EU enlargement and foreign direct investment into transition economies revisited *

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It is highly likely that EU accession negotiation had a large influence on foreign direct investment (FDI) into the Central and Eastern European countries involved therein. We found that as the membership talks progressed, the effect of attracting FDI to candidate states tended to increase gradually. It also became clear that EU member candidate countries experienced an adverse impact on FDI at the very final phase of the negotiation. This might have been due to the substantial revision of conventional FDI incentives, which most likely was the price paid for becoming new EU members. The relationship between the progress in the EU enlargement process and FDI received by the candidate countries was not a simple positive relationship, but followed a reverse J-shaped curve.

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1. Introduction

In January 2007, Bulgaria and Romania joined the European Union (EU), and the fifth enlargement of the EU was completed. A unified market boasting a total population of 491 million and a GDP of €10.9 trillion was established, surpassing that of the United States. It is considered that this grand political process, which spanned from the end of the Cold War to 2007, achieved its major goal, i.e. the establishment of a new broad European order embracing the former communist bloc with a relatively successful outcome.

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The EU enlargement brought economic benefits to candidate countries at the negotiation stage already prior to accession. The inflows of foreign direct investment (FDI) is a typical example. As shown in table 1, the cumulative FDI inflows into 21 Central and Eastern European countries (CEECs) and former Soviet states for the 17-year period from 1989 to 2005 reached a total of $375 billion, of which, 70.1 per cent ($263 billion) was concentrated in the ten new acceding countries. The total investment volume per capita of these ten new EU countries and 11 other non-EU countries stood at $2,571 and $482, respectively, the disparity being more than five-fold. This difference is statistically significant (*t* test: t=3.931, p=0.001; Wilcoxon rank-sum test: Z=3.380, p=0.001). As many researchers have emphasized, for former socialist countries that are trying to come out of the planned economy system, FDI from developed countries is not only a source of finance but also a powerful driving force in systemic transformation into a modern market economy (Estrin et al., 2000; Marinova and Marinov, 2003; Stephan, 2006; Dallago and Iwasaki, 2007).

Table 1. Regional distribution of FDI in 21 transition economies, 1989-2005

	Cumulative FDI inflow (millions of dollars)	Cumulative FDI inflow per capita (millions of dollars)	c.f. Total population (millions) *
Poland	75'733	1'985	38.2
Russian Federation	65'567	459	142.8
The Czech Republic	56'529	5'514	10.3
Hungary	56'294	5'587	10.1
Romania	23'977	1'110	21.6
Ukraine	16'236	348	46.7
Slovakia	14'248	2'644	5.4
Bulgaria	12'790	1'657	7.7
Croatia	12'538	2'822	4.4
Estonia	7'998	5'948	1.3
Lithuania	5'581	1'640	3.4
Serbia and Montenegro	5'429	662	8.2
Slovenia	5'193	2'592	2.0
Latvia	4'497	1'960	2.3
Georgia	2'383	530	4.5
Belarus	2'258	230	9.8
Bosnia and Herzegovina	2'058	528	3.9
Albania	1'680	536	3.1
Armenia	1'455	455	3.2
The former Yugoslav Republic of Macedonia	1'282	629	2.0
Republic of Moldova	1'145	318	3.6
Total of 21 countries	374'871	1'120	334.6
Ten new EU accession countries	262'840	2'571	102.2
Remaining 11 countries	112'031	482	232.3

Source: Authors' calculation based on public data of UNCTAD, the UN Statistic Division, EUROSTAT, and the Interstate Statistical Committee of the CIS.

Note: * Late 2005 or early 2006.

The close relationship between the fifth EU enlargement and FDI is shown in table 1. However, this is not a rigorous proof. As the traditional theory of international production teaches us, FDI is influenced by a variety of factors, including market proximity and country size. In this connection, some studies that has empirically examined the determinants of FDI into CEECs and former Soviet states conclude that EU accession talks have had a significant impact on FDI into candidate countries even after controlling for other underlying factors. As we will discuss later, however, the existing studies have a problem in the empirical methodology for estimating the FDI-promoting effect of EU Eastern enlargement. The objective of this paper is to re-examine the impact of the EU Eastern enlargement on FDI by studying the accession negotiation involving the EU and transition countries more closely and using an analytical method that can capture historical facts more realistically.

We found that, as the membership talks progressed, the effect of attracting FDI to candidate states tended to increase gradually. The empirical evidence further suggests that EU member candidate countries experienced an adverse impact on FDI at the very final phase of the political negotiation. This might have been due to the substantial revision of conventional FDI incentives, which most likely was the price paid for becoming new EU members. The relationship between the progress in the EU enlargement process and FDI received by the candidate countries was not a simple positive relationship, but followed a reverse J-shaped curve.

The remainder of this article is organized as follows. Section 2 traces the political phases of the EU enlargement process from the collapse of the Communist bloc up to the 2007 accession of Bulgaria and Romania. Section 3 theoretically examines the impact of the EU accession negotiation talks on promoting FDI. Section 4 empirically verifies the theoretical hypothesis, and section 5 concludes the paper.

2. Political journey of EU Eastern enlargement[1]

In empirically re-examining the impact of EU Eastern enlargement on FDI into the CEECs, the following points are specially noted. First, the

[1] The content of this section is based on Ott and Inglis (2002), public information and data released by the EU (http://ec.europa.eu/) and the Foreign Ministry of Japan (http://www.mofa.go.jp/mofaj/area/eu/index.html), and reports from the *Financial Times* (FT), *Népszabadság*, an influential daily in Hungary, and *Nihon Keizai Shimbun* (NKS), a Japanese economic newspaper, unless otherwise noted.

process of EU membership negotiation talks entailed four consecutive steps: (a) conclusion of the Association Agreement; (b) accession application; (c) accession negotiation; and (d) closure of negotiation and accession. Second, the timing involved in reaching these stages and the duration of these stages varied among member candidate countries. It is possible that the degree of impact that affects the decision-making of corporations and investors regarding FDI to EU member candidate countries differed considerably depending on the accession stage the candidates are in. Hence, we examine how these two aspects of EU Eastern enlargement may affect transnational corporations (TNCs) and other potential investors.

2.1 Association agreement conclusion stage

The era of ideological division in Europe ended with the fall of the Berlin Wall in November 1989. Subsequently a momentum for regional integration based on democracy and market principles was generated. The CEECs made clear their expectation for the enlargement of the EU towards the East. The fact that, right after the collapse of the Berlin Wall, the Governments of Hungary and Poland made approaches for acceding to the EFTA as a preparation for joining the EU in the near future was a direct manifestation of their anticipation.

The EU – then EC – side responded promptly to the enthusiasm of Eastern countries. In August 1990, the EC Commission decided to steer towards starting sequential negotiations for the conclusion of the "European Agreement" with countries in which democratization and economic reform were underway. The agreement stipulated periodic political talks between the EU and the countries involved; the creation of a free-trade zone ensuring the free flows of people, goods and capital; various aids to establish a market economy, and an array of financial and technical support. As Mardas (2005) pointed out, this association agreement was the first step toward providing a legal framework for EU Eastern enlargement. The number of candidate countries in the accession negotiation increased as years went by: at the end of 1991, Czechoslovakia, Hungary, and Poland; in the spring of 1993, Bulgaria and Romania; in June 1995, three of the former Soviet Baltic states; and, in June 1996, Slovenia concluded the European Agreement.[2] Since this agreement required the amendment and improvement of domestic

[2] In addition, after the break-up of the federal state, the Czech Republic and Slovakia again signed the European Agreement with the EU in October 1993. However, this was a mere formality.

laws pertaining to trade and humanitarian/human rights, the reaction of CEEC Governments towards legislative ratification and enactment drew domestic and international attention as the first important test for joining an integrated Europe.

2.2 Accession application stage

In 1993, the Maastricht Treaty, which contains the basic tenets of EU governance, came into effect. The same year, the Copenhagen European Council demonstrated diplomatic commitment to the formal EU membership of CEECs and, at the same time, came up with three criteria for membership (the Copenhagen criteria).[3] This political measure constituted a huge step forward for EU Eastern enlargement in the sense that the process rolled into a phase in which the methods and roadmaps were being made more concrete (Tanaka, 2002). Among CEECs, countries that achieved the provisions laid down in the association agreement began to apply one after another in response to the decision made by the Copenhagen European Council. This was the second step towards obtaining EU membership. The first membership applications were made by Hungary and Poland in 1994. One year later, in 1995, Bulgaria, Romania, Slovakia, and the three Baltic states applied, and, in 1996, the Czech Republic and Slovenia applied to the EU presidency holder at that time.

In 1989, Western enterprises and investors were hesitant to invest in the former socialist region, arguing that "though East Germany could be an investment target, the rest of Eastern Europe entailed too much of a risk".[4] However, it is clear from the media reports at the time that this investor sentiment improved throughout the first half of the 1990s, when the European Agreement was concluded and a spate of membership applications ensued. Yet, at this point, it was difficult to accurately predict which CEECs were going to become new EU members and at what date. This fact clouded the decision-making of Western enterprises and investors. Several factors were considered as promising when making an investment decision. First, the fact that Western European public opinion regarding EU enlargement was

[3] These accession criteria are (a) the stability of institutions guaranteeing democracy, the rule of law, human rights, and respect for and protection of minorities; (b) the existence of a functioning market economy, as well as the capacity to cope with competitive pressure and market force within the Union; and (c) the ability to take on the obligations of membership, including adherence to the aims of political, economic, and monetary union.

[4] NKS, December 12, 1989.

relatively favourable at the time.[5] Second, the Russian political leader expressed positive support toward CEECs, including his own country, obtaining EU membership. Third, EU leaders and officials adopted joint declarations and chairperson's summaries committing to CEECs gaining membership at the Essen European Council in December 1994 and at the Cannes European Council in June 1995.

On the other hand, there was a great deal of concern involving negative information. First, differences emerged regarding the EU enlargement among member countries, especially, a serious disagreement between Germany and France; Germany was very enthusiastic about including former Communist states, whereas France put emphasis on deepening EU integration. Second, Cohesion Countries were politically apprehensive because of the prospect that they would suffer a reduction in funding, such as that of Common Agricultural Policy (CAP) as a result of a rise in membership, as well as the reduction of seats at the European Parliament and voting rights at the European Council (Baldwin, 1995). Third, there was uncertainty regarding consensus-building at the Intergovernmental Conference (IGC) held in 1996 to discuss the issues concerning amendments to basic EU law.

2.3 Accession negotiation stage

After four months of the 1996 IGC meetings, this uncertainty regarding Eastern enlargement diminished considerably when the IGC reached a basic agreement on the amendment to the Maastricht Treaty. In July 1997, the European Commission adopted the "Agenda 2000" at a Strasbourg general meeting. They approved a first group of six accession candidate countries: Cyprus, which had already been approved for membership negotiations, the Czech Republic, Hungary, Poland, Estonia and Slovenia. Moreover, they announced a plan whereby official negotiations with these countries were to start by the beginning of 1998 and the accession was to be completed by 2002.

In March 1998, the membership negotiations involving the five CEECs (Luxembourg group) started in concert as planned. In addition, in parallel with this first candidate group, the five other countries proceeded with the preliminary negotiation with the European Commission; they were finally recognized at the Helsinki European Council in December

[5] For example, according to the joint poll conducted by eight major European newspapers in May 1994, 50 per cent of citizens answered "favourably" to the accession of the Czech Republic, Hungary, Poland, and Slovakia, which was far higher than the 30 per cent who answered "unfavourably".

1999 as the second candidate group (Helsinki group) and started official talks in February 2000. At that time, it was considered that accession for the latter group would take place around 2003.

By this time, the Eastern enlargement was practically established as a determinate course of the EU, and, thus, foreign investors came to have considerable confidence in its realization. However, even at this point, a number of problems that could have derailed the early realization of EU Eastern enlargement remained. First of all, there were considerable political difficulties at the IGC held in 2000 to discuss the revision of basic EU law, which was essential for the establishment of the EU-25 system. Furthermore, the ratification of the Nice Treaty encountered difficulties in a number of member countries. When the Irish national referendum held in June 2001 voted against the ratification of the Nice Treaty (with 54 per cent voting "no"), the EU enlargement process stalled. Second, the support for Eastern enlargement among the public in both EU member states and applicant states mostly fell short of majority. Third, there were additional factors exerting a negative impact on EU enlargement. One was a more cautious approach emerging among member states, exemplified by the Berlusconi administration, when clear opposition to the Eastern enlargement was expressed, Another factor was that the former Communist parties were rising in popularity in transition countries.

These political obstacles did not prove to be a final blow for a number of reasons. First, Irish voters, in their second national referendum, supported the ratification of the Nice Treaty. Second, to address the concerns among EU citizens, new policies were introduced, for instance, to limit the migration from new member states for a certain period of time after the enlargement. Third, a consensus was reached in order to prevent the postponement of the Eastern enlargement, which resulted in diplomatic negotiations and political compromises behind closed doors at various levels (i.e., EU leaders, foreign ministers, and the European Commission). Nevertheless, it is possible that the foregoing obstacles did pose a certain negative psychological impact in the minds of enterprises and investors throughout the negotiation process.

For TNCs and other foreign investors considering the expansion of their businesses in EU candidate countries, the issues that were even more serious than those reported above regarding the EU Eastern enlargement in general involved the following two points. First, the accession timetable was being delayed daily due to the harder-than-expected admission process of the *Acqui communautaire*, which

constituted the central project of the accession negotiation. Second, a prospect that the order of accession would have to change emerged as differences in negotiation processes grew considerably among candidate countries. Indeed, even the Luxembourg group of the first accession candidate countries, contrary to the optimistic expectations in 1998, had no hope in concluding negotiations by late 2001, already four years into the process. In addition, according to the mid-term report on accession negotiations released in August 2001, of 31 clauses in the *Acqui communautaire*, Hungary headed the list, having completed 22 clauses with the European Commission, and the Czech Republic, Estonia, Slovakia, and Slovenia had completed 19 to 20 clauses, while Poland was off to a slow start and had completed only 16 clauses. Moreover, Bulgaria and Romania were in a situation in which they could not even negotiate many clauses because the adjustment of its internal system was not moving forward in many important areas, such as the financial system, agriculture and free movement of people.

2.4 Closure of negotiation and accession stage

Given these circumstances, the EU made the decision to reshuffle the membership candidate groups. The Laeken European Council held in December 2001 moved Latvia, Lithuania and Slovakia from the Helsinki group to the first group and indicated the possibility of affiliating all ten countries at once with the EU in 2004. This "Big Bang" style enlargement policy was confirmed when the Copenhagen European Council held in December 2002 agreed to end the accession negotiation of the ten countries. In the meantime, the policy efforts made by the Government of Poland to promote accession talks were remarkable. However, it is also true that the decision by the EU side played a considerable role in the realization of the Big Bang. EU leaders were of the opinion that it was politically inappropriate to postpone the accession of Poland. Clear evidence of this is in the fact that transition measures to allow a grace period in fulfilling EU standards were included in a considerable number of negotiation clauses.

The last political project that was left for the countries that had reached the final negotiation stage was to domestically ratify the accession treaty signed in Athens in April 2003. This hurdle was cleared without problems in all countries as a large majority voted affirmative in the national referendum.[6] In addition, the conclusion of accession

[6] However, voter turnout itself was less than expected: Hungary, 45.6 per cent; Slovakia, 51.7 per cent; the Czech Republic, 54.9 per cent; and Poland, 56.2 per cent. This voting pattern of CEEC citizens probably reflected their ambivalent national

negotiations for Bulgaria and Romania, which had been left behind in the accession race, was approved at the European Council held in Brussels in 2004. The accession treaties that both countries had signed were ratified in the European Parliament in May 2006.

The Eastern enlargement triggered by the collapse of the Communist regimes in 1989 finally accomplished its political process after 19 years. Facts such as increased production by TNCs' affiliates in new member states and an increase in FDI in countries surrounding the new member states indicate that the business sector also welcomed this historical landmark event.

In addition to these ten countries that had become EU member states, Croatia and the former Yugoslav Republic of Macedonia officially applied to join the single market during the fifth enlargement process Croatia started accession negotiations with the European Commission in October 2005. At that time, the Government of Croatia was aiming to become a member in 2007, along with Bulgaria and Romania; however, that turned out not to be the case, and they are still waiting for the next opportunity. The former Yugoslav Republic of Macedonia concluded the Stabilization and Association Agreement in April 2001, prior to Croatia, and applied for membership in March 2004. A year later, in December 2005, the former Yugoslav Republic of Macedonia was given candidate status at the Brussels European Council. However, even by the end of 2009, accession negotiations had not yet started. By June 2007, the Brussels European Council had made a breakthrough in the EU reform process that led to the ratification of the new treaty. Nonetheless, the new EU framework has come into force only from December 2009, and there are many internal issues within the EU to resolve before further Eastern enlargement. Hence, the accession of Croatia and the former Yugoslav Republic of Macedonia may be delayed until 2012. In fact, in a report adopted in October 2009, the European Commission refrained from committing firmly to the further enlargement towards the countries of the Western Balkans and Turkey, stating that "(these countries) have still substantial work ahead in meeting the established criteria and conditions".[7]

In this section, we have reviewed the passage of the fifth EU enlargement at length. The investors make a decision after thorough

sentiment toward EU accession (e.g. see the press report of the *Népszabadság*, 14 April, 2003).

[7] Commission of the European Communities, Enlargement Strategy and Main Challenges 2009-2010: Communication from the Commission to the European Parliament and the Council (COM (2009) 533), Brussels, 14 October 2009.

research and comparison of political and economic situations in the alternative investment target countries. The feasibility and timing of EU accession are crucial reference points for the CEECs. Thus, it is highly likely that a country's political process in the EU Eastern enlargement process closely relates to FDI going to the Central and Eastern region. Here, we hypothesize that official participation in EU accession talks and completion of advanced stages in the accession process had economic significance and constituted a statistically positive and significant impact on FDI to the states in question. From the next section on, we will theoretically and empirically verify this hypothesis.

3. EU accession talks as a factor promoting FDI

Essentially, there are two theoretical premises for EU Eastern enlargement that are considered as promoting factors of FDI into the candidate countries in Central and Eastern Europe. One premise is that trade liberalization with the EU market in anticipation of future accessions would stimulated investment in the candidate countries, including FDI. The other is that accession talks function as a "political anchor" that would discipline and increase the transparency of political decision-making and institution-building, thereby reducing investment risks (Baldwin et al., 1997).

Trade liberalization with the EU market began as soon as the European Agreement was signed, which was the first step of EU accession negotiations. The EU and ten CEECs were mutually bound to remove tariffs and non-tariff barriers on imports gradually in accordance with the schedule designed for each country as laid down in the Agreement.[8] The Copenhagen European Council, in June 1993, decided to renegotiate and conclude an interim agreement with countries that had signed the Agreement in order to accelerate the process. As a result, immediately after the European Agreement or the interim agreement came into effect, EU member states eliminated all custom duties and quotas on industrial imports (except for steel and iron and textiles) from the countries entering the agreement. In addition, the CEECs introduced a relaxation on EU trade regulations ahead of the agreed schedule. In fact, those countries that had signed the agreement gradually reduced their tariffs on almost all industrial goods manufactured in the regional

[8] The grace period for transition to the free trade zone as ruled by the European Agreement was ten years for Bulgaria, the Czech Republic, Hungary, Poland, Romania and Slovakia; six years for Lithuania and Slovenia; and four years for Latvia. The only country that was not given such a grace period was Estonia (Koutrakos, 2002).

market down to 0 per cent by 1997. In addition, virtually all import taxes on sensitive products were abolished by 2002 (Koutrakos, 2002).

The foregoing measures, which aimed at establishing an early introduction of the free-trade zone, greatly enhanced trade between the EU and the ten CEECs. Indeed, the share of EEC and EC member states in the total amount of exports (imports) of Hungary, Poland and Bulgaria in 1989 were 24.7(28.5) per cent, 32.1(33.8) per cent and 19.5(35.0) per cent, respectively, but these figures reached 71.2(62.4) per cent, 64.2(63.8) per cent and 44.9(41.9) per cent, respectively, in 1997. The trade volume itself increased sharply as well. For example, the amount of exports (imports) of Hungary during the same period increased in dollar terms by a factor of 1.98(2.41), whereas trade with EU15 grew by a remarkable factor of 5.70 (5.21).[9] This trend can similarly be observed in other accession candidate countries (Sugiura, 2006).

The EU accession talks were effective in reducing the investment risk in candidate countries in various ways. For example, in the legal realm, the domestic legislation, including laws pertaining to ownership, employment practice, business organization and corporate taxes, came closer to the EU standard. As Bevan et al. (2004) contend, institutional development significantly influenced capital inflow into the post-Communist states. With regard to micro-level policy, in addition to the relaxation of regulation on trade-tariff policy, predictability and transparency were enhanced by introducing competition and industrial protection policies. In addition, free access to financial and capital markets was assured, and corruption and graft regulations were strengthened. Regarding macro-level policy, the convertibility of home currency was established, inflation was controlled, and fiscal discipline was strengthened. All these measures, together with policy efforts by the candidate countries in their efforts to meet the Copenhagen criteria and to accept the *Acqui,* facilitated the monitoring activities by the European Commission in a fast and steady manner. This, indeed, made TNCs and investors confident. Furthermore, above all, the political stability in host countries – the issue that foreign investors are most sensitive about – was secured. In this sense, the notion of EU membership as a national goal has worked highly effectively.

The degree of reduction in the perceived investment risk brought on by EU Eastern enlargement can be inferred from a third party's objective evaluation. According to Euromoney, the country risk ranking

[9] Calculation by the authors based on Nishimura (2000) and the Hungarian statistical yearbook (KSH) for each year.

of the ten EU candidate countries was on average 63.37 between 1992 and 2004. This figure is far better that the ranking of other CEECs and former Soviet states, which was, on average, 129.59. This difference is statistically significant (Wilcoxon Z=12.432, p=0.000). Moreover, the ranking improvement during the same period for the latter group stands at an average of 14.5, whereas the former group averaged 36.2; the significant level of this difference is very high as well (t=2.331, p=0.015; Wilcoxon Z=2.253, p=0.024). These facts demonstrate that the low level of country risk and the speed of risk reduction for candidate countries were remarkable achievements vis-à-vis other transition countries.

Trade expansion with the EU market and drop in investment risks in candidate countries affected both domestic and foreign investors. However, when reflecting on the economic situation of the post-communist candidate countries, it is easy to imagine that it was mainly foreign capital that was able to respond to the rising capital demand. A series of problems characteristic to a transition economy, such as an undeveloped banking system and capital market, a fragile management base of former socialist enterprises, deep informational asymmetries between domestic investors and corporate managers, under-developed risk management techniques, and the lack of investment experience based on market principles, made the supply of domestic capital extremely limited. Direct manifestations of the these problems included the following: (a) investment undertaken by companies in CEECs are mainly financed with internal reserves; (b) a very serious credit crunch of the banking system; and (c) a passive attitude of domestic banks and investors toward long-term corporate financing (Berglof and Bolton, 2002; Sugiura, 2007).

As if to exploit the gap while the domestic companies and financial institutions were at a standstill, powerful European, Japanese and United States corporations engaged in active investment. For instance, in Hungary, TNCs accounted for an average of 49.7 per cent of corporate investment and 72.3 per cent of product exports from 1995 to 2003 (Iwasaki, 2007). It would not be an exaggeration to say that the capital shortage in the CEECs was covered by FDI from developed countries.

In addition to the market-inducing investment-promoting effects reported above, it should not be forgotten that there was a policy that was more direct and promotes foreign capital as part of EU accession talks. The financial and technical support that the EU side had pledged in the European Agreement and Agenda 2000 was carried out within

frameworks such as structural and cohesion funds, the Poland and Hungary Assistance for Economic Restructuring Program (PHARE), the Special Accession Program for Agriculture and Rural Development (SAPARD) and the Instrument for Structural Policies for Pre-Accession (ISPA). It has been argued that this support contributed to cost reduction in the establishment and management of TNCs' local affiliates by investing in social capital improvement, including transportation, communication, power transmission, water supply, sewage systems, land improvement and environmental infrastructure (Breuss et al., 2001; Iwasaki and Sato, 2004; Iwasaki, 2007).

It is thus highly probable that the Eastern enlargement of the EU induced indirect and direct effects of promoting FDI to candidate countries. Surprisingly, there have been few studies focusing on this point, although a great deal of empirical literature has taken into consideration the determinants of FDI in CEECs and former Soviet countries. Eight such earlier studies are listed in table 2. The most pioneering work is Brenton et al. (1999). They used a gravity model to assess the impact of being an EU candidate country on cumulative FDI in host countries up to the mid-1990s and confirmed that (a) the first candidate country group enjoyed significantly more FDI than the second group; and (b) EU candidate countries in general received a larger amount of FDI than the CIS states. Bevan and Estrin (2000) is an empirical study that paid even greater attention to the FDI-promoting effect of the EU accession process. They focused on the announcement effect of the "pre-accession strategy" adopted at the Essen European Council in December 1994 and "Agenda 2000" put forward by the European Commission in 1997. Their panel data analysis shows that the impact of Agenda 2000 on FDI has a positive sign and it is significant at the 1 per cent level for countries approved as first accession candidates.

The remaining six studies can be divided into two categories from a methodological point of view. The first group focused on important decisions made by the European Council and European Commission regarding the Eastern enlargement and examined their influence upon FDI. Suzuki and Suganuma (2008) falls under this category. The second category constitutes empirical studies that focused on whether the countries analysed were EU accession candidate countries or not; Assenov (2003) and Suganuma (2006) are included in this category. Bevan and Estrin (2004), Egger and Pfaffermayr (2004b), and Clausing and Dorobantu (2005) developed empirical analysis using the two methodologies noted above.

Table 2. List of studies that examine the impact of EU Eastern enlargement on FDI into transition economies

Study	Analysis period	Target countries		Data type (estimate methods)	Empirical methods and estimation results of the FDI-promoting effect of EU Eastern enlargement		Other statictically significant FDI determinants
		Home countries	Host countries		Empirical methods	Estimation results	
Brenton et al. (1999)	Mid-1990s	12 developed countries (9 European countries, Japan, Rep. of Korea, United States).	50 countries (including 8 CEECs and former Soviet states).	Cross section (OLS).	First-round EU candidate dummy (CEE1st) (1: the Czech republic, Hungary, Poland and Slovenia); second-round EU candidate dummy (CEE2nd) (1: Bulgaria, Romania, and Slovakia).	The sign and statistical significance of the coefficient differ depending on the home country, but, generally, if the coefficient is positive, CEE1st>CEE2nd, and, if it is negative, CEE1st<CEE2nd.	GNP (+); total population (+); distance between capital cities (-); economic freedom index (-); CIS country dummy (-).
Bevan and Estrin (2000)	1994-1998	18 developed countries (15 European countries, Japan, Rep. of Korea, United States).	11 CEECs and former Soviet states.	Panel data (random effects).	The Essen European Council announcement effect dummy (ESSEN) (1: 1995 onward); "Agenda 2000" first-wave candidate country dummy (AGEND1) (1: 1997 onward for corresponding country); second-wave candidate country dummy (AGEND2) (1: 1997 onward for corresponding country).	AGEND1 is positive and significant at the 1% level. Other variables are insignificant.	GDP per capita (+); labor cost (-); distance between capital cities (-); wellness of business environment (+); proximity to EU market (distance from Germany) (+); credit rating of host country (+).
Assenov (2003)	1991-2001	-	22 CEECs and former Soviet states.	Panel data (fixed effects, random effects, dynamic panel).	Ordinal EU membership dummy (EU dummy) (2: 10 countries to become new EU members in 2004, 1: Bulgaria and Romania, 0: others).	Positive and significant. The significance level differs within the range of 1 to the 10% dependeng on the estimation equation.	GDP growth rate of developed countries (+); growth rate of the total FDI to emerging markets (+); GDP per capita (+); fiscal revenue and expenditure (+); GDP ratio to foreign reserves (+); savings/investment ratio (-); progress of systemic transformation in financial sector (+); progress of stractural reform (+); oil endowment (+); liberalization of the currency exchange system (+); 1998 financial crisis (-).
Bevan and Estrin (2004)	1994-2000	18 developed countries (15 European countries, Japan, Rep. of Korea, United States).	11 CEECs and former Soviet states.	Panel data (random effects).	Cologne European Council announcement effect dummy (Cologne) (3: 1998 onward for the Czech republic, Poland, Hungary, Estonia; 2: 1998 onward for Latvia, Lithuania, and Slovakia; 1: 1998 onward for Bulgaria and Romania; 0: others).	Positive and significant at the 1-5% level.	GDP of home country (+); GDP of host country (+); distance between capital cities (-); unit labor cost (-).

Table 2. List of studies that examine the impact of EU Eastern enlargement on FDI into transition economies (concluded)

Study	Analysis period	Target countries		Data type (estimate methods)	Empirical methods and estimation results of FDI promoting effect of EU Eastern enlargement		Other statictically significant FDI determinants
		Home countries	Host countries		Empirical methods	Estimation results	
Egger and	1986-1998	13 developed countries (Australia, Canada, 7 European countries, Japan, Rep. of Korea, New Zealand, United States).	55 countries (including 10 CEECs and Russia).	Panel data (fixed effects).	Comparison of bilateral effects of 15 EU member states and CEECs under the European Agreement obtained from the estimation of the gravity model to the bilateral effects of other countries.	An immediate positive impact of EU Eastern enlargement cannot be confirmed. However, an increase of FDI from EU15 to 7 CEECs, excluding Baltic states in 1995-98, is confirmed.	Total population of host country (-); GDP per capita of home country (+); GDP per capita of host country (+).
Clausing and Dorobantu (2005)	1992-2001	-	28 European countries.	Panel data (pooled OLS, random effects).	Copenhagen European Council announcement effects dummy (copen) (1: 1994 onward for candidate country); "Agenda 2000" first-wave accession candidate group dummy (firstw) (1: 1998 onward for corresponding country) "Agenda 2000" second-wave accession candidate group dummy (secw) (1: 1998 onward for corresponding country).	copen is significant at the 5% level. secw is significant at the 5-10% level.	GDP of host country (+); GDP per capita of host country (+); average compensation rate (-); degree of economic openness (+); corporate income tax ratio (-); degree of economic misery (-).
Suganuma (2006)	1993-2003	-	18 CEECs and former Soviet states.	Panel data (random effects).	2004 new EU member country dummy (1: 10 new EU member countries).	Positive and significant at the 1% level.	Total population (+); GDP growth rate (+); inflation rate (-); interest rate (-); country risk (-); degree of economic freedom (+); degree of progress in enterprise privatization (+); openness of privatization policy (+); proximity to the European market (distance from Germany) (-); endowment of natural resources (+); years of socialist period (-); Russia dummy (-).
Suzuki and Suganuma (2008)	1993-2004	-	32 transitional countries.	Panel data (fixed effects, random effects).	EU accession negotiation dummy (1: year of accession negotiation started and onward for corresponding country).	Positive and significant at the 1% level.	Progress of transition policies (+); GDP per capita (+); potential of natural resources exportation (+); degree of completion of socialism (-).

Source: Compiled by the authors.

As shown in table 2, these prior studies in general strongly suggest a positive relationship between EU accession talks and FDI in countries involved. To this extent, these studies are consistent with our hypothesis. However, on the basis of the facts found in the previous section, we contend that these studies have a number of shortcomings. First of all, although the first stage of the accession negotiation process entailed concluding the association agreement, many of the earlier studies have paid little attention to the fact that differentiation among transition countries from the investor's perspective had already started by this point. Secondly, the fact that the accession process consisted of four political stages and that there were certain differences in the timetable depending on the countries is hardly considered. Thirdly, as a result of the above two points, the earlier studies do not give any consideration to the possibility that the FDI-promoting effect on accession candidate countries may differ at different stages of negotiation, as each has different characteristics. In this sense, it is likely that a dummy variable that captures only a part of the EU Eastern enlargement process and expresses the entire applicable time period as a value of 1 could underestimate or overestimate its impact on FDI. In the following section, we will attempt to estimate a more accurate impacts of EU Eastern enlargement by conducting an empirical analysis that addresses the problems discussed above.

4. Empirical analysis

Empirical research on the location choice for international production has been based for a long time on the so-called OLI approach advocated by Dunning (1958, 1970). This traditional FDI theory argues that several factors, such as the advantages of establishing local affiliates, running costs and market access as opposed to product exports from the home country and the strategic importance of internal retention of intangible assets, including management know-how and proprietary technology, have great influence on decision-making by investment bodies (Ikema, 1992). In contrast to the OLI paradigm, recent FDI theory has incorporated the advantages of ownership and location in the general equilibrium model of international trade and, by endogenously dealing with the emergence of TNCs, given way to a new theoretical angle (Helpman, 1984; Horstmann and Markusen, 1992; Brainard, 1997; Marksen and Venables, 1998, 2000).

FDI into the former Communist states can be approached from either of the above two theoretical viewpoints. From an empirical perspective, both approaches concur that proximity and market size are important determinants of FDI. Therefore, to verify the FDI-promoting

effects of EU Eastern enlargement, proximity and market size are used as control variables in our empirical models along with the progress of systemic transformation to a market economy and the macro-economic dynamism in a host country, both of which are regarded as critical factors affecting FDI into transition economies. It is expected that both elements are positively related to FDI (Brenton et al., 1999; Resmini, 2000).

In this section, we will estimate FDI location-choice models through two different methods. The first method involves a regression analysis that takes the gross FDI inflows into transition economies as a dependent variable. The second entails the estimation of the gravity model by taking the origin-to-destination-specified FDI as its dependent variable. The first method analyzes the gross FDI in 21 CEECs and former Soviet countries featured in table 1 in the period 1990–2005. The latter targets FDI from seven major developed countries (Austria, France, Germany, the Netherlands, Japan, the United Kingdom and the United States) and nine CEECs (Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovakia and Romania), adding up to a total of 63 pairs. For both methods, we will utilize panel data.

For constructing the empirical model, a simple hypothesis relating to the decision-making behaviour of TNCs and other foreign investors is used, assuming that they make an investment decision for a given year by referring to the observable variables of the previous year.[10] This realistic hypothesis is also useful as it avoids possible simultaneous-equation bias in estimation results by adopting predetermined variables as independent variables in our models. With regard to EU accession talks, however, we do not apply this assumption, considering the fact that investors were capable of tracing the progress in the accession negotiations between the EU and candidate countries in real time mainly through information disclosure by the European Commission and the media. EU enlargement is an uncontrollable event for almost all private investors. Hence, we assume that EU accession talks are exogenous for FDI.

In the first phase of the empirical analysis, our actual estimation equation model, where the dependent variable is the total amount of FDI going to the host country *j* in the year *t*, takes the form:

$$\ln FDI_{j,t} = \alpha + \sum \gamma_k EUaccessio\, n_{k,j,t} + \beta_1 \ln GDPSIZ_{j,t-1} + \beta_2 \ln PRISEC_{j,t-1} + \beta_3 GDPGRO_{j,t-1} + \beta_4 INFRAT_{j,t-1} + \beta_5 \ln DISBRA_j + \delta_j + \varepsilon_{j,t} \quad (1)$$

[10] We have estimated a location choice model for FDI to Russia by using the same hypothesis. See Iwasaki and Suganuma (2005).

where *EUaccession* is a set of *k* dummy variables reflecting participation in the EU Eastern enlargement process and the progress of accession negotiations (discussed later); *GDPSIZ* is the market size of the host country measured in terms of the total amount of GDP; *PRISEC* is the ratio of GDP to host country's private sector, which is used as the proxy for the progress of transition to a market economy; *GDPGRO* and *INFRAT* are the real GDP growth rate and the inflation rate of the host country, respectively;[11] *DISBRA* is the direct distance from Brussels to the capital of the host country; δ is the individual (fixed) effect of a host country; and ε is the error term.

Based on the discussions above and the preceding studies listed in table 2, we expect EU accession negotiations, market size, progress of systemic transformation to a market economy, and economic growth to have a positive impact, while high inflation and geographical remoteness from the EU market to have a negative impact on FDI. In order to check the robustness of the estimated results of the above equation, we also estimate an alternative model that replaces the dependent variable with the investment amount per capita (*FDIp*). In this case, the market size of the host country is conditioned by the division of the total population; thus, the independent variable becomes the total value-added per capita (*GDPSIZp*) in lieu of *GDPSIZ*. This variable presents the purchasing power of a host country residents while, at the same time, reflecting the wage level. Therefore, we cannot theoretically predict its effect on FDI at the current stage.

In the second phase of the empirical analysis, we estimate the following equation, which takes the FDI from country *i* to country *j* in the year *t* as the dependent variable:

$$\begin{aligned} \ln FDI_{i,j,t} = \alpha + \sum \gamma_k EUaccession_{k,j,t} + \beta_1 \ln MARSIG_{i,j,t-1} + \beta_2 \ln MARSIM_{i,j,t-1} \\ + \beta_3 \ln PRISEC_{j,t-1} + \beta_4 GDPGRO_{j,t-1} + \beta_5 INFRAT_{j,t-1} \\ + \beta_6 \ln DISCAP_{i,j} + \varphi_{i,j} + \varepsilon_{i,j,t} \end{aligned} \quad (2)$$

where *MAGSIG* is the total amount of GDP of the home and host countries representing the combined market size; *MARSIM* is a measure

[11] The correlation coefficient between *GDPGRO* and *INFRAT* is -0.262. This is far below the threshold level of 0.700, at which the occurrence of multicollinearity should be considered (Lind et al., 2004). The same is applied to other independent variables.

of the similarity in the size of home and host country markets defined by the formula:

$$MARSIM_{i,j,t} = 1 - \left(\frac{GDPSIZ_{i,t}}{MARSIG_{i,j,t}} \right)^2 - \left(\frac{GDPSIZ_{j,t}}{MARSIG_{i,j,t}} \right)^2 \qquad (3)$$

DISCAP is the direct distance between the capital cities of both countries; φ stands for the country-pair effects of the two nations. We predict that *MARSIG* and *MARSIM* have positive signs because both factors promote a horizontal FDI and are neutral in terms of a vertical FDI (Egger and Pfaffermayr, 2004a). Similarly to *DISBRA, DISCAP* is expected to hamper FDI, and it may thus have a negative sign. As in the first phase, we estimate an alternative model with the dependent variable *FDIp*, FDI inflow per capita, instead of *FDI*.

To estimate the FDI-promoting effect of EU Eastern enlargement, we tested three different approaches: the first approach adopts the accession candidate dummy *ACCCAN*, which takes the value of 1 from the year of the conclusion of the association agreement onwards. This variable follows the approach of earlier studies and becomes a benchmark in comparison with the estimated results. Here, it is implicitly assumed that the FDI-promoting effect is constant throughout the negotiation and accession period. We call this the *constant-effect hypothesis*.

The second utilizes the accession negotiation progress dummy *ACCPRO*, which considers that the EU accession talks consist of four different political steps, as we discussed in section 2. This variable gives a value of 1 to the association agreement conclusion stage; 2 to the accession application stage; 3 to the accession negotiation stage; and 4 to the closure of negotiation and accession stage. In other words, *ACCPRO* is based on the assumption that, as accession negotiations move forward a step at a time, the FDI-promoting effect of EU Eastern enlargement increases proportionately. We call this the *increase-effect hypothesis*.

The third is designed to capture the effect of these negotiation steps individually by using four independent variables labelled *ASSSTA*, *APPSTA*, *NEGSTA* and *FINSTA*. It enables different negotiation stages to have different degrees of impact over the decision-making of investment bodies as well as some degree of variation in terms of statistical significance, in case that EU enlargement has a non-linear impact on FDI. We call this the *non-linear-effect hypothesis*. The non-

linear effect may arise when TNCs and other potential investors are not very sensitive to the progress in the accession negotiation and/or when progress in the EU accession talks from a specific stage to the next constrains the use of FDI-friendly policy instruments, such as direct subsidies and corporate tax exemption and, hence, offsets the positive effect of EU enlargement.

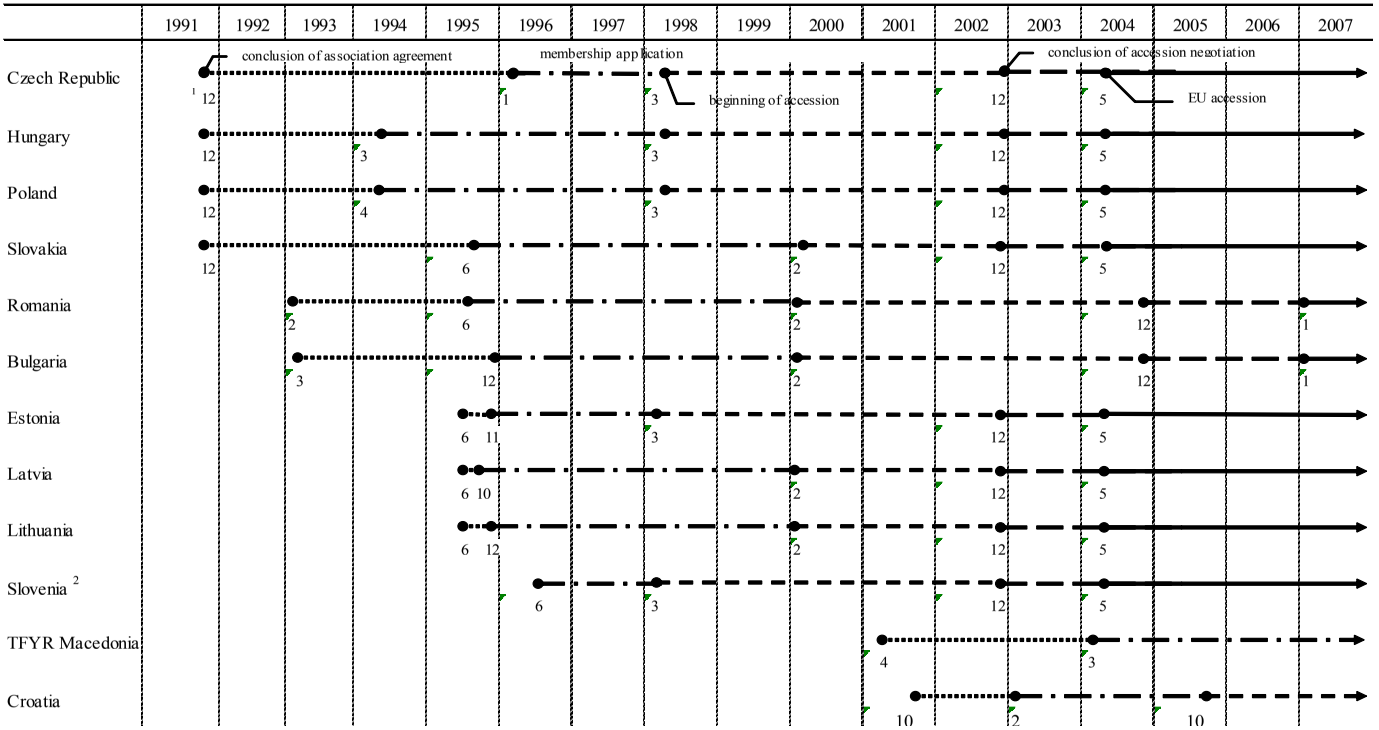
Figure 1 illustrates the accession negotiation process between the EU and 12 acceding CEE countries, including Croatia and Macedonia. As this figure indicates, the timing of political events in each candidate country was very different, and it would not be empirically appropriate to overlook this fact. For instance, according to the Japanese corporations, think-tanks, and governmental agency officials interviewed by the authors, there is at least a six-month lag from the time of the investment decision until investment action is actually taken.[12] Therefore, we set the above-mentioned EU accession variables on the basis of the hypothesis that the FDI-promoting effect will surface in the same year when a political event takes place in the first half of that year, while, when an event occurs in the second half of the year, such an effect is realized in the following year.

Definitions, descriptive statistics and sources of data, including the EU accession variables used in the empirical analysis, are shown in the appendix.

Table 3 represents the result of the first phase of the empirical analysis. Here the Breusch-Pagan and Hausman specification tests support the use of random-effects estimator for all models. This table shows that the control variables have expected signs with statistical significance at the 1 per cent level, except for *DISBRA*. According to the estimation result of models (A), (B), and (C), which take the gross FDI inflow as the dependent variable, the market size, the progress of systemic transformation, and the economic growth of the host country have the effect of inducing FDI. On the other hand, the increase of the price level negatively affects the decision-making of investing bodies. The same inferences can be drawn from models (E), (F) and (G), which take the gross FDI per capita as the dependent variable. In these models, *GDPSIZp* is estimated to be positive and significant at the 1 per cent level. This suggests that TNCs and other foreign investors, on the whole,

12 Based on interviews conducted by Iwasaki with Honda Motor Co., Ltd., Mitsubishi Corporation, the Japan Association for Trade with Russia and NIS, and the Japan External Trade Organization (JETRO). We would like to extend our gratitude to the participants.

Figure 1. Accession negotiation process between the EU and 12 CEECs



Source: Authors' illustration.

[1] This and other figures indicate the month of the event.

[2] In Slovenia, the conclusion of the association agreement and the application for EU membership occurred at the same time.

Table 3. Panel data analysis of gross FDI inflow into 21 CEECs and former Soviet states

Dependent variable [1]	*ln FDI*$_{j,t}$				*ln FDIp*$_{j,t}$			
Model [2]	(A)	(B)	(C) [8]	(D)	(E)	(F)	(G) [9]	(H)
Const.	-4.5161*	-3.6363	-4.3040*	-4.3262*	-1.8979	0.3796	-0.4574	-0.2260
	(-1.81)	(-1.57)	(-1.66)	(-1.80)	(-0.68)	(0.14)	(-0.16)	(-0.08)
EU accession variables [3]								
ACCCAN$_{j,t}$	0.4522**				0.5106***			
	(2.26)				(2.62)			
ACCPRO$_{j,t}$		0.1549***		0.3379**		0.2210***		0.3268**
		(2.60)		(2.12)		(3.81)		(2.15)
ACCPROQUA$_{j,t}$				-0.0468*				-0.0274
				(-1.71)				(-0.93)
ASSSTA$_{j,t}$			0.3331				0.3189	
			(1.43)				(1.40)	
APPSTA$_{j,t}$			0.4206**				0.4915**	
			(1.99)				(2.43)	
NEGSTA$_{j,t}$			0.7020***				0.8242***	
			(2.86)				(3.59)	
FINSTA$_{j,t}$			0.5587**				0.8083***	
			(2.19)				(3.23)	
Control variables [4]								
ln GDPSIZ$_{j,t-1}$	0.7614***	0.7298***	0.7423***	0.7450***				
	(10.30)	(9.45)	(8.97)	(9.69)				
ln GDPSIZp$_{j,t-1}$					0.5910***	0.4692***	0.5020***	0.4891***
					(5.69)	(4.27)	(4.44)	(4.42)
ln PRISEC$_{j,t-1}$	0.7614***	0.7678***	0.7135***	0.7228***	0.7352***	0.7331***	0.6909***	0.7037***
	(4.59)	(4.76)	(4.21)	(4.32)	(5.04)	(5.48)	(4.77)	(4.97)
GDPGRO$_{j,t-1}$	0.0236***	0.0230***	0.0238***	0.0231***	0.0238***	0.0251***	0.0251***	0.0249***
	(3.09)	(2.99)	(3.03)	(3.00)	(3.38)	(3.59)	(3.53)	(3.56)
INFRAT$_{j,t-1}$	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(-3.67)	(-3.58)	(-3.62)	(-3.62)	(-3.18)	(-3.12)	(-3.19)	(-3.14)
ln DISBRA$_{j}$	-0.0040	-0.0768	-0.0190	0.0143	-0.2248	-0.4139	-0.3147	-0.2260
	(-0.01)	(-0.25)	(-0.06)	(0.05)	(-0.65)	(-1.32)	(-0.89)	(-0.08)
N	283	283	283	283	283	283	283	283
Adjusted R^2	0.65	0.65	0.66	0.66	0.65	0.66	0.66	0.66
Wald test (χ^2) / *F* test [5]	460.35***	504.98***	497.45***	509.77***	438.69***	476.18***	467.6***	480.8***
Hausman test (χ^2) [6]	0.22	0.0	0.46	1.70	0.35	0.01	0.33	1.41
Breusch-Pagan test (χ^2) [7]	68.17***	64.84***	67.84***	67.15***	117.29***	109.41***	115.36***	109.78***

Source: Authors' estimation. For details of the definitions, descriptive statistics, and sources of variables, see the Appendix.

[1] *FDI* is gross FDI inflow to 21CEECs and the former Soviet countries. *FDIp* is gross FDI inflow per capita.

[2] All equations are estimated using the random-effects model.

[3] *ACCCAN* is the accession candidate dummy. *ACCPRO* is the accession negotiation progress dummy. *ACCPROQUA* is a quadratic expression of *ACCPRO*. *ASSSTA* is the association agreement conclusion stage dummy. *APPSTA* is the accession application stage dummy. *NEGSTA* is the accession negotiation stage dummy. *FINSTA* is the closure of negotiation and accession stage dummy.

[4] *GDPSIZ* is the total amount of the GDP of the host country. *GDPSIZp* is the GDP per capita of the host country. *PRISEC* is the ratio of the GDP to the host country's private sector. *GDPGRO* is the GDP real growth rate of the host country. *INFRAT* is the inflation rate of the host country. *DISBRA* is the direct distance between Brussels and the capital of the host country.

[5] Test of the null hypothesis that all coefficients are 0.

[6] Spesification test of the random-effects model and the fixed-effects model.

[7] Spesification test of the random-effects model and the pooled OLS model.

[8] *F* test of the null hypothesis that the coefficients of the accession negotiation dummy variables are all the same: F=4.39, p=0.222.

[9] *F* test of the null hypothesis that the coefficients of the accession negotiation dummy variables are all the same: F=9.85, p=0.019.

[10] The *t* statistics are given in parentheses. ***: significant at the 1% level, **: at the 5% level, *: at the 10% level.

invested in the European transition countries because these countries constitute a promising product market and not because the region provides cheap labour for international production.[13]

The EU accession variables hold interesting results. *ACCCAN* is positive and significant in models (A) and (E). This means that the empirical findings of earlier studies are reproduced here in the same way. However, it is highly possible that the use of *ACCCAN* over- or under-estimates the FDI-promoting effect of EU enlargement. This is because, in models (B) and (F), the coefficient of *ACCPRO*, which takes into consideration that the accession negotiation process consists of several political steps, suggests that differences in the progress of negotiation stages may have a distinct impact on FDI inflows in EU accession candidate countries. Nevertheless, the estimation results of models (C) and (G) indicate that it is possible that the hypothesis behind *ACCPRO* (i.e. accession negotiation step-up proportionally encourages FDI) may also have some problems. This is because *FINSTA*, the dummy variable featuring the closure of negotiation and accession stage, is estimated to be below that of *NEGSTA*, the variable capturing the accession negotiation stage. Overall, the estimates of the EU accession variables in these six models suggest that the non-linear-effect hypothesis is more applicable than the alternative hypotheses.

Table 4 shows the result of the second phase of the empirical analysis.[14] The gravity model of bilateral FDI supports the policy implications discussed above. However, *MARSIM* loses its statistical significance in models that take FDI per capita as the dependent variable. The same happens to *PRISEC* and *GDPGRO* when the fixed effects model is chosen.

What we should emphasize more is the estimation results of the EU accession variables. In other words, with the gravity model, *ACCCAN* is insignificant in both models (I) and (M), whereas *ASSSTA* is positive and significant at the 1 per cent level in models (K) and (O). These results suggest that, when the target countries of empirical analysis are limited to the CEECs that have accomplished EU accession, the simple hypothesis that the FDI-promoting effect is constant throughout

[13] The distance from Brussels to the capital of the host country *(DISBRA*) is insignificant. We re-estimated the regression using the direct distance from Munich or Hamburg instead of Brussels and found no improvement in the estimation results.

[14] Our empirical models showed mostly the same estimation results when using a two-way model, which controlled time effects, as well as the individual effects of the host country or the country-pair effects.

Table 4. Panel data analysis of bilateral FDI inflow from 7 developed countries to nine CEECs

Dependent variable [1]	*ln FDI*$_{i,j,t}$				*ln FDIp*$_{i,j,t}$			
Estimation method [2]	RE	RE	FE	RE	RE	RE	FE	RE
Model	(I)	(J)	(K) [8]	(L)	(M)	(N)	(O) [9]	(P)
Const.	-4.6273*** (-3.1)	-1.8117 (-1.1)	-34.4134*** (-2.8)	-0.1652 (-0.1)	-2.2820** (-2.2)	0.7422 (0.6)	-23.6619** (-2.5)	1.3825 (1.2)
EU accession variables [3]								
ACCCAN$_{j,t}$	0.5458 (1.60)				0.0716 (0.33)			
ACCPRO$_{j,t}$		0.2881*** (3.22)		1.2742*** (4.04)		0.3006*** (4.60)		0.6629*** (3.23)
ACCPROQUA$_{j,t}$				-0.1776*** (-3.27)				-0.0651* (-1.78)
ASSSTA$_{j,t}$			1.0721*** (3.27)				0.5873*** (2.72)	
APPSTA$_{j,t}$			1.3761*** (3.02)				0.8260*** (2.90)	
NEGSTA$_{j,t}$			1.7456*** (3.46)				1.1237*** (3.30)	
FINSTA$_{j,t}$			1.3675** (2.33)				0.9087** (2.16)	
Control variables [4]								
ln MARSIG$_{i,j,t-1}$	0.8933*** (5.08)	0.6675*** (3.92)	2.7447*** (2.95)	0.7541*** (4.38)	0.4939*** (4.24)	0.3339*** (2.95)	1.8675*** (2.61)	0.3593*** (3.16)
ln MARSIM$_{i,j,t-1}$	0.4465*** (3.70)	0.3685*** (3.20)	0.0550 (0.15)	0.3967*** (3.46)	0.0105 (0.14)	-0.0610 (-0.84)	0.1114 (0.40)	-0.0524 (-0.73)
ln PRISEC$_{j,t-1}$	1.2747*** (4.75)	0.9707*** (3.28)	-0.0321 (-0.09)	0.1822*** (3.50)	1.1064*** (6.02)	0.5375*** (2.83)	-0.0653 (-0.27)	0.2502** (2.08)
GDPGRO$_{j,t-1}$	0.0335** (2.30)	0.0417*** (2.89)	0.0200 (1.52)	0.0459*** (3.28)	0.0138 (1.35)	0.0214** (2.18)	0.0096 (1.05)	0.0233** (2.40)
INFRAT$_{j,t-1}$	-0.0019*** (-3.00)	-0.0018*** (-2.92)	-0.0012** (-2.29)	-0.0015*** (-2.70)	-0.0012*** (-3.59)	-0.0009*** (-3.21)	-0.0004* (-1.67)	-0.0008*** (-3.01)
ln DISCAP$_{i,j}$	-1.1278*** (-4.49)	-0.9774*** (-4.14)	(dropped)	-1.0658*** (-4.44)	-0.9839*** (-5.90)	-0.9006*** (-5.59)	(dropped)	-0.9277*** (-5.77)
N	520	520	520	520	520	520	520	520
Adjusted R^2	0.33	0.34	0.38	0.36	0.27	0.30	0.33	0.31
Wald test (χ^2) / *F* test [5]	149.60***	174.87***	25.69***	194.98***	164.14***	204.41***	25.15***	218.55***
Hausman test (χ^2) [6]	8.28	0.18	55.55***	0.23	2.36	7.50	33.18***	9.89
Breusch-Pagan test (χ^2) [7]	420.19***	431.15***	444.64***	453.03***	368.62***	416.57***	384.72***	406.70***

Source: Authors' estimation. For details of the definitions, descriptive statistics, and sources of variables, see the Appendix.

1 *FDI* is the bilateral gross FDI inflow from 7 major developed countries t 9 CEECs. *FDIp* is bilateral gross FDI inflow per capita.

2 RE: random-effects model, FE: fixed-effects model.

3 *ACCCAN* is the accession candidate dummy. *ACCPRO* is the accession negotiation progress dummy. *ACCPROQUA* is a quadratic expression of *ACCPRO*. *ASSSTA* is the association agreement conclusion stage dummy. *APPSTA* is the accession application stage dummy. *NEGSTA* is the accession negotiation stage dummy. *FINSTA* is the closure of negotiation and accession stage dummy.

4 *MARSIG* is the total amount of the GDP of the home and host countries. *MARSIM* is the similarity in the bilateral market size of the home and host countries. *PRISEC* is the ratio of the GDP to the host country's private sector. *GDPGRO* is the GDP real growth rate of the host country. *INFRAT* is the inflation rate of the host country. *DISCAP* is the direct distance between the capitals of the home and host countries.

5 Test of the null hypothesis that all coefficients are 0.

6 Spesification test of the random-effects model and the fixed-effects model.

7 Specification test of the random-effects model and the pooled OLS model.

8 *F* test of the null hypothesis that the coefficients of the accession negotiation dummy variables are all the same: F=4.10, p=0.007.

9 *F* test of the null hypothesis that the coefficients of the accession negotiation dummy variables are all the same: F=3.61, p=0.013.

10 The *t* statistics are given in parentheses. ***: significant at the 1% level, **: at the 5% level, *: at the 10% level.

the accession negotiation period is inadequate in order to validate the EU enlargement effect. Moreover, the positive and highly significant estimation results of *ASSSTA*, as those of the other EU accession variables in models (K) and (O), strongly suggest that TNCs in seven major developed countries responded to the new opportunities, even at the very beginning of the EU enlargement process, by undertaking FDI into the European post-communist countries. In this sense, our empirical evidence supports the view that TNCs with high risk-management capability tend to courageously enter newly emerging markets.

Most importantly, the estimates of the EU accession variables in the above six gravity models, as well as those in the regression models taking the gross FDI inflow as the dependent variable, strongly support the non-linear-effect hypothesis. In other words, the EU accession negotiation process and the inflows of FDI in candidate states are not a simple monotonic relationship, but resembles a reverse J-shaped relationship. To verify the presence of this curvilinear effect of EU Eastern enlargement on FDI, we re-estimated models (B), (F), (J) and (N) with a quadratic expression of the five-point accession negotiation progress dummy (*ACCPROQUA*) along with the linear term. Models (D), (H), (L) and (P), respectively, present the results. *ACCPRO* is estimated to be positive with statistical significance at the 5 per cent level or less in all four models, and *ACCPROQUA* is negative and significant at the 10 per cent level or less in models (D), (L), and (P). Hence, we surmise that the positive effect of advance toward EU membership eventually diminished and was smaller at the closure of negotiation and accession stage than at the accession negotiation stage.

One of the possible interpretations of these empirical results is that, when the EU accession became almost certain, the accession candidate government was forced into a sharp reduction or total abolition of favourable investment treatments available to foreign companies until then and had to give way to political pressure from the European Commission. These policy changes had a negative effect on attracting large-scale investments in particular. The drastic overhaul of favourable FDI incentives is one example. The cases occurring in Hungary and Poland alone affected more than European, Japanese and the United States enterprises and drew great opposition from them.[15] Although the

[15] For instance, *Nihon Keizai Shimbun* reported the following: "On June 19 [2002], the Polish government held a closed meeting at the Ministry of Finance to explain the current situation involving EU accession negotiations to Japanese, United States, and European companies, which may incur passive damages from the tax relief removal. At the meeting, numerous representatives of foreign corporations expressed their

Government of Poland promised compensation to these corporations for the damage resulting from the early termination of favourable incentives and the Government of Hungary launched the "Smart Hungary" programme, which is the most generous investment support plan to the maximum extent of the EU uniform criteria, these measures were not at all attractive in comparison to the abolished FDI incentives, such as ten-year corporate tax exemption and customs-free zones. It is possible that this event threw cold water over new investment plan of Western corporations and investors for the candidate countries in the final stage of the EU enlargement process.

5. Concluding remarks

In this paper, we studied the FDI-promoting effect of the EU's eastward expansion. It is highly possible that accession negotiations with the EU have greatly encouraged western investors in their FDI into candidate countries through the expansion of trade with the European integrated market and the reduction in country risk. However, our empirical evidence strongly suggests that the effects were not at all constant throughout the negotiation period, contrary to what earlier studies have implicitly assumed. This is because each of the negotiation stages may have a different impact on the decision-making of investors.

We found a general trend, i.e., as EU accession negotiations progressed and moved to higher political stages, the FDI-promoting effect progressively increased. However, we also found that a complete revision of the existing investment incentives carried out as compensation for obtaining the confirmation of EU accession might have had an adverse influence on FDI at the very end of political negotiations with the EU. Therefore, we conclude that the causal relation of EU Eastern enlargement and FDI enjoyed by accession candidate countries can be characterized as having a positive correlation. However, this is not a monotonic relationship; rather, it is of a reverse J-shaped nonlinearity. The finding suggests that certain policy coordination in the FDI incentive strategy was needed between the EU and acceding countries.

When adopting the non-linear-effect hypothesis, the FDI-promoting effect of EU enlargement, even when taking into consideration the adverse effect discussed above, is higher than the expected effect

dissatisfaction with harsh words. Government officials left in the midst of a storm in a cloud of insults and angry roars" (NKS, 9 July 2002).

when presupposing the constant-effect hypothesis. According to our simulation based on the estimation results shown in table 3, the periodical cumulative impact of the EU Eastern enlargement variables on FDI received between 1990 and 2005 by 12 CEECs is higher in the non-linear-effect hypothesis than that in the constant-effect hypothesis (69.861 versus 60.593 respectively). The difference is remarkable when considering investment per capita (84.087 versus 68.419 respectively). In other words, if the non-linear-effect hypothesis reflects the reality more appropriately than the constant-effect hypothesis, it can be concluded that the policy efforts made by the former Communist states, focusing on integration to the European unified market, brought much more economic benefits than what has been generally believed.

Appendix. Definitions, descriptive statistics, and sources of variables used in empirical analysis

Variable name	Definition	Descriptive statistics					Source
		Mean	S.D.	Median	Max.	Min.	
FDI (in Table 3)	Gross FDI inflow to 21CEECs and the former Soviet countries (million US dollars)	1248.9	2257.9	301.5	15444	1	UNCTAD public data.
FDI (in Table 4)	Bilateral gross FDI inflow from 7 major developed countries to 9 CEECs (million US dollars)	236.8	504.8	57.9	4263.3	1.2	OECD public data.
ACCCAN	Accession candidate dummy	0.4	0.5	0	1	0	Set up by authors.
ACCPRO	Accession negotiation progress dummy (5-point scale)	1.0	1.4	0	4	0	As above.
ASSSTA	Association agreement conclusion stage dummy	0.1	0.2	0	1	0	As above.
ACCSTA	Accession application stage dummy	0.1	0.3	0	1	0	As above.
NEGSTA	Accession negotiation stage dummy	0.1	0.3	0	1	0	As above.
FINSTA	Closure of negotiation and accession stage dummy	0.1	0.3	0	1	0	As above.
GDPSIZ	Total amount of GDP of host country (million US dollars)	34408.1	69698.5	12583	578017	168	World Bank (1996), EBRD, *Transition Report*.
PRISEC	Ratio of GDP to host country's private sector (%)	49.6	23.4	55	80	5	Authors' estimation based on EBRD, *Transition Report*, and other materials.
GDPGRO	GDP real growth rate of host country (%)	0.7	10.5	3.3	86.0	-52.6	World Bank (1996), EBRD, *Transition Report*.
INFRAT	Inflation rate of host country (%)	214.6	1045.0	11.9	15606.5	-1.2	As above.
MARSIG	Total amount of GDP of home and host countries (million UD dollars)	2185976.9	2754260.6	1305877	11928389	136447	Authors' calculation based on EBRD, *Transition Report, and* OECD public data.
MARSIM	Similarity in the bilateral market size of home and host countries	0.1	0.1	0.0	0.5	0.0	As above.
DISBRA	Direct distance between Brussels and the capital of host country (km)	1615.6	656.8	1582.7	3295.4	704.3	Authors' calculation.
DISCAP	Direct distance between the capitals of the home and host countries (km)	2723.9	2739.7	1431.7	9173.6	142.7	As above.

Source: Compiled by the authors.

Note: For a more precise definition of the EU accession variables, see Section 4.

References

Assenov, Ilian (2003). "Market reforms and foreign investment: what drives capital flows to transition economies?" *Osaka Economic Papers*, 53, pp. 99–118.

Baldwin, Richard E. (1995). "The Eastern enlargement of the European Union", *European Economic Review*, 39, pp. 474–481.

Baldwin, Richard E., Joseph F. Francois and Richard Portes (1997). "The costs and benefits of Eastern enlargement: the impact on the EU and Central Europe", *Economic Policy*, 12, pp. 125–176.

Berglof, Erik and Patrick Bolton (2002). "The great divide and beyond: financial architecture in transition", *Journal of Economic Perspectives*, 16, pp. 77–100.

Bevan, Alan A. and Saul Estrin (2000). "The determinants of foreign direct investment in transition economies", CEPR Discussion Papers No. 2638, Centre for Economic Policy Research: London.

Bevan, Alan A., and Saul Estrin (2004). "The determinants of foreign direct investment into European transition economies", *Journal of Comparative Economics*, 32, pp. 775–787.

Bevan, Alan A., Saul Estrin, and Klaus Meyer (2004). "Foreign investment location and institutional development in transition economies", *International Business Review*, 13, pp. 43–64.

Brainard, S. Lael (1997). "An empirical assessment of the proximity-concentration trade-off between multinational sales and trade", *American Economic Review*, 87, pp. 520–544.

Brenton, Paul, Franchesca Di Mauro and Matthias Lücke (1999). "Economic integration and FDI: an empirical analysis of foreign investment in the EU and in Central and Eastern Europe", *Empirica*, 26, pp. 95–121.

Breuss, Fritz, Peter Egger and Michael Pfaffermayr (2001). "The impact of Agenda 2000's structural policy reform on FDI in the EU", *Journal of Policy Modeling*, 23, pp. 807–820.

Clausing, Kimberly A. and Cosmia L. Dorobantu (2005). "Re-entering Europe: does European Union candidacy boost foreign direct investment?" *Economics of Transition*, 13, pp. 77–103.

Dallago, Bruno and Ichiro Iwasaki, eds. (2007). *Corporate Restructuring and Governance in Transition Economies* (Basingstoke: Palgrave Macmillan).

Dunning, John H. (1958). *American Investment in British Manufacturing Industry* (London: George Allen & Unwin).

Dunning, John H. (1970). *Studies in International Investment* (London: Allen & Unwin).

EBRD (European Bank for Reconstruction and Development), *Transition Report* (London: EBRD) (various issues).

Egger, Peter and Michael Pfaffermayr (2004a). "The impact of bilateral investment treaties on foreign direct investment", *Journal of Comparative Economics*, 32, pp. 788–804.

Egger, Peter and Michael Pfaffermayr (2004b). "Foreign direct investment and European integration in the 1990s", *World Economy*, 27, pp. 99–110.

Estrin, Saul, Xavier Richet and Josef C. Brada, eds. (2000). *Foreign Direct Investment in Central Eastern Europe: Case Studies of Firms in Transition* (London: M.E. Sharpe).

Helpman, Elhanan (1984). "A simple theory of international trade with multinational corporation", *Journal of Political Economy*, 92, pp. 451–471.

Horstmann, J. Ignatius and James R. Markusen (1992). "Endogenous market structures in international trade", *Journal of International Economics*, 32, pp. 109–129.

Ikema, Makoto (1992). "Theory of foreign direct investment", in *Dictionary of Economics*, Third Edition (Tokyo: Iwanami Shoten), pp. 900–902 (in Japanese).

Iwasaki, Ichiro (2007). "Corporate restructuring and the role of foreign direct investment in Hungary", in Dallago, Bruno and Ichiro Iwasaki, eds., *Corporate Restructuring and Governance in Transition Economies* (Basingstoke: Palgrave Macmillan), pp. 178–210.

Iwasaki, Ichiro and Kazuko Sato (2004). "EU accession and FDI incentives in Hungary", *Slavic Studies*, 51, pp. 209–239 (in Japanese).

Iwasaki, Ichiro and Keiko Suganuma (2005). "Regional distribution of foreign direct investment in Russia", *Post-Communist Economies*, 17, pp. 153–172.

Koutrakos, Panos (2002). "Free movement of goods under the Europe Agreements", in Ott, Andrea and Kirstyn Inglis, eds., *Handbook on European Enlargement: A Commentary on the Enlargement Process* (Hague: T.M.C. Asser Press), pp. 369–390.

KSH (Központi Statistikai Hivatal). *Magyar Statistiai Évkönyv* (Budapest: KSH) (various years) (in Hungarian).

Lind, Douglas, A., William G. Marchal and Samuel A. Wathen (2004). *Statistical Techniques in Business and Economics*, Twelfth Edition (Irwin: McGraw-Hill).

Mardas, Dimitri (2005). "The latest enlargement of the EU and 'buy national' rules", *World Economy*, 28, pp. 1633–1650.

Marinova, Svetla Trifonova and Marin Alexandrov Marinov, eds. (2003). *Foreign Direct Investment in Central and Eastern Europe* (Aldershot: Ashgate).

Markusen, James R. and Anthony Venables (1998). "Multinational firms and the new trade theory", *Journal of International Economics*, 46, pp. 183–203.

Markusen, James R. and Anthony Venables (2000). "The Theory of endowment, intra-industry, and multinational Trade", *Journal of International Economics*, 52, pp. 209–234.

Nishimura, Yoshiaki (2000). "The trend of economic relationship among the former Soviet states and Eastern European countries", in Nishimura, Yoshiaki, ed. *Developments in International Economic Relationship in the Former Soviet Union and Eastern Europe* (Tokyo: Nippon-Hyoron-Sha), pp. 1–34 (in Japanese).

Ott, Andrea and Kirstyn Inglis, eds. (2002). *Handbook on European Enlargement: A Commentary on the Enlargement Process* (Harge: T.M.C. Asser Press).

Resmini, Laura (2000). "The determinants of foreign direct investment in the CEECs: new evidence from sectoral patterns", *Economics of Transition,* 8, pp. 665–689.

Stephan, Johannes, ed. (2006). *Technology Transfer via Foreign Direct Investment in Central and Eastern Europe: Theory, Method of Research and Empirical Evidence* (Basingstoke: Palgrave Macmillan).

Suganuma, Keiko (2006). "Foreign direct investment in transition economies: focusing on Russia", *Japanese Journal of Comparative Economics*, 43, pp. 15–30 (in Japanese).

Sugiura, Fumikazu (2006). "The eastward expansion of European capital from the viewpoint of new and prospective EU member states", in Yamauchi, Susumu, Ryo Oshiba and Kazuyasu Ochiai, eds. *Conflict and Settlement in Europe* (Tokyo: Centre for New European Research, Hitotsubashi University), pp. 136–158.

Sugiura, Fumikazu (2007). "Economic transformation and corporate finance in the post-communist world", in Dallago, Bruno and Ichiro Iwasaki, eds., *Corporate Restructuring and Governance in Transition Economies* (Basingstoke: Palgrave Macmillan), pp. 40–62.

Suzuki, Taku and Keiko Suganuma (2008). "FDI to the transition countries and the role of the state", in Ikemoto, Shuichi, Ichiro Iwasaki and Fumikazu Sugiura, eds., *Economics of Globalization and Systemic Transformation* (Tokyo: Bunshin Do), pp. 76–104 (in Japanese).

Tanaka, Hiroshi (2002). "The final stage of negotiation for the EU accession", *Business Review of Kansai University*, 47, pp. 157–170 (in Japanese).

World Bank (1996). *Statistical Handbook 1996: States of the Former USSR* (Washington, D. C.: World Bank).