level respectively.

The last specification includes all the traditional variables except WAGE since we want to avoid reducing the number of observations. POP, GDPPC and DIST are all significant and have the expected signs but OIL is insignificant. The specification provides strong support for market-seeking FDI.

We now continue by analysing the transition-specific variables. The results are presented in Table 4.3 along with the 'full' specification that includes both traditional and transition-specific variables.

Table 4.3 Transition-specific variables and full specification, fixed effects for total dataset

Independent variable	(1) FEM	(2) FEM	(3) FEM
POP			8.280

	(1)	(2)	(3)
			(2.58)**
GDPPC			0.102
			(1.69)*
DIST			0.145E-01
			(0.37)
OIL			363.615
			(2.88)***
TRAN	224.603	400.327	201.764
	(6.92)***	(4.38)***	(6.11)***
PRIVMETHOD	315.497	209.379	426.298
	(1.91)*	(0.61)	(2.53)**
CORRUPT		206.066	
		(1.48)	
R^2	0.27	0.29	0.33
Adjusted R^2	0.23	0.22	0.29
N	273	122	248

Note: t-statistics within parenthesis. The symbols *, ** and *** denote statistical significance at the 10, 5 and 1 per cent level, respectively.

Specification (1) includes the variables TRAN and PRIVMETHOD. The TRAN variable proxying for transition performance is significant at the 1 per cent level and has the expected sign. PRIVMETHOD is significant at the ten per cent level and also has the expected positive sign. The interpretation is that economies which have made progress in transition and have used direct sales as the primary privatisation method attract larger FDI inflows.

The second specification adds the third of the transition-specific variables, CORRUPT. The number of observations is reduced to 122. CORRUPT is not significant and has the wrong sign. Various other specifications are tried but CORRUPT is always insignificant. The reduction of the number of observations and the strong correlation between CORRUPT and the other explanatory variables (Appendix D) motivate us to exclude it from further specifications for the total dataset.

The final, 'full', specification uses a combination of both traditional and transition-specific variables. POP, GDPPC, OIL, TRAN and PRIVMETHOD are all significant and have the correct signs. Only DIST is insignificant. Specification (3) appears to provide a fairly good indication of what determinants which are important for FDI inflows to the total group of transition economies. Both traditional and transition-specific determinants of FDI affect FDI

inflows. The inclusion of the transition-specific determinants results in an increase in adjusted R^2 from 0.18 to 0.29. Market-seeking seems to be particularly important.

The discussion in Section 2 and Section 3 shows that there are substantial differences in host country characteristics between the CEE and CIS country groups. Tables 2.2 and 2.3 reveal that the CEE economies have received substantially larger inflows of FDI. The CEE economies have come further in their transition process towards becoming market economies. These economies are also much closer to the important source countries of FDI than the CIS economies. Accordingly, we split the total dataset into two separate samples covering the CEE and CIS economies, respectively. Using separate samples makes it possible to analyse whether the motives for FDI differ between the CEE and CIS groups. Another advantage of using separate samples is that it reduces the correlation between the explanatory variables as can be seen in Appendix D. Basically, the same specifications as for the total dataset is used. The results for the CEE sample are presented in Tables 4.4 and 4.5.

Table 4.4 Traditional variables, fixed effects for CEE sample

Independent variable	(1) FEM	(2) FEM	(3) FEM	(4) FEM
POP	112.268 (7.55)***	104.030 (7.18)***	126.341 (7.89)***	127.642 (7.16)***
GDPPC	0.207 (3.44)***	-0.100 (-1.75)*		0.176 (3.10)***
DIST		-2.613 (-5.10)***		
WAGE			-393.400 (-0.759)	
OILPROD				-11.316 (-3.65)***
R^2	0.53	0.62	0.48	0.56
Adjusted R^2	0.48	0.58	0.42	0.52
N	130	130	93	130

Note: t-statistics within parenthesis. The symbols *, ** and *** denote statistical significance at the 10, 5 and 1 per cent level, respectively.

The first specification for the CEE sample exhibits similar results as for the total dataset. Both of the market demand proxies are significant at the 1 per cent level and the coefficients are positive, indicating a strong market-seeking motive for FDI to the CEE economies.

Specification (2) adds the distance variable. POP and DIST are significant at the 1 per cent level and have the expected signs. However, GDPPC is significant at the 10 per cent level but now has a negative sign, possibly due to correlation with the distance variable.

As before, trying to take into account the effect of host country wages is problematic. Inclusion of the WAGE variable in Specification (3) reduces the number of observations to 93. WAGE has the correct sign but is insignificant. There is, consequently, no indication that efficiency-seeking is important for FDI in the CEE economies.

The dummy variable OIL cannot be used for the CEE sample since it takes a value of zero for all CEE economies. As an alternative proxy we use the variable OILPROD, which represents the volume of oil production in a host country in the fourth specification. OILPROD is significant but the coefficient is negative. This is could be a result of Romania having by far the largest production of oil among the CEE economies while at the same time having only received small inflows of FDI. Obviously, the large inflows of FDI to the CEE group cannot be explained by resource-seeking. The proxy variables for market demand, POP and GDPPC are significant at the 1 per cent level.

We now turn to the transition-specific variables. Table 4.5 presents the results.

Table 4.5 Transition-specific variables and full specification, fixed effects for CEE sample

Independent variable	(1) FEM	(2) FEM	(3) FEM
POP		137.276 (7.14)***	98.171 (5.18)***
GDPPC			-0.201 (-3.02)***
DIST			-2.073 (-4.04)***
OILPROD			-5.614 (-1.62)
TRAN	596.874 (6.84)***		345.389 (3.59)***
PRIVMETHOD	-105.061		-278.138

	(-0.38)		(-1.09)
CORRUPT		-432.488	
		(-2.62)**	
R^2	0.34	0.48	0.66
Adjusted R^2	0.28	0.39	0.61
N	143	61	130

Note: t-statistics within parenthesis. The symbols *, ** and *** denote statistical significance at the 10, 5 and 1 per cent level, respectively.

Specification (1) uses the two transition-specific variables TRAN and PRIVMETHOD. TRAN is positive and significant at the 1 per cent level but PRIVMETHOD is insignificant and also has the wrong sign. The CEE sample may have too little variation with regard to PRIVMETHOD.

The second specification includes POP and CORRUPT. As for the total dataset, CORRUPT substantially reduces the number of observations and suffers from correlation with other explanatory variables, especially GDPPC and TRAN. Accordingly, Specification (2) includes only POP and CORRUPT since these variables are uncorrelated in the CEE sample. POP is still significant at the 1 per cent level while CORRUPT is significant at the 5 per cent level and has the expected negative sign, indicating that host country corruption indeed deters FDI inflows.

The final specification uses both the traditional and the transition-specific variables. POP, GDPPC, DIST and TRAN are all significant at the 1 per cent level and have the expected signs. OILPROD and PRIVMETHOD are insignificant. The adjusted coefficient of determination is fairly high. Market-seeking appears to be the most important motive for FDI in the CEE economies. There was no indication that resource-seeking or efficiency-seeking is important for FDI inflows to the CEE. Progress in transition has a positive effect on FDI inflows as expected.

Finally, we turn to the CIS sample. Table 4.6 presents the results for the traditional variables.

Table 4.6 Traditional variables, fixed effects for CIS sample

Independent variable	(1) FEM	(2) FEM	(3) FEM	(4) FEM
POP	-2.671	-2.084	10.199	-2.143
	(-1.02)	(-0.88)	(3.89)***	(-0.94)
GDPPC	0.657	0.707		0.561

	(3.86)***	(4.40)***		(3.44)***
DIST		0.951E-01		0.562E-01
		(3.20)**		(1.99)**
WAGE			-197.037	
			(-2.85)***	
OIL				278.050
				(3.56)***
R^2	0.40	0.45	0.22	0.50
Adjusted R^2	0.33	0.39	0.04	0.43
N	118	118	47	118

Note: t-statistics within parenthesis. The symbols *, ** and *** denote statistical significance at the 10, 5 and 1 per cent level, respectively.

Unlike the total and CEE samples, POP is insignificant in the first specification. GDPPC is significant at the 1 per cent level and has a positive coefficient as expected. The fact that POP is insignificant indicates that local demand is unimportant for FDI inflows to the CIS economies.

Specification (2) adds the distance variable. DIST has an unexpected positive sign. A possible explanation is that some of the CIS economies that are located farthest away from the EU such as Azerbaijan and Kazakhstan also have received large inflows of FDI.

Data for wages are even scarcer for the CIS group than for the CEE group. Specification (3) reduces the number of observations to only 47. Both POP and WAGE are significant at the 1 per cent level and POP now has a positive sign. It is likely that this is a result of the dramatic decrease in number of observations.

Specification (4) adds the OIL-dummy variable to DIST and the two market demand variables. OIL is significant at the 1 per cent level and has a positive sign. However, for the total dataset and CEE sample, OIL and OILPROD were insignificant. The reason for OIL being insignificant for the total dataset is probably that the positive effect of oil resources on FDI inflows to the CIS economies is overpowered by several negative effects such as a slow transition process. The significance of the OIL variable suggests that resource-seeking is important for the distribution of FDI inflows among the CIS economies.

Table 4.7 presents the results for the transition-specific variables and the full specification.

Table 4.7 Transition-specific variables and full specification, fixed effects for CIS sample

Independent variable	(1)	(2)

	FEM	FEM
POP		-1.570
		(-0.76)
GDPPC		0.425
		(3.31)***
DIST		0.292E-01
		(1.20)
OIL		378.476
		(5.67)***
TRAN	68.502	62.997
	(2.99)***	(5.12)***
PRIVMETHOD	227.055	172.927
	(1.73)*	(2.76)**
R^2	0.12	0.57
Adjusted R^2	0.03	0.51
N	130	118

Note: t-statistics within parenthesis. The symbols *, ** and *** denote statistical significance at the 10, 5 and 1 per cent level, respectively.

The first specification uses the two transition-specific variables TRAN and PRIVMETHOD. The CORRUPT variable is excluded from the CIS sample due to a number of observations of only 37. CORRUPT was tried in several specifications but was always insignificant. TRAN and PRIVMETHOD are significant and have the expected positive signs implying that progress in transition and the choice of primary privatisation method has affected the volume of FDI to the CIS economies. However, adjusted R^2 is very low.

As for the previous two samples, the final specification is a combination of both traditional and transition-specific variables. All variables are significant and have the expected signs except POP and DIST. The combination of traditional and transition-specific variables seems to provide a plausible representation of FDI determinants for the CIS economies. The significance of the OIL variable indicates that resource-seeking dominates while the insignificance of the POP variable suggests that market-seeking is less important. The fact that distance does not affect FDI to the CIS negatively is further evidence of the importance of resource-seeking. If market-seeking or efficiency-seeking dominated we would expect distance to have a negative effect due to increasing costs for adaption of goods to local preferences and transport costs. Furthermore, the discussion in Section 2.3 and the data presented in Table 2.4 indicate that a

large share of FDI into the CIS economies originates in the United States rather than in EU-15 and consists of investments in the petroleum industry.

What general conclusions can be drawn based on the panel data analysis? Starting with the traditional variables, it seems that market-seeking is an important motive for FDI in the CEE economies but not in the CIS economies. Investigating the importance of efficiency-seeking is problematic since the WAGE variable suffers from a low number of observations and high correlation with other independent variables. Despite this it was found to have a significant negative effect on FDI inflows in one specification for the total dataset and one for the CIS sample.

It seems that host country abundance of oil cannot explain differences in FDI inflows for the CEE group of transition economies but that it is important in explaining the differences in the CIS economies' ability to attract FDI. The OILPROD variable that was used as an alternative to OIL for the CEE sample was significant but had the wrong sign. Therefore, resource-seeking as a motive for FDI seems to be limited to the CIS group.

Turning to the transition-specific variables, both transition progress and privatisation method were in general helpful in explaining the volume of FDI inflows. The effects of corruption were difficult to analyse due to the low number of observations but was found to have a significant negative effect for the CEE sample. The transition-specific variables should affect FDI inflows in a similar way, irrespective of the type of FDI. For example, direct sales privatisation could attract both market-, efficiency- and resource-seeking FDI depending on the activity of the firm to be privatised.

5. Conclusions and discussion

The presentation of data in Section 2 proves that the large differences between individual transition economies' ability to attract FDI inflows that was apparent during the early years of transition have continued during the second half of the 1990s and the beginning of the 2000s. The distribution of FDI inflows has resulted in large differences in FDI stocks among the transition economies as described in Tables 2.4 and 2.5. The Czech Republic, Hungary and Estonia have been able to generate the largest inflows of foreign direct investment. Russia, along with most of the other CIS economies, has only attracted minimal amounts of investment.

The most successful CEE economies have received around 100 times more FDI per capita than the least successful CIS economies.

The empirical part of the paper tries to find determinants that can explain the differences in FDI inflows. The paper distinguishes between two main groups of determinants: 'traditional' and 'transition-specific'. The traditional determinants are based on three types of FDI, efficiency-seeking, market-seeking and resource-seeking, and are represented by proxies for market demand, production costs and natural resource abundance. The transition-specific variables include transition progress, privatisation method and corruption.

Using panel data and separating the dataset into a CEE sub-sample and a CIS sub-sample, the paper finds that the proxies for host country demand has a significant positive effect on FDI inflows except for the CIS sample. On the other hand, the variable functioning as proxy for natural resources is found to have a significant positive effect on FDI inflows to the CIS economies but not to the CEE economies. These results suggest market-seeking is an important motive for investment in the CEE economies but not in the CIS economies. Resource-seeking cannot explain the large FDI inflows to the CEE economies but is important for the distribution of FDI among the CIS economies.

As far as the transition-specific variables are concerned, the effects of these variables on FDI inflows should be independent of the type of FDI. In line with this argument, the analysis shows that these variables affect both the FDI inflows to the CEE and the CIS economies. Transition progress is particularly important while the choice of primary privatisation method has a significant effect on FDI flows to the total group of economies and the CIS economies but not to the CEE economies. The effect of host country corruption is difficult to analyse due to the large reduction in the number of observations and the strong correlation between the index used as a proxy for corruption and several of the other explanatory variables. Only one significant relationship (negative) between corrupt and FDI inflows was found for the CEE sample.

The analysis suggests that the larger inflows of FDI to the CEE economies than the CIS economies primarily can be explained by better opportunities for market-seeking investment due to stronger host country demand, a faster transition process and possibly less problems of corruption. What about the distribution of FDI between the CIS economies? While the majority of the CIS economies suffer from limited local demand for goods, a slow transition process and problems of corruption it appears that the two CIS economies that have succeeded in attracting FDI, Kazakhstan and Azerbaijan, have been able to overcome these disadvantages thanks to

large resources of oil and natural gas, which have generated substantial volumes of resource-seeking FDI.

What policies could governments in the transition economies use in order to attract larger volumes of FDI? Government action is unlikely to be able to generate market-seeking FDI. Instead, governments should make sure that there is progress in transition. Furthermore, a proper organisation of the privatisation process can provide an important tool for maximising the inflows of FDI. Countries abundant in natural resources should not restrict foreign activities in this sector, should they want to take advantage of resource-seeking FDI.

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APPENDIX A

The EBRD uses the division of European transition economies described in Table A.1.

Table A.1

Central Eastern Europe and the Baltic States	South Eastern Europe	*Commonwealth of Independent States (CIS)*
Czech Republic	Albania	*Armenia*
Estonia	Bosnia Hercegovina	*Azerbaijan*
Hungary	Bulgaria	*Belarus*
Latvia	Croatia	*Georgia*
Lithuania	Macedonia	*Kazakhstan*
Poland	Romania	*Kyrgyz Republic*
Slovak Republic	Serbia and Montenegro	*Moldova*
Slovenia		*Russia*
		Tajikistan
		Turkmenistan
		Ukraine
		Uzbekistan

Due to lack of data, this paper excludes Bosnia Hercegovina and Serbia and Montenegro from the analysis resulting in a total dataset of 25 transition economies. For data presentation purposes, the remaining economies are divided into two sub-samples as described in Table A2.

Table A.2

Central and Eastern Europe (CEE)	*Commonwealth of Independent States (CIS)*
Albania	*Armenia*
Bulgaria	*Azerbaijan*
Croatia	*Belarus*
Czech Republic	*Georgia*
Estonia	*Kazakhstan*
Macedonia	*Kyrgyz Republic*

Hungary	*Moldova*
Latvia	*Russia*
Lithuania	*Tajikistan*
Poland	*Turkmenistan*
Romania	*Ukraine*
Slovak Republic	*Uzbekistan*
Slovenia	

APPENDIX B Absolute FDI inflows

Table B.1 FDI inflows into CEE, millions of USD

Country	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003[a]
Albania	20	45	65	89	97	42	45	51	143	204	135	178
Bulgaria	42	40	105	98	138	507	537	789	1 003	641	876	1 398
Croatia	13	102	110	109	486	347	835	1 420	1 085	1407	591	1 700
Czech Rep	983	563	749	2 526	1 276	1 275	3 591	6 234	4 943	5476	8 276	2 351
Estonia	80	156	212	199	111	130	574	222	324	342	153	743
Macedonia	0	0	24	12	12	18	118	32	176	439	77	94
Hungary	1 471	2 328	1 097	4 410	3 295	3 719	3 065	3 065	2 191	3 580	2 590	874
Latvia	..	50	279	245	379	515	303	331	401	170	374	328
Lithuania	..	30	31	72	152	328	921	478	375	439	715	142
Poland	284	580	1 846	3 617	4 445	4 863	6 049	7 239	9 234	5 802	3 901	3 839
Romania	73	87	341	417	415	1 267	2 079	1 025	1 051	1 154	1 080	1 528
Slovakia	100	107	236	194	199	84	374	701	2 058	1 460	4 007	549
Slovenia	113	111	129	161	167	303	221	59	71	371	1 748	-118
Total	3 179	4 199	5 224	12 149	11 172	13 398	18 712	21 646	23 055	21 485	24 523	13 606

Source: EBRD (2004), Table A.2.8

".." indicates that data is not available

Negative figures indicate disinvestment; foreign owned facilities have been closed down

a: Data for 2003 is an estimate.

Table B.2 FDI inflows into CIS, millions of USD

Country	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003[a]
Armenia	0	1	8	25	18	52	221	122	104	70	111	136
Azer-baijan	..	0	22	330	627	1 115	1 023	510	149	299	1 048	2 090
Belarus	..	18	11	15	105	350	201	443	119	96	453	170
Georgia	..	0	8	6	54	236	221	62	153	80	130	306
Kazakh-stan	100	473	635	964	1 137	1 320	1 143	1 468	1 278	2 861	2 164	2 188
Kyrgyz-stan	..	10	38	96	47	83	87	38	-7	-1	5	17
Moldova	17	14	18	73	23	78	76	154	128	147	117	48
Russia	..	..	408	1 460	1 656	1 681	1 492	1 102	-463	216	-72	-3 002
Tajiki-	9	9	12	10	18	18	25	21	24	9	36	32

stan												
Turk-menistan	..	79	103	233	108	108	62	125	131	170	276	218
Ukraine	..	..	151	257	516	581	747	489	594	769	698	1 411
Uzbeki-stan	9	48	73	-24	90	167	140	121	75	83	65	70
Total	135	652	1 487	3 445	4 399	5 789	5 438	4 655	2 285	4 799	5 031	3 684

Source: EBRD (2004), Table A.2.8

Table B.3 Per capita FDI inflows into CEE, USD

Country	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003[a]
Albania	6	14	20	28	29	12	15	17	46	66	42	56
Bulgaria	5	5	13	12	17	61	65	96	124	79	112	179
Croatia	3	22	24	23	108	75	186	309	247	313	134	386
Czech Rep.	95	55	73	245	124	124	349	605	480	532	804	228
Estonia	53	104	141	133	74	87	410	159	231	244	109	531

Macedonia	0	0	12	6	6	9	59	16	88	220	39	47
Hungary	143	226	108	432	323	368	304	304	219	351	259	87
Latvia	..	19	112	98	152	206	126	138	167	74	163	143
Lithuania	..	8	8	20	41	89	249	137	107	125	204	41
Poland	7	15	48	94	115	126	156	187	239	150	102	100
Romania	3	4	15	18	18	56	92	46	47	52	50	70
Slovak Rep.	19	20	45	36	37	16	69	130	381	270	742	102
Slovenia	57	56	65	81	84	152	111	30	36	186	874	neg

Source: Calculated based on EBRD (2004), Table A.3.9 and population data from EBRD, various issues

Notes

".." indicates that data is not available

"neg." indicates disinvestment

a: Data for 2003 is an estimate.

Table B.4 Per capita FDI inflows into CIS, USD

Country	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003[a]
Armenia	0	<1	2	7	5	14	58	39	34	23	37	44
Azerbaijan	..	0	3	43	80	141	128	64	19	37	128	252
Belarus	..	2	1	2	10	34	20	44	12	10	46	17
Georgia	..	0	2	1	19	65	37	12	33	17	28	67
Kazakhstan	6	28	39	60	72	85	74	99	86	193	145	152
Kyrgyzstan	..	2	8	21	10	18	19	8	neg	neg	1	4
Moldova	4	3	4	17	5	18	18	36	30	34	27	11
Russia	..	..	3	10	11	11	10	8	neg	2	neg	neg
Tajikistan	2	2	2	2	3	3	4	3	4	1	6	5
Turkmenistan	..	20	26	52	24	24	13	24	24	30	48	36
Ukraine	..	..	3	5	10	12	15	10	12	16	14	29
Uzbekistan	<1	2	3	neg	4	3	6	5	3	3	3	3

Source: EBRD (2004), Table A.2.8

Notes

".." indicates that data is not available

Negative figures indicate disinvestment, foreign owned facilities have been closed down

a: Data for 2003 is an estimate.

APPENDIX C: The construction of the transition progress measure

The following four EBRD indicators (EBRD, 2004) are included in the transition progress measure:

- Index of infrastructure reform

- Index of forex and trade liberalisation

- Index of banking sector reform

- Index of reform of non-bank financial institutions

To get the transition progress measure, the EBRD values for the four included indicators are added. The result ranges from a minimum value of 4 and a maximum value of 17.2. A value close to 4 indicates little progress from the standard of a planned economy while a value close to 17.2 indicates the same standard as in an industrialised market economy. Detailed descriptions of the EBRD indicators are provided in EBRD (2004).

APPENDIX D Correlation matrices

Table D.1 Correlation matrix for total dataset

Variable	GDPPC	WAGE	OIL	POP	PRIV-METHOD	TRAN	CORRUPT	DISTANCE
GDPPC	1							
WAGE	-0.314**	1						
OIL	-0.210*	0.035	1					
POP	-0.049	-0.075	0.416**	1				
PRIV-METHOD	0.084	-0.282**	-0.094	-0.144*	1			
TRAN	0.689**	-0.323**	-0.340**	-0.057	0.308**	1		
CORRUPT	-0.756**	0.349**	0.430**	0.331**	-0.330**	-0.670**	1	
DIST	-0.594**	0.461**	0.447**	-0.019	0.018	-0.599**	0.611**	1

** indicates that correlation is significant at the 1 per cent level

* indicates that correlation is significant at the 5 per cent level

Table D.2 Correlation matrix for CEE sub-sample

Variable	GDPPC	WAGE	OILPROD	POP	PRIV-METHOD	TRAN	CORRUPT	DISTANCE
GDPPC	1							
WAGE	0.107	1						
OILPROD	-0.193*	-0.012	1					
POP	-0.065	-0.119	0.416**	1				
PRIVMETHOD	-0.064	-0.166	-0.253**	0.205*	1			
TRAN	0.618**	-0.214*	-0.104	0.230**	0.385**	1		
CORRUPT	-0.627**	-0.025	0.351**	0.070	-0.186	-0.663**	1	
DIST	-0.697**	-0.170	0.293**	-0.046	0.017	-0.409**	0.373**	1

** indicates that correlation is significant at the 1 per cent level

* indicates that correlation is significant at the 5 per cent level

Table D.3 Correlation matrix for CIS sub-sample

Variable	GDPPC	WAGE	OIL	POP	PRIV-METHOD	TRAN	CORRUPT	DISTANCE
GDPPC	1							
WAGE	-0.409**	1						
OIL	0.474**	-0.308*	1					
POP	0.730**	-0.149	0.362**	1				
PRIVMETHOD	-0.082	-0.353*	0.000	-0.224*	1			
TRAN	0.338**	0.307*	-0.066	0.171	0.071	1		
CORRUPT	-0.230	-0.332	0.280	0.155	0.017	0.349*	1	

| DIST | -0.332** | 0.152 | 0.185* | -0.348** | 0.428** | -0.160 | 0.356* | 1 |

** indicates that correlation is significant at the 1 per cent level

* indicates that correlation is significant at the 5 per cent level

APPENDIX E Summary statistics

Table E.1 Summary statistics, total dataset

Variable	Variable cases	Mean	Standard deviation	Minimum	*Maximum*
CORRUPT	122	6.48	1.20	4.00	*8.50*
DIST	275	2 396.28	1 493.14	718.00	*5 345.00*
FDI	273	772.62	1 415.90	-3 002.00	*9 324.00*
GDPPC	275	2 258.09	2 342.17	106.00	*13 894.00*
OIL	275	0.16	0.37	0.00	*1.00*
POP	250	15.88	29.22	1.36	*148.52*
PRIV-METHOD	275	0.35	0.48	0.00	*1.00*
TRAN	275	9.71	2.96	4.00	*15.70*
WAGE	*140*	*1.11*	*0.53*	*0.58*	*3.76*

Table E.2 Summary statistics, CEE sub-sample

Variable	Variable cases	Mean	Standard deviation	Minimum	*Maximum*
CORRUPT	74	5.83	1.01	4.00	*7.70*
DIST	143	1 318.77	333.61	718.00	*1 774.00*
FDI	143	1 183.64	1 770.15	-118.00	*9 324.00*
GDPPC	143	3 664.12	2 470.89	375.00	*13 894.00*
OILPROD	143	16.66	34.09	0.00	*137.80*
POP	130	8.80	10.26	1.36	*38.67*
PRIV-METHOD	143	0.45	0.50	0.00	*1.00*
TRAN	143	11.63	2.04	6.00	*15.70*
WAGE	*93*	*309.96*	*214.92*	*64.67*	*914.05*

Table E.3 Summary statistics, CIS sub-sample

Variable	Variable cases	Mean	Standard deviation	Minimum	*Maximum*
CORRUPT	48	7.48	0.67	5.20	*8.50*

DIST	132	3 563.58	1 379.19	1 602.00	*5 345.00*
FDI	130	320.49	620.23	-3 002.00	*2 861.00*
GDPPC	132	734.89	600.20	106.00	*2 987.00*
OIL	132	0.333	0.47	0.00	*1.00*
POP	120	23.55	39.48	3.07	*148.52*
PRIV-METHOD	132	0.25	0.43	0.00	*1.00*
TRAN	132	7.63	2.32	4.00	*11.30*
WAGE	*47*	*76.16*	*38.63*	*21.59*	*168.23*