NOTE TO USERS

Real Option Value of Regional Integration for Foreign Investors

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ABSTRACT

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We study the relationship between regional integration and foreign direct investment (FDI) flows. We suggest that FDI flows are attracted by a host country's intrinsic real option value to join a larger economic union. The option grants the investing firms the possibility to secure a strategic advantage in servicing the enlarged market, should the host country join the economic union. The strategic advantage comes from market preemption and learning effects. We develop a model for the FDI flows into countries that wish to join an economic union and we empirically test the model by studying the FDI flows into the countries that were candidates to the successive enlargements of the European Union. We find that the FDI flows do not behave accordingly to our real options model.

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1. Introduction

Over the last decades, foreign direct investment (FDI) flows have increased considerably. For example, the total outflows and inflows of FDI among OECD countries almost doubled over the period 1996-2002 (OECD, 2003). Researchers have proposed different theories to explain this striking increase: among others, the expansion of multinational companies, increased competition, industrialization in developing countries, and recently adopted openness-oriented economic policies in certain developed and developing countries (Schirm, 2002).

Simultaneously, and as a testimony of the enhanced openness to trade and investment, the number of ratified regional integration agreements has surged: In fact, as of 2003, only three members of the World Trade Organization (WTO) had not ratified a regional integration agreement of some sort (World Trade Organization, 2005a). Although the number of ratified regional integration agreements has increased in all regions of the globe, European countries have been particularly active in ratifying integration agreements.

Many researchers have investigated the possible link between regional integration and foreign direct investment. However, their results are inconclusive: Some researchers find that the ratification of a regional integration agreement improves the attractiveness of a host country as a destination for FDI flows, whereas other researchers find that countries that are members of a regional integration agreement attract less FDI flows than countries not participating in regional integration agreements, *ceteris paribus*.

With the exception of Egger and Pfaffermayr (2004), most previous research examines the impact of regional integration on FDI flows *after* the host country's ratification of the regional integration agreement. However, the ratification of a regional integration agreement by a country is rarely unanticipated. Indeed, countries contemplating regional integration usually announce their intentions publicly. Similarly, information concerning the progress in the preintegration negotiations is generally in public domain. Therefore, it is possible that

some firms foresee the possible integration of a foreign country, and that these firms invest in the foreign country *prior* to its effective integration to a regional agreement motivated by the increased potential of the integrating country as a location for production. This question is the core of our research.

In the present paper, we develop a real options model that provides an alternative perspective on firms' foreign investment behaviour when the host countries contemplate regional integration. Our model builds on existing FDI theory by incorporating additional variables in the FDI framework, namely time and strategic flexibility. The real options model also allows us to account for the dynamic forces among the FDI determinants.

Briefly, we propose that firms enter the local market of a country that is an applicant to an economic union because firms want to secure the possibility of acquiring an asset (larger market shares secured through preemption and learning effects) that may have a positive value (that is, servicing the enlarged market from the host country is profitable if the candidate country indeed joins the larger economic union) and this, by paying an exercise price (the entry costs to the candidate country's local market) in the form of a possibly higher entry cost than it would incur after the country joins the economic union. The possible integration of the candidate country to a larger economic union is the only uncertainty in our model. In the remainder of this paper, we refer to this real option as the *integration-value option.*

This paper has two objectives: (1) describe the parameters of the integration-value option, that is the real option consisting of foreign direct investment (FDI) in a country with an intrinsic option to join an economic union; and (2) verify empirically whether investors recognize the option's value, as evidenced by abnormal levels of FDI flows into candidate countries before the candidate country's integration to an economic union is certain.

Thus, the contributions of our research are twofold. First, from an academic perspective, the theoretical model that we develop presents new perspectives on the foreign

investment issue. Indeed, our real options model allows the incorporation of the time-changing nature of FDI determinants and the strategic aspects of the FDI decision into a comprehensive framework.

Moreover, our empirical results should contribute to a better understanding of the consequences of regional integration, which is one of the often-hypothesized determinants of FDI flows. Regional integration, at least under its actual form, is indeed a relatively recent phenomenon, and its longer term consequences are still subject to investigation. By analyzing FDI flows into markets that are not profitable per se, this research aims to discover whether the integration of a country to a larger economic union impacts positively on FDI flows into the applicant country, and if it does, at which moment the impact is felt.

This paper proceeds as follows. Section 2 presents the conceptual foundations of our paper by reviewing the existing literature on FDI determinants, regional integration, and the influence of regional integration on FDI flows. Section 3 develops a model of the integration-value option. In Section 4, we present our research methodology. Section 5 contains a description of the data. Section 6 presents the results of the analysis. Finally, Section 7 discusses the results and concludes.

2. Conceptual Foundations

In this section, we present the conceptual foundations of the real options model that we develop in Section 3. We thus review the existing literature on the FDI flows determinants, regional integration, and the relationship between FDI flows and regional integration.

2.1 The Determinants of FDI

Dunning (1993) suggests an encompassing framework structuring the discussion on FDI determinants. His theory of foreign investment conveniently offers an explanation for both the creation of MNEs (multinational enterprises) and the MNEs' choices concerning the location of their foreign activities. Briefly, Dunning's framework (1993) states that FDI occurs when (1) a firm possesses a unique value-creating strategic advantage (ownership advantage); (2) the exploitation of this advantage needs to take place on at least one foreign market in order to ensure efficiency (location advantage); and (3) more efficiency gains are expected through the internalization of the exploitation of the value-creating asset rather than its exploitation through rental contracts with another firm (internalization advantage). Dunning's framework has become known as the OLI paradigm, deriving its name from the three types of advantages that a firm necessitates for engaging in FDI, namely the ownership, location, and internalization advantages.

A shortcoming of Dunning's OLI paradigm (1993) lies in the fact that its applications are limited to horizontal foreign investment (Caves, 1996). However, Teece (1986) affirms that including the transaction costs perspective in the OLI paradigm permits the extension of the OLI paradigm to vertical FDI and, similarly, to unrelated – or conglomerate – FDI.

Next, we review the existing literature on FDI determinants. We use Dunning's OLI paradigm to frame our discussion. Also, we consider the transaction costs, thus not limiting our analysis to horizontal FDI.

2.1.1 Ownership advantage

An ownership advantage lies in a value-creating asset, tangible or not, that firms possess or acquire (Caves, 1996; Lall, 1997). Dunning (1988) divides the value-creating proprietary assets into two categories: the advantages that established firms enjoy over newly created enterprises, for example monopoly positions, economies of scope, and preferential access to resources and markets; and the advantages ensuing from the firms' multinationality, for instance experience and favored access to knowledge, know-how and resources. Some firms acquire their value-creating assets instead of developing them internally (Caves, 1996; Kuemmerle, 1999). Kuemmerle (1999) and Krugman (1990) find that firms that acquire value-creating assets are likely to invest in locations characterized by high levels of private and public spending in research and development, skilled human resources, agglomerations of asset-developing firms, and high levels of scientific achievement in the pertinent fields.

Ceteris paribus, and especially if their value-creating assets are imitable or substitutable, firms prefer to invest in countries where a limited number of competitors are present. The firms that invest early preempt competition and thus enjoy a temporary *de facto* monopoly or oligopoly. Consequently, early investors gain a higher return on their investment than later entrants (Ramamurti & Doh, 2003).

2.1.2 Location advantages

The second condition of Dunning's (1988) paradigm states that foreign production must be more efficient than home production for FDI to take place. There are several plausible reasons behind the possible superiority of foreign versus home production.

For example, firms invest in foreign markets because of the limited growth possibilities that the home market provides; investing in larger, richer, or faster growing markets allows firms to continue their growth in spite of saturated home markets (see for example Bende-Nabende, Ford, Sen, & Slater, 2000, as cited in Goebel, 2003; Bevan & Estrin, 2000;

Dunning, 1988; Safarian & Hejazi, 2001; Stein & Daude, 2001). Also, firms decide where to invest on the basis of the costs of the production factors, for instance the raw materials, components and parts, labor, and capital (among others, Bende-Nabende et al., 2000; Braga & Cardoso, 2004; Dunning, 2002; Kuemmerle, 1999; Lall, 1997; Lecraw, 1991).

The quality of the host countries' infrastructures and institutions is another significant determinant of FDI. Indeed, there is a positive relation between the quality of the host country's institutions (capital markets, bureaucracy, legal system, governance structure, and the degree of transparency for example) and the FDI flows received by the host country (Balasubramanyam, Sapsford, & Griffiths, 2002; Bende-Nabende et al., 2000; Dunning, 2002; Gastanaga, Nugent, & Pashamova., 1998; Globerman & Shapiro, 2002; Lall, 1997; Safarian & Hejazi, 2001; Stein & Daude, 2001). Similarly, researchers find that good-quality infrastructures, such as road networks, ports, airports, and communication networks, also contribute to the viability of FDI projects (Dunning, 2002; Lall, 1997; Safarian & Hejazi, 2001). However, there is a negative relation between FDI flows and the host country's political risk, which encompasses the risk of nationalization and the political instability (Bende-Nabende et al., 2000; Bevan & Estrin, 2001; Braga & Cardoso, 2004; Nordal, 2001).

Governments that accord incentives to foreign investment and that ease the profits remittance to the foreign firms' headquarters improve their country's investing climate, which in turn improves the country's attractiveness as an FDI destination, *ceteris paribus* (Dunning, 2002; Lall, 1997; Safarian & Hejazi, 2001; UNCTAD, 1995). Some governments prefer to grant tax reductions applicable to foreign subsidiaries (Bende-Nabende et al., 2000; Gastanaga et al., 1998; Lecraw, 1991).

2.1.3 Internalization advantages

The third condition of Dunning's OLI paradigm (1993), the internalization advantage, states that FDI takes place if and only if FDI is the most efficient exploitation mode of the

value-creating assets. Other modes of exploitation include licensing, franchising, and producing in the home market and exporting the finished goods.

When determining which exploitation mode is the most efficient, firms must take into account direct and indirect costs. Indirect costs, such as those related to the negotiations concerning the sale of the value-creating assets, protection of the end product's quality, enforcement of property rights, and search for compatible partners, are a function of the information asymmetry that exists between parties (Dunning, 1988; Teece, 1986). By internalizing the development and management of the value-creating assets, firms avoid most of these selling and contracting costs (Dunning, 1988; Teece, 1986). The internalization of the exploitation of the value-creating asset may thus help to minimize the total exploitation costs because it eliminates a large part of the selling and contracting costs.

Also, firms sometimes pursue global strategies that are more effective if conducted through FDI: Risk and economic diversification, control of the input or output market prices, predatory pricing, cross-subsidization, or transfer pricing are examples of strategies that require the internalization of the operations (Dunning, 1988; Lall, 1997).

Furthermore, some firms may invest in markets that are not large enough to ensure the immediate profitability of the FDI project. Nonetheless, these markets may offer growth prospects that are large enough to attract foreign firms in spite of the current lack of profitability of the host country's local market. This question is the core of our paper. Before discussing this question thoroughly, however, we review some key concepts about regional integration.

2.2 Regional Integration

2.2.1 Definitions and effects of regional integration

Mattli (1999) defines regional integration as the "voluntary linking in the economic and political domains of two or more formerly independent states to the extent that authority over

key areas of national policy is shifted toward the supranational level" (p. 1). There exists a wide spectrum of integration agreements but the most common are the free trade agreements, customs unions, common markets, complete economic unions, and complete political unions (El-Agraa, 2001).

Free trade agreements involve the removal of all trade impediments among participant countries. However, member countries retain their decisive power concerning their customs and foreign policies. Members of customs unions adopt common external policies in addition to trade-freeing measures. Common markets require the removal of trade impediments, as well as the determination of common external commercial policies and the free mobility of factors of production within the integrated area. Member countries thus lift constraints to capital, labour, enterprises, and technology movements.

Complete economic unions entail harmonized economic and fiscal policies, the removal of trade impediments, and free mobility of production factors. The unification of economic policies implies the creation of a central authority in order to manage the coordination of national interests and the fixation of exchange rates among member countries' currencies, through the creation of a common currency or not. Finally, the deepest form of integration, complete political integration, involves the merger of two or more nations into one sovereign nation. The different integration agreements are not necessarily consecutive stages in a unified integration process: In other words, a deep-integration agreement does not need to evolve from a less involving agreement (El-Agraa, 2001).

Academics of different fields have suggested theories of regional integration. According to the political-science models, regional integration's ultimate goal is regional peace (functionalism theory), national welfare maximization (neo-functionalism), or gaining negotiation power (intergovernmentalism; Mattli, 1999; Schirm, 2002).

Economic theories of regional integration offer another perspective on the motives and processes leading to the creation of such agreements. The customs-union theory states that

member countries seek to maximize their national welfare through the creation of customs unions (Viner, 1950). Some researchers argue that integration through customs unions is not deep enough for full integration benefits to be realized (Mattli, 1999). Consequently, these researchers put forth the currency-area theory, which promotes the adoption of common monetary and fiscal policies. The currency-area theory states that the economies of scale generated through the pooling of resources are higher than the costs of maintaining internal and external balances with reduced means. Another theory, namely fiscal federalism, states that when governments permit the free movement of production factors, factors move across borders to regions where the economic rewards on these factors are greater. This leads to fiscal spillovers and hence, it creates a need for the harmonization of fiscal policies. Member countries coordinate their policies through the ratification of a regional agreement (Mattli, 1999).

The theories presented thus far do not consider simultaneously the influence of political and economic motives to integration. Mattli (1999) proposes a model that reconciles the political and economic views. In his model, the success of an integration agreement is a function of the convergence of the demand and supply sides: The demand force represents the institutional changes necessary to fully realize the gains from international trade, whereas the supply force corresponds to the political leaders' willingness and ability to respond to the demand factors. Mattli's (1999) theory is appealing because it explicitly models the expected economic gains of regional integration.

Researchers separate the economic gains of regional integration into the gains that result from free trade agreements and customs unions, and the gains that arise specifically from common markets and economic unions (El-Agraa, 2001). Economic gains that result from free-trade agreements and customs unions include the increased production necessary to service the enlarged market, improvement of the member countries' bargaining position in terms-of-trade negotiations, and production efficiency due to the better exploitation of each

member country's comparative advantage. Moreover, economists suggest that the increased competition in the enlarged internal market leads to technological developments that in turn result in changes in the quality and the amount of production factors used. Gains associated specifically with common markets and economic unions comprise the efficient allocation of production factors (which leads to higher national incomes), economies of scale that result from the coordination of monetary and fiscal policies, and cost reductions in achieving certain objectives, such as lower inflation rate, balanced trade, and higher rates of economic growth (El-Agraa, 2001).

In short, "regional integration has three functions: it strengthens the competitiveness of its members (1) on the regional market and (2) on world markets, and (3) it discriminates against those competitors form third countries whose comparative advantage could provoke politically unsustainable costs" (Junne, 1996, as cited in Schirm, 2002).

2.2.2 A historical perspective of regional integration

Regional integration may appear to be a relatively recent phenomenon. Nevertheless, the basic principle of regional integration, that is, the voluntary removal of trade impediments among members of the regional integration agreement, can be traced back to at least the 14th century (Greer & Lewis, 1997). In fact, the Hanse commercial league established by German merchants in the 14th century fulfills the basic criterion of a regional integration agreement: Indeed, the merchants' deliberate association helped them gain trading privileges (Greer & Lewis, 1997).

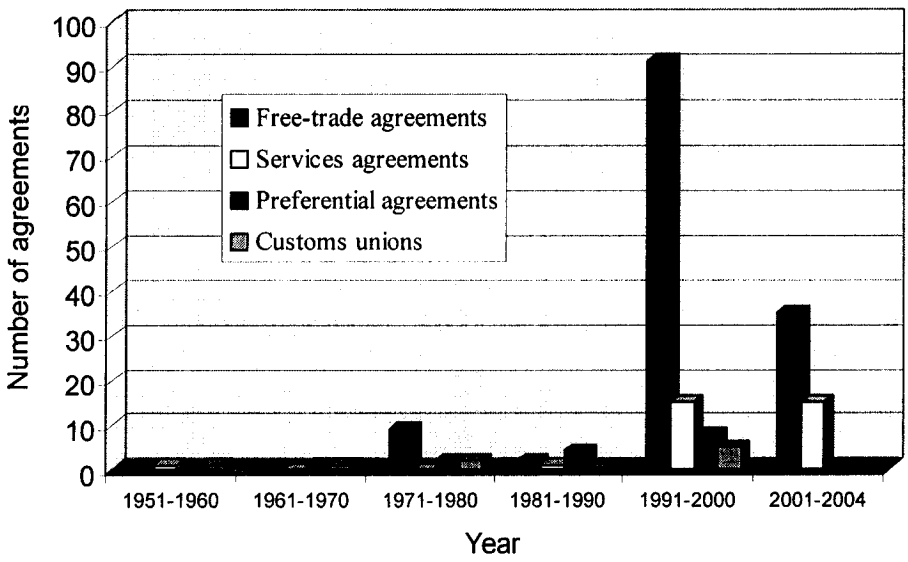
Regional integration agreements evolved to a form closer to the current one and they became increasingly popular at the end of the 18th century. Indeed, historians know of at least ten integration agreements, principally in Central and Eastern Europe, that were ratified during this period (Mattli, 1999). Some of these agreements led to political unification: for example, the German Zollverein (1834), Swiss Confederation (1848), and the Moldovian-

Wallachian Customs Union (1847). Some agreements established monetary unions or exchange rates systems: for instance, the German Monetary Convention (1838 and 1857) and the Latin Monetary Union (1865). The objective of other agreements, the Bavaria-Württemberg customs union (1828-1833) and Hanover Steuerverein (1834-1854) for example, was the institution of common tariffs among members.

The ratification of the Anglo-French treaty in 1860 fostered a wave of regional integration: Indeed, smaller nations wanted lower tariffs for their goods in order to counterbalance the consequences of the Anglo-French treaty on third countries. This wave of integration came to a halt with the beginning of World War I (de Melo and Panagariya, 1993).

The following wave of regional integration started after World War II (Bhagwati, 1993). Figure 1 shows the dramatic increase in the number of regional integration agreements notified to the World Trade Organization (WTO). The increase is particularly noticeable for free trade agreements, whose number surged in the 1990s. In the light of this striking increase, there is an urgent need for more research in this area, among others to verify whether the effects and consequences of regional integration materialize as predicted by the theories.

Figure 1: Number of ratified regional integration agreements notified to the GATT by type of agreements, 1951-2004



Note : This figure shows the number of ratified integration agreements that were notified to the GATT (General Agreement on Tariffs and Trade) or, after 1995, to the WTO (World Trade Organization). The regional integration agreements are broken down by the type of agreements and the decade during which the agreement was ratified (except for the 2001-2004 period, which contains only four years). The source of the data is the World Trade Organization (2005b).

In our empirical analysis, we will focus on the European Union (EU) because the EU is possibly among the deepest and most successfully implemented integration agreements (Winters, 1999). Here, we review briefly the major events that led to the formation of the current EU.

The creation of the European Coal and Steel Community (ECSC), which regrouped Belgium, France, Germany, Italy, Luxembourg and the Netherlands, laid the bases for the establishment of the European Economic Community (EEC) in 1958. The original EEC members – the same countries that were members of the ECSC – agreed on the main objective of the EEC: achieve a closer union among the nations of Europe through the creation of a common market and, eventually, an economic union (Noël & Fontaine, 2002).

The initial successes of the EEC encouraged other countries to join the EEC (or the EU, after 1992) through successive enlargements: Denmark, Ireland, and the United Kingdom in

1973; Greece in 1981; Portugal and Spain in 1986; Austria, Finland, and Sweden in 1995; and Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic, and Slovenia in 2004. The EEC also underwent another enlargement in 1990 when the Federal Republic of Germany and the German Democratic Republic were reunited.

At the beginning of the 1990s different events of importance took place: the adoption of the Treaty creating the European Union (EU) in 1992, the creation of the Single European Market in 1993, and the Copenhagen conference, also in 1993, during which the EU Council stated that

> "the associated countries of Central and Eastern Europe that so desire shall become members of the Union. Accession will take place as soon as a country is able to assume the obligations of membership by satisfying the economic and social conditions" (European Council, as cited in Avery, 2004, p. 36).

This statement, which is known as the Copenhagen promise, paved the way for the Central and Eastern European countries to begin the complex process toward integration. This process begins with the candidate country's formal application and it is followed by a negotiations phase, during which the negotiating parties determine the transition periods necessary for the candidate country to implement the EU's *acquis communautaire* (laws adopted on the basis of the EU's creation treaties; European Union, 2005a). The accession process concludes with the announcement of the negotiations result. To date, all candidate countries that opened negotiations succeeded in integrating the EU. Therefore, the negotiating parties usually announce the date on which the candidate country will join the EU along with the negotiations result (European Union, 2005b).

In short, there is no doubt that regional integration is popular among both developed and developing countries, as evidenced by the number of ratified regional agreements. However, until now, researchers have not identified thoroughly the consequences of regional integration. In any case, regional integration modifies considerably the member countries'

economic and political environments and thus, regional integration influences the different determinants of FDI. For example, free-trade agreements increase the size of the tariffs-free accessible market, and common markets may change the distribution of the factors of production within the integrated area. Thus, there is possibly a link between regional integration and the geographic distribution of the FDI flows. This question is the core of our paper. Before developing our model, we consider next the literature on the relationship between regional integration and FDI.

2.3 FDI and Regional Integration

Research on regional integration is fairly recent. Even more recent is the research on the relationship between regional integration and FDI flows. Nonetheless, a few theories have been proposed to explain the possible effects of regional integration on FDI flows. Next, we review these theories: We first survey the theoretical models and then examine the conclusions of empirical studies.

2.3.1 Theoretical models

Neary (2001) and Donnenfeld (1998) develop similar models describing the consequences of regional integration on FDI flows. Indeed, both models consider a simplified world in which multinational enterprises (MNEs) face competition from local firms, and in which countries that are members of a regional integration agreement are homogeneous. (Neary [2001] considers the case with heterogeneous member countries; the results are similar to the case with homogeneous countries.) Moreover, both Donnenfeld (1998) and Neary (2001) assume that FDI and exports are substitutes and that internal and external tariffs are exogenously determined. On the basis of these assumptions, the models predict which mode of internationalization – exports or FDI – is the optimal strategy.

Upon deciding which mode of internationalization is optimal, the MNEs consider the set-up costs related to FDI and the tariffs imposed on member countries (internal tariffs) and non-member countries (external tariffs). Because MNEs are assumed to be rational, value-maximizing, and risk-neutral agents, they favor the mode of exploitation that is the most profitable. Neary (2001) states that if FDI is profitable, and if internal tariffs are lower than external tariffs, then the MNEs build or acquire one plant within the integrated region and supply the rest of the internal market through exports. In other words, the MNEs' investment becomes a platform for future exports.

Donnenfeld (1998) and Neary (2001) also consider how competition influences the choice of the internationalization mode. Indeed, local firms do not face the set-up costs that the MNEs face. Local firms thus lower their profit margin such that servicing the customs union market is not worthwhile for the MNEs. If their value-creating asset is not unique enough to secure a substantial market share, MNEs decide to supply the customs union through exports or to abandon the host country altogether (Donnenfeld, 1998; Neary, 2001).

Also, Donnenfeld (1998) analyzes the impact of an expansion of the customs union. If the expansion is due to an increase in the national GDP of the member countries, the MNEs are likely to recoup their set-up costs more rapidly, and thus the FDI project becomes more profitable, *ceteris paribus*. However, if the expansion is due to the entry of new countries in the customs union, it implies that the internal competition increases, which reduces the profitability of FDI.

There are some limitations to Donnenfeld's (1998) and Neary's (2001) models. For example, both models assume the substitutability of trade and FDI. However, certain researchers find tentative evidence of the complementarity of trade and FDI (Balasubramanyam et al., 2002; Bloningen, 1999; McCorriston, 2000, as cited in Globerman, 2002). It is not clear which relation, complementarity or substitutability, is predominant.

Briefly,

> to the extent that the financial benefits to FDI arise from being able to circumvent the costs and restrictions of tariffs and non-tariffs barriers to trade, FDI and trade should predominantly be substitutes. On the other hand, to the extent that freer trade enables MNCs [MNEs] to better or more fully exploit firm-specific advantages in foreign markets, FDI and trade should be predominantly complements. To the extent that both incentives to FDI are relevant the net impact will depend upon the relative strength of each (Globerman, 2002, p. 6-7).

To our knowledge, there are no theoretical models that predict the predominance of either the complementarity or substitutability of trade and FDI. Researchers thus turn to empirical analyses in order to assess which relation dominates, and what are the resulting consequences of the adoption of trade-freeing measures, or regional integration, on FDI flows. We consider these empirical studies next.

2.3.2 Empirical Evidence

Blomström and Kokko (1997) and Globerman (2002) examine FDI flows between Canada and the United States following the ratification of the Canada – United States Free Trade Agreement (CUSFTA). Both studies find a decrease in FDI flows between Canada and the U.S.A. Also, Blomström and Kokko (1997) find a simultaneous increase in FDI flows to the rest of the world. Blomström and Kokko (1997) explain the decrease in intraregional FDI and the simultaneous increase in interregional FDI by the fact that regional integration secures an access to regional markets to insider firms and thus frees FDI resources such that FDI can take place in other non-regional markets.

The situation is different in the case of the European Union. Indeed, Globerman (2002) finds an increase in interregional FDI as in the case of the CUSFTA, but he also observes an increase in intraregional FDI within the European Communities and the European Union over

the 1980s and 1990s. Globerman (2002) explains this increase by the continuous expansion of the European common market over this period.

Researchers observe different patterns in the case of agreements between differently endowed countries. For example, Blomström and Kokko (1997) and Globerman (2002) do not find any increase in inward FDI flows to Canada and the U.S.A. following the ratification of the NAFTA (North American Free Trade Agreement) but they find an increase in inward FDI flows to Mexico. Globerman (2002) tentatively explains this pattern by suggesting that the trade channels between Canada and the U.S.A. were well established before the entry into force of the CUSFTA in 1989. Consequently, the entry into force of both the CUSFTA and NAFTA had a more subtle impact than anticipated and thus, the CUSFTA and NAFTA had little consequences for FDI flows between Canada and the U.S.A. Trade channels between Mexico and both Canada and the U.S.A. were not as integrated before the NAFTA was ratified. The entry in vigor of the NAFTA modified the trade environment, which in turn influenced the FDI patterns.

Bretton, Di Mauro and Lücke (1999) examine the integration of the Central and Eastern European countries (CEEC) and the European Union: After controlling for economic, demographic, geographic and institutional characteristics of the host country, the authors find increasing inward FDI flows to the most economically advanced CEECs. However, Bretton et al. (1999) do not mention whether FDI flows increase following the ratification of the Europe Agreements or in anticipation of the CEECs' integration to the EU.

The above-mentioned studies provide interesting results but the studies are limited in scope. First, they consider different agreements, but separately. Second, their analyses are often limited to the description of flows and therefore, these studies may lack stronger statistical support. More recent studies fill these gaps.

Hallward-Driemeier (2003) examines the changes in bilateral outflows from 20 OECD countries to 31 developing countries following the ratification of a bilateral investment treaty

(BIT). She finds that the ratification of a BIT does not increase significantly the level of FDI received by the host country. Moreover, Hallward-Driemeier (2003) finds that the impact of BITs on FDI inflows is greater in countries that already present macroeconomic stability and good-quality institutions, which is consistent with Blomström and Kokko's (1997) findings. Hallward-Driemeier (2003) thus suggests that the ratification of a BIT does not substitute for strong institutions in the host country.

Egger and Pfaffermayr (2004) find similar results: After controlling for economic characteristics of the host and source countries, Egger and Pfaffermayr (2004) do not observe any significant increase in real bilateral stocks of outward FDI between Europe and the rest of the world following the entry into force of the European Single Market Program and the 1995 enlargement of the European Union. However, Egger and Pfaffermayr (2004) also test for differences in mean FDI flows during different periods, both before and after the completion of the Single Market Program. Their results indicate that an "anticipation effect [... takes] place between the announcement and the formal establishment of an integration event" (Egger & Pfaffermayr, 2004, p. 108). They also find a positive relationship between FDI flows and the bilateral market size, as evidenced by the increase in total bilateral FDI flows in anticipation of the ratification of the regional integration agreement. (Egger and Pfaffermayr [2004] do not analyze separately the flows to member and candidate countries.)

The results obtained by Balasubramanyam et al. (2002) contrast with those of the above-mentioned studies. Indeed, after controlling for the distance between the source and host countries and for the GDP, population, and the economic freedom of the host country, Balasubramanyam et al. (2002) find that bilateral flows between countries that are both members of either the European Union or the NAFTA are significantly higher than flows between countries that are not members of a regional integration agreement. They explain this finding by suggesting that at the margin, trade and FDI may be complementary. Thus, the reduction of the barriers to trade in one country may foster FDI activity in this country.

However, Balasubramanyam et al. (2002) also find that the source and host countries' economic characteristics are more important than regional integration in determining the location of FDI flows. Balasubramanyam et al. (2002) argue that it is not the geographical size of the market that matters but rather the income growth and the effective demand of the market. Hence, the economic characteristics of both the source and host countries dominate the FDI location question, and this explains why the regional integration dummy is at times only marginally significant.

One drawback of Balasubramanyam et al.'s study (2002) lies in the fact that bilateral flows of only one year (1995) are considered, which clearly limits the generality of the results. In addition, and more importantly, there is a possibility that the 1995 bilateral flows are contaminated with a confounding event: Indeed, the European Union's fourth enlargement took place in 1995. (We recall that Balasubramanyam et al. [2002] include countries that are members of the European Union in their study.) Thus, a study analyzing several years of bilateral flows would provide more generality. Some researchers turn to this.

Indeed, Yeyati et al. (2002) study the impact of the ratification of a free-trade agreement (FTA) on FDI flows between 20 OECD source countries and 60 host countries, between 1982 and 1998. After taking into account the GDP of both the source and host countries, the extended market effects of both the source and host countries, and country and time fixed effects, Yeyati et al. (2002) predict that on average, entering an FTA leads to an increase of over 100% of the bilateral FDI flows between the FTA members. The results are robust to the addition of dummy variables accounting for common language, common borders and past colonial links between the source and host countries; and a variable accounting for the geographical distance between the source and host countries.

Stein and Daude (2001) use a comparable sample and they report more moderate results. In fact, after controlling for the GDP, GDP per capita, tax rates, and the institutional quality of the host countries; the geographical distance, common language, common border,

past colonial links between the source and host countries; and country fixed effects, Stein and Daude (2001) report an increase of 70% in bilateral FDI flows between members of the same FTA upon the ratification of the integration agreement. Both Stein and Daude (2001) and Yeyati et al. (2002) suggest that the extended host country's market may explain the increase in FDI flows following the ratification of an integration treaty. Also, Yeyati et al. (2002) find that economies that are more open to trade and foreign investment benefit proportionally more from joining a regional integration agreement than economies that restrict trade and foreign investment. Yeyati et al. (2002) add that this latter finding is in contradiction with the tariffs-jumping theory of FDI.

In short, most researchers agree that theoretically, and to the extent that trade and FDI are mainly complements rather than substitutes, regional integration should foster foreign investment in the integrated area. Evoked reasons for this relationship include the access to an enlarged market and the reduction of barriers to trade and investment (including non-tariffs barriers), among others. Nonetheless, it seems that there is no clear empirical relationship between FDI and regional integration. Indeed, some researchers fail to find a link between regional integration and changes in FDI flows, whereas others provide evidence of a positive relation between the ratification of a regional integration agreement and FDI flows received by a member country, although the importance of regional integration seems to be marginal relative to that of other FDI determinants. Yet, it is not clear when the impact of regional integration, if any, is felt in FDI flows.

With a few exceptions – notably Egger and Pfaffermayr (2004) – most prior research examines the FDI flows *after* the entry into force of the integration treaty. However, the parties contemplating regional integration always announce the ratification of an agreement, which typically precedes the entry into force of the treaty by at least a few months. Moreover, the parties usually publicize the conclusion of important stages in the negotiations leading to the ratification of the integration agreement. The entry into force of the integration agreement

is thus hardly unanticipated. Consequently, we suggest that foreign firms invest in a country contemplating regional integration *before* the entry into force of the integration agreement and more precisely, as soon as there exists a substantial probability that a country concludes a regional integration agreement.

By investing early in the country contemplating regional integration, firms preempt foreign competitors. However, because the integration is not certain at the time of the investment, and because the host country's market size is assumed to be too small to ensure the profitability of the firms' FDI projects, we suggest that the firms commit only the minimum amount of resources necessary to preempt competition. Consequently, the firms minimize their loss if the host country does not ratify the integration agreement. On the other hand, if the host country ratifies the integration agreement, the firms can expand their investments in order to adjust their production to the enlarged market. In short, we suggest that the firms' investments in a host country contemplating regional integration is analogous to the purchase of an option: Indeed, by investing early, the firms gain the right to secure a leading advantage in servicing the possibly enlarged market, using the initial investment as a platform for future operations. In the next section, we develop this option model further.

3. The Integration-Value Option Model

Dunning's (1988) OLI paradigm provides useful insights into the foreign investment decision because it explains why, how, and where the investment should take place. In other words, it describes the FDI pattern in equilibrium. However, the OLI framework does not predict the optimal time for investing. Nor does it describe specifically the dynamic forces among FDI determinants. Modeling the changing nature of the FDI determinants allows for a better understanding of complex decisions, such as the decision to invest in a candidate country before investors know whether the host country will integrate a larger economic union or not. We suggest that real options capture the elements of the investment decision that the OLI paradigm fails to provide. In the following section, we summarize the essence of the real options approach and explain its application to FDI flows into countries that have the opportunity to join a larger economic union.

An option gives the holder the right, but not the obligation, to purchase or sell an asset for a predetermined price that is possibly more advantageous than the current market price. A call option gives the holder the possibility of purchasing an asset for a preset price. Similarly, a put option gives the holder the opportunity to sell an asset for a price fixed in advance. Real options, as opposed to financial options, concern immovable and permanent assets (Brach, 2003). Real options also incorporate strategic values (Vézina, 2002).

Standard discounted cash flow analysis does not account for the genuine value implied in strategic decisions because strategies are flexible by nature. However, discounted-cash-flow techniques analyze only fixed expected flows and therefore disregard cash flows that are contingent on future events. Moreover, standard techniques view risk as invariably prejudicial to a project's value although it is not always the case. A moderate risk may increase a project's value if the risk increases the probability of positive outcomes (Vézina, 2002). The real options approach thus appears to depict strategic decisions better than traditional discounted-cash-flow techniques.

Real options can be applied to foreign investment decisions. For example, Buckley and Tse (1996) express the total value of any foreign investment as the sum of its discounted cash flows and the flexibility provided by the initial investment. Also, Nordal (2001) investigates the FDI decision when high exchange risk is present. In another article, Capel (1997) applies the real-options theory to firms' choices of market-servicing modes. Furthermore, Kogut (1991) explores firms' decisions to learn about a foreign market by making a small commitment first (in this case, through a joint venture agreement). These firms expand their investment if the market proves profitable enough. Unlike Kogut (1991), Rivoli and Salorio (1996) examine the FDI decision when the uncertainty is environmental, that is, when the uncertainty disappears with time and with changes in the environment rather than through the information that firms gain when investing in the host country. They find that the more irreversible and delayable the FDI project is, the more likely it is to be postponed until the uncertainty disappears.

We draw on these articles, and especially on Kogut's (1991) and Rivoli and Salorio's (1996), in our study of FDI in countries that have the option of joining a larger economic union.

In fact, we reformulate the FDI decision in the context of regional integration as follows: In the hope of securing advantageous access rights to the enlarged market should the host country integrate the economic union, a firm invests in a foreign country that has an intrinsic option to join a larger economic union before the host country's accession to the economic union is certain. Thus, the investing firm acquires the possibility, but not the obligation, of servicing advantageously the enlarged market. Hereafter, we will refer to the country with an option to integrate an existing economic union as a *candidate country*. For simplicity, we assume that the candidate countries and the countries that are members of the economic union are homogeneous. Throughout our analysis, we assume that the firm is a

representative, rational, risk-neutral, and value-maximizing agent. We also assume that markets are efficient.

In this paper, we consider the consequences of a country's participation in only economic unions because a country's integration to an economic union is likely to affect the determinants of different types of FDI: market-seeking, resource-seeking, efficiency-seeking, and asset-seeking FDI (Dunning, 2002). Hence, the effects, if any, of regional integration on FDI flows should be easier to detect for deep-integration regional integration agreements (if only because the full benefits of regional integration can be realized only through common-currency areas and agreements promoting a deeper form of regional integration; Mattli, 1999).

Also, we suggest that foreign firms will invest in a candidate country rather than in a country that is already a member of the economic union. Indeed, at the time of the investment, that is, before the integration of the candidate country to the economic union is certain, the entry costs to the candidate country's market are likely to be lower than the entry costs to the integrated market, among others because the entry costs to the candidate country's market are not yet completely adjusted for the possibilities of future preferential access rights to the enlarged market. Also, we assume that the competitive pressures are not as strong in the candidate country's market. The local firms are thus less likely to reduce their profit margins up to the point where the foreign firm, which faces set-up costs that the local firms do not face, is forced to exit the market (Donnenfeld, 1998; Neary, 2001). Consequently, we expect that the foreign firms will invest in the candidate country rather than in a country that is already a member of the economic union and this, even though the candidate country's "market size may be small relative to [the] minimum efficient scale" (Rivoli & Salorio, 1996, p. 345).

We suggest that by entering in a candidate country early, that is, when the internal market may not be profitable per se and when the integration is not certain, the firm acquires a competitive advantage over later entrants. Indeed, as an early entrant, the firm learns about the

market and potentially realizes preemptive gains. In other words, the "[early]-mover advantages may arise from 'learning effects' that improve the efficiency of incumbent firms" (Burton, Kaserman, & Mayo, 1999, p. 402). Because we assume that early entrants preempt the competition, the initial investment is not delayable. We further assume that the initial investment in the candidate country is irreversible: Indeed, learning effects are possible only if the firm makes a meaningful commitment (Burton, Kaserman, & Mayo, 1999).

If the candidate country that the firm invests in joins the larger economic union, the firm becomes a local firm in the economic union's market and thus benefits from preferential access to the economic union's market, if only because the firm does not have to overcome tariff barriers. Regional integration indeed discriminates between firms located within the economic union and firms located in countries that are not members of the economic union, or countries that do not have the option of joining the economic union (Junne, 1996, as cited in Schirm, 2002). By entering the candidate country's market before the candidate country's accession is certain, the firm secures a competitive advantage over firms that have a wait-and-see attitude, that is, firms that wait for the uncertainty to dissipate before investing. In the case of the integration-value option, the uncertainty is exogenous, that is, it is resolved with time and not because of endogenous information that the firm acquires through its investment in the candidate country (Rivoli & Salorio, 1996).

We expect that the competitive advantage that early entrants secure through learning effects and preemption applies to both the candidate country's market and the enlarged economic union's market. Of course, if the candidate country joins the economic union, firms located in the candidate country will face increased competition from firms already located in the economic union's market, and thus already enjoying preferential access to this market. Nonetheless, we think that early entrants in the candidate country will retain their competitive advantage over firms located outside the enlarged economic union's market, among others because outsider firms face tariff barriers that insider firms do not face. If the economic union

enlargement takes place, then the firm may decide to adapt its production facilities in the candidate country in order to service the enlarged market.

Thus, like Casson (1994), we consider the initial investment in the candidate country as a platform for future investments or exports in the case that the candidate country joins the economic union. In other words, "an investment today buys options to invest later" (Rivoli & Salorio, 1996, p. 337). By acquiring the integration-value option, the firm inevitably destroys other options, for example the wait-and-see option that consists of investing only if the candidate country joins the economic union. We do not consider these other options in our model. In practice, however, firms should identify as exhaustively as possible the options available, and upon determining the optimal strategy, firms should take into consideration the options that they must forego given the chosen strategy.

The definition of the parameters of the real options model allows us to pursue and deepen our analysis. As in the case of standard financial options, real options are framed in terms of six parameters, namely the current asset value, strike price, time to expiration, volatility, interest rate, and dividends. Next, we present our model of the integration-value option. We first describe the model's parameters and we then infer some conclusions on the basis of the model's assumptions.

The equivalent of the financial options' current asset value is the present value of the investing firm's expected cash flows in the case that the candidate country integrates the larger union, and given the competitive advantage granted to early entrants. The concept of expected cash flows deserves further explanations: We express the expected cash flows as the product of the total market demand and the firm's market share. To determine the market share, we follow Casson (1994) and express the market share as a function of the firm's rank of entry in the market: Earlier entrants harvest a larger market share than later entrants. Consequently, the initial investment is not delayable because of the preemption advantage granted to early entrants. In our model, we also assume that country-level total demand is

fixed (Casson, 1994; Makadok, 1998). Thus, the investing firm accesses a larger market only if the host country joins the larger economic union.

In our model, the exercise price comprises the entry costs to the candidate country's market, the costs necessary to overcome entry barriers, and the costs required to adapt the production for servicing the enlarged market.

Specifically, the entry costs include the costs related to financing, the construction or acquisition of the physical installations in the host country, use of the host country's infrastructures, efficiency of the local financial market, and the costs related to the political risk of the host country. The incentives that the host country's government offers diminish the total entry costs (UNCTAD, 1995). We also include in the entry costs the costs due to the liability of foreignness, that is, the costs of doing business in an environment with which the firm is unfamiliar (Zaheer, 1995). Zaheer (1995), but also Luo and Mezias (2002), Mezias (2002), and Zaheer and Mosakowski (1997), suggests that the costs related to the liability of foreignness are substantial, although a precise estimation is difficult to obtain.

The costs of overcoming the barriers to entry encompass the costs related to product differentiation, advertising and goodwill; economies of scale, sunk costs and capital requirements essential to the industry; finding suppliers when exclusive contracts may be the norm in the industry; and the costs related to entry impediments, such as certification and product registration requirements (Burton et al., 1999; Geroski, 1995; Harbord & Hoehn, 1994).

Overall, we expect the costs of entry to decrease over time. Indeed, the General Agreement on Tariffs and Trade (World Trade Organization, 1947/1986) states that countries entering in a regional integration agreement cannot on the whole increase their duties and regulations on commerce relative to those that were in force before the candidate country ratified the integration agreement. Because the entering country must also adopt the customs union's duties, the duties and regulations of commerce progressively converge toward lower

levels (see also Geroski, 1995). However, if the host country's market becomes more accessible, competition increases and accordingly, certain non-tariff barriers of entry also increase.

Although this is ultimately an empirical question, we suggest that entry costs are likely to be lower than the value of the current asset, such that at a certain moment, the exercise of the option is the optimal strategy. We give more details below. Attentive readers will point out that given our definition of the exercise price, the investing firm automatically exercises the option (at least partially) upon acquiring it. We discuss this issue below.

We define the volatility of the integration-value option as the uncertainty relative to the expected value of the cash flows that the investing firm receives if it services the enlarged market. We recall that we define the expected cash flows to be a function of both the total demand and the firm's rank of entry in the host country's market. We make the additional assumption that the total national demand is stable through time for candidate countries and countries that are already members of the economic union (Casson, 1994). Hence, the only source of uncertainty that remains is the possibility of the host country's adhering to a larger economic union. This is how we define volatility. Again, we point out that the firm that invests in the candidate country does not acquire endogenous information that reduces the uncertainty. Rather, the uncertainty is exogenous and disappears with time.

We use a risk-neutral setting for our integration-value option. Therefore, firms' risk preferences have no effect on the value of the real option when the real option's value is expressed as a function of the underlying asset. The principal advantage of using the risk neutral valuation is that we can employ the risk free rate as the appropriate interest rate instead of different rates for each firm and project. We thus use the host country's risk-free interest rate in our model because most multinationals finance their foreign assets locally through reinvested profits and local loans instead of financing on the home market (Gilman, 1981). Exceptions happen when there are constraints on foreign borrowing, growth of assets

is fast, or foreign profits are too small to finance a significant portion of the foreign operations. Moreover, firms usually finance the first investment in their home country (Gilman, 1981). However, Gilman (1981) states that at the margin, firms tend to finance their assets in the foreign country. We thus use the foreign risk-free rate in our model.

Another important parameter of the option is the option's validity period. Like financial options, real options expire when the investment opportunity disappears. However, unlike financial options, real options usually do not have a precise expiration date, nor do they have a specific creation date (Amram & Kulatilaka, 1998). Interested investors must thus monitor closely the environment in order to identify accurately the investment opportunities.

In order to model accurately the integration-value option, we need to define the option's creation and expiration dates. We thus suggest that the integration-value option comes into life as soon as there is a possibility that a country adheres to a larger economic union. Hence, it is not necessary that a country formally presents its candidature to an economic union for the option to come into existence. From an empirical point of view, however, it is difficult to determine the exact point in time when the option is created. Therefore, because the formal application of the candidate country to an economic union is a significant and easily observable event, we suggest using it as the option's creation date.

The integration-value option matures when the investment opportunity disappears, that is, when the economic union formalizes the integration of the candidate country. Alternatively, the option also matures if the economic union decides irreversibly to refuse access to the candidate country. Assuming that markets are efficient, we expect that the option's parameters (and hence, the option's price) instantaneously adjust to reflect the new information.

Dividends are another parameter of our real option. Dividends diminish the value of the current asset, thus affecting not only the value and the price of the option, but also the exercise decision. Competitors' preemptive gains influence negatively – and recurrently – a

firm's market share, and thus the firm's expected cash flows from servicing a given market (Casson, 1994). Also, the existence of competition or other costs to waiting influences the timing of the exercise of the option (Trigeorgis, 1991). Thus, we suggest that in our real options model, the competitors' preemptive gains are analogous to the dividends in financial options.

For the sake of generality, we also include the tariffs to exportation in our measure of dividends. Indeed, tariffs decrease the expected cash flows by diminishing the profit margin on exports and imports. The investing firm that uses its investment as a platform for exports or imports thus experiences lower profit margins than it would in a free-trade world. However, countries contemplating a regional integration agreement usually lessen their tariffs barriers between each other prior to the ratification of the integration agreement. Thus, tariffs probably affect only marginally the decision of a firm to establish itself in a country that is a candidate to an economic union. Nevertheless, because we cannot assert the latter proposition with certainty, and again for the sake of generality, we include tariffs to exportation in our measure of dividends.

The parameters of the real option model all serve to determine the option's price. However, it is not the objective of our study to calculate the exact price of the integration-value option, among others because deriving an exact pricing formula for real options is arduous. Indeed, the standard Black-and-Scholes formula for options pricing cannot be used because some underlying assumptions do not hold for real options[1].

[1] For instance, there is no evidence that the price of the option's underlying asset (in this case, the larger market shares secured through market preemption and learning effects) follows a lognormal distribution, or that the trading of the underlying asset is continuous.

Instead, we offer a conceptual description of the option's price. Because of capital scarcity, the firm investing in a candidate country must forego other investment projects. If the other projects are more profitable than the investment in the candidate country (short of the integration-value option), the firm experiences a loss. We suggest that this loss is the price that the firm pays to acquire the integration-value option. Formally,

$$price_t = \sum_{t=0}^{T} (R_t - r_t)(I_t), \qquad (1)$$

where R_t is the return, measured at time t, for the most profitable project that the firm could undertake if it were not investing in the candidate country; r_t is the return for the investment in the candidate country measured at time t; and I_t is the total investment as of time t. To a certain extent, the price thus reflects the opportunity cost of investing in a market that is not profitable per se.

Because the returns are summed over time, early entrants pay a higher price to acquire the option. There are two causes to this phenomenon: (1) Early entrants secure a larger market share and thus expect higher cash flows; and (2) the option's volatility increases with the time remaining before the option's maturity and this augments the probability of the firm receiving larger cash-flows, thus increasing the value of the option.

We also wish to discuss briefly the optimal exercise time of the integration-value option. Clearly, the integration-value option is an American option because it can be exercised at any time prior to maturity. The optimal exercise policy for American financial options is to exercise the option at maturity only, except when a dividend is paid before the expiration of the option. Indeed, dividends reduce the value of the underlying assets. As mentioned above, competitors' preemptive gains have an effect similar to dividend payments (Trigeorgis, 1991).

Thus, given the competitive pressures, the integration-value option should be exercised before expiration. This conclusion supports our definition of the exercise price. Indeed, the exercise price includes the costs of entry in the candidate country's market and the costs of overcoming the barriers to entry. It implies that firms exercise the option at least partially

upon purchasing the option itself, which may seem contrary to the essence of the strike price. However, the presence of competitive pressures supports our definition of the strike price for our model of the integration-value option.

We also wish to point out that the model is robust for different types of FDI. Indeed, the choice between acquisitions and greenfield investment does not alter significantly the interpretation of the model. Similarly, the model could be extended to account for different market-servicing modes such as joint ventures and licensing for example. Nevertheless, we do not consider these market-servicing modes in the present study and therefore, we leave this question for future research.

In our analysis we consider only investments made by firms whose headquarters are located in countries that are neither members of the economic union, nor candidate countries. Again, it is possible to generalize the model in order to include members of the economic union as source countries. Although the generalization is straightforward for vertical FDI, it is not as simple for horizontal FDI. We also leave this question for future research.

Until now, we have centered our argumentation on cases in which the candidate country ultimately adheres to the economic union. The analysis remains the same even if the candidate country does not adhere to the union. However, the firm needs to decide whether to stay in the non-integrated country or not. We hypothesize that when the decision of non-integration is irreversible, the firm withdraws from the ex-candidate country and does not recover most of its assets' value. If the refusal to integration is temporary, however, the firm maintains its activities in the candidate country. Indeed, the option still has a positive value, owing to its renewed time delay and volatility.

This completes our description of the option that consists of investing in a country that has an intrinsic option to join a larger economic union. Next, we proceed to test empirically whether investors recognize the value of the real option, as evidenced by abnormal levels of FDI flows prior to the candidate country's integration to the economic union.

4. Methodology

In Section 3 we presented a description of the real option that consists of investing in a country that has an intrinsic option to join a larger economic union. The model we developed, however, is not convenient for empirical analysis. Indeed, some variables of our theoretical model, for example the exact costs to overcome entry barriers or the *ex ante* estimations of sales volumes on the integrated market, are difficult to estimate. We thus need to derive an alternative model specification in order to test our hypotheses empirically.

We start from the premise that the integration-value option has a nonnegative value between the date of its creation, which is when the candidate country formally applies to the economic union, and the date of the official accession announcement. We assume that firms (and their managers) are rational agents and that they seek to maximize the net expected value of the firm – inclusive of real options – by selecting the suitable internationalization strategy. We also assume that firms are risk-neutral. Thus, provided that the expected cash flows counterbalance the incurred risk appropriately, the firms are willing to invest in the candidate country even if the candidate country's market may be too small for the investment – short of the integration-value option – to be profitable. Furthermore, we assume that the firms recognize the true potential of the option. Consequently, the firms acquire the option because the option, with its unlimited upside potential and its limited downside risk, contributes to augment the total value of the firm (Amram & Kulatilaka, 1998).

To benefit from the option, firms must make a meaningful commitment: Hence, the firms engage in FDI in the candidate country. Assuming that markets are efficient, we hypothesize that FDI flows into a candidate country *i* vary with the country *i*'s probability of integrating the larger economic union. Firms form their estimates of the probability of the host country's integration on the basis of the official information – released by the economic union's authorities – concerning the candidate country's progress toward its possible integration to the economic union (Egger & Pfaffermayr, 2004).

Moreover, we hypothesize that *ceteris paribus*, firms are attracted to integrated markets because of the benefits associated with the option, that is, the possibility to secure preferential access to an enlarged market and the possibility to pre-empt competition on both the local and enlarged markets by securing a market share and developing knowledge about the candidate country's market (and, indirectly and possibly, about the enlarged market as well). In other words, after controlling for economic and openness characteristics of the different host countries, we expect that

H_1: *Ceteris paribus*, countries with an intrinsic option to join an economic union attract more FDI flows than countries with no intrinsic integration-value option.

Assuming that markets are efficient, and assuming that firms indeed want to acquire the integration-value option because of its associated possible benefits, we expect to see an increase in FDI flows to countries that have an intrinsic option to join an economic union when the economic union releases official information to the effect that the integration is more certain. Formally,

H_2: *Ceteris paribus*, FDI flows to a candidate country *i* are positively correlated with the release by the economic union of official information concerning the country *i*'s progress in its accession process to the economic union.

In our analysis, we thus focus on FDI flows to countries that have had an intrinsic integration-value option. As mentioned above, we restrict our analysis to economic unions because the consequences of a country's participation in a regional integration agreement are likely to be more acute for deeper integration forms. At the time of this study, the World Trade Organization had received notifications of only five common markets, among which three had provisions for common economic policies (World Trade Organization, 2005b). Of these three economically integrated areas, the European Union is possibly the most successfully implemented (Winters, 1999).

Prior research shows that FDI flows do not depend uniquely on a country's intrinsic growth option through the integration to a larger economic union but also, and possibly principally, on various characteristics of the host country. Therefore, we need additional variables to account for the part of the FDI flows that is independent of the integration-value option. Theoretical and empirical research has demonstrated that the size of the host market, using the host market's gross domestic product (GDP) as a proxy, and the host market's openness to trade and foreign investment are among the principal economic determinants of FDI (see for example, Alesina, Spolaore, & Wacziarg, 2000; Fosfuri, 2004; de Soysa & Oneal, 1999; Whitman, 1969; Yeyati et al., 2002). Consequently, we include these two variables in our model. (We discuss each variable in more detail in the next section.)

For all countries, we test our two hypotheses by specifying the following relationship between FDI flows, GDP, openness to trade, and a country's progress toward its possible integration to an economic union:

$$\log(FDI_{it}) = \log(GDP_{it}) + \log(OPEN_{it}) + \sum_{k=1}^{4} INTEGRATION_{ikt} \qquad (2)$$

where $\log(FDI)_{it}$ is the natural logarithm of the FDI flows into country i at time t, and $\log(GDP)_{it}$ is the logarithm of this country's gross domestic product at time t. Log(Open)_{it} represents the logarithm of our measure of the openness to trade for country i at time t. Integration_{ikt} is a set of dummy variables that represent important events in a candidate country's accession process to an economic union. These important events are the candidate country's formal application to the economic union, the opening of the accession negotiations, the formal statement concerning the candidate country's progress, and the official accession announcement. Section 5 gives more detail on the construction of these dummy variables.

The double log specification that we use has traditionally been shown to be the best fit for empirical data on trade and FDI (Yeyati et al., 2002). Our model is in fact a variation of the semi-gravitational model used for trade flows and, increasingly, for FDI flows as well

(Balasubramanyam et al., 2002). In gravitational and semi-gravitational models, coefficients of all but the dummy variables represent elasticities.

However, taking the logarithm of the dependent variable creates a problem. Indeed, a considerable part of our sample consists of observations with zero or negative annual FDI flows. (We discuss this issue in more detail in the next section.) Taking the logarithms of these observations is impracticable and these observations are thus excluded from the analysis.

Researchers have proposed a few solutions to this classical problem of zero-valued dependent variables. The most straightforward solution is simply to delete the problematic observations. However, these zero or negative observations may convey some information that is not included in the remaining observations, and simply ignoring the negative- or zero-valued observations may thus bias the analysis.

Another proposed solution lies in the transformation of the dependent variable such that we use log(1+FDI flows) instead of log(FDI flows). Adopting this solution obviously increases the sample size because we can include in the sample the observations whose dependent variable's value is larger than -1. A disadvantage of this approach, however, is that it is somewhat *ad hoc* (Yeyati et al., 2002). Although the choice of the added constant is arbitrary, choosing 1 is convenient because for large values of FDI flows, log(1+FDI flows) is a close approximation of log(FDI flows).

Yet another solution is to use Tobit regressions instead of OLS regressions. However, because we have no valid reason to believe that the zero and negative values have been mistakenly recorded as such or that these values result from, for example, fixed costs not included in our model, we do not adopt this solution in our analysis.

It is not clear which method, if any, surpasses the others. In Section 5, we present the regression results obtained after discarding zero and negative observations. As a part of our

sensitivity analysis, we run the same regressions but we use log(1+FDI flows) as the dependent variable.

5. Data Description

5.1 FDI Flows

Because our theoretical model does not predict the behaviour of firms already located within an economic union, and because we focus on the European Union, we restrict our empirical analysis to firms whose headquarters are located in countries that are not members of, or candidates to, the European Union. For reasons of data availability, we choose to analyze the FDI flows originating in one source country – the United States.

We retrieve data on U.S. direct investment abroad from the Bureau of Economic Analysis (BEA). Specifically, we use direct investment capital flows, which comprise equity and intercompany debt flows between U.S. affiliates and their foreign parent groups. Capital flows also include "the foreign parents' share of the reinvested earnings of their U.S. affiliates" (Quijano, 1990, p. 30). The BEA does not release the amount of FDI flows received by countries in which few U.S. firms invest in order to protect the confidentiality of the investing firms. Also, the BEA does not publish the exact figures of FDI flows when the flows amount to US$500,000 or less for a given year and country. When this occurs, we set the value of these particular flows at the average value, that is, US$250,000, thus limiting the number of missing values[2].

To evaluate the importance of the integration-value option, we need to estimate the extent to which the FDI flows to countries that have the intrinsic option to join a larger economic union are different from FDI flows to countries with no such integration - valueoption. We thus need to include in our sample countries that do not have an intrinsic integration-value option.

We collect annual outflows from 1966 to 2003 for all available recipient countries. Extending the data retrieval period to 1966 (the earliest year for which data are available)

[2] As part of our sensitivity analysis, we set the value of these particular flows at their maximum value, that is, US$500,000 and we ran regressions. The results were qualitatively and quantitatively similar to those obtained with our original sample and are therefore not reported but can be obtained from the author.

allows us to analyze the periods preceding the 1973, 1981, 1986, 1995, and 2004 EU enlargements. The BEA reports detailed FDI flows in certain Eastern European countries only as of the early 1990s. We thus loosen our sample requirements in order to include these countries in our analysis: For all countries, we require data to be available only from 1994 to 2003. Table 1, Panel A shows the countries included in the full sample.

In order to be comparable across countries, we scale FDI flows by the total outflows of U.S direct investment abroad for the corresponding year. We gather data on total outflows from the BEA. Data availability constraints motivate the choice of the data frequency: Indeed, the BEA compiles bilateral quarterly outflows only for the main recipients of U.S. FDI, which do not include most Eastern European countries. Although quarterly flows may better reflect the impact of the event studied, annual flows are less subject to short-term variations but nevertheless mirror contemporary events satisfyingly.

Because the appropriateness of one frequency over the other is ultimately an empirical question, we conduct robustness tests with a subsample of quarterly observations. The quarterly subsample contains the same variables as the annual full sample. We retrieve data from the first quarter of 1994 to the third quarter of 2004. Although we wish to make the quarterly subsample as comparable as possible with the full sample, we have to exclude certain countries due to the lack of quarterly data for these countries. Table 1, Panel B, shows the countries included in the quarterly sample. Panel C of Table 1 contains the recipient countries included in the 1999-2003 subsample; we describe the 1999-2003 subsample in more detail in a later section.

Table 1: Countries included in the full sample and in the quarterly and 1999-2003 subsamples

Region	Countries	Total
Panel A : Full sample (Annual observations; 1966-2003)		
North America	Canada	1
Western Europe	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom	18
Eastern Europe	Czech Republic, Hungary, Poland, Russia	4
Latin America and the Caribbean	Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Honduras, Mexico, Panama, Peru, Venezuela (Bolivarian Republic of)	13
Africa and the Middle East	Egypt, Israel, Nigeria, Saudi Arabia, South Africa	5
Asia-Pacific	Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, New Zealand, Philippines, Republic of Korea, Singapore, Thailand	12
Panel B: Quarterly subsample (Quarterly observations; 1994/Q1-2004/Q3)		
North America	Canada	1
Western Europe	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom	17
Eastern Europe	Czech Republic, Hungary, Poland, Russia	4
Latin America and the Caribbean	Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Peru	8
Africa and the Middle East	Israel, South Africa	2
Asia-Pacific	Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, New Zealand, Philippines, Republic of Korea, Thailand	11

Panel C: 1999-2003 subsample (Annual observations; 1999-2003)		
North America	Canada	1
Western Europe	Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom	19
Eastern Europe	Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Poland, Romania, Russia, Slovakia, Slovenia, the Former Yugoslav Republic of Macedonia, Ukraine	18
Latin America and the Caribbean	Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Honduras, Mexico, Panama, Peru, Venezuela (Bolivarian Republic of)	13
Africa and the Middle East	Egypt, Israel, Nigeria, Saudi Arabia, South Africa	5
Asia-Pacific	Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, New Zealand, Philippines, Republic of Korea, Singapore, Thailand	12

5.2 Economic Determinants

We retrieve data for the host countries' gross domestic product (GDP) from the International Financial Statistics (IFS) database. Because most GDP series are available only as expressed in their respective country's currency, and because we want to make GDP series comparable across countries, we manually compute the SDR-based GDP series. The SDR (Special Drawing Right) is an artificial asset created by the International Monetary Fund (IMF) and its value is based on a basket of international currencies. The SDR serves as an accounting unit and it aims at easing the comparison among differently measured series. To convert the GDP series into an SDR-based series, we need both the GDP series in national currency and the SDR-national currency exchange rate series. Therefore, we require that these latter two series be available at least between 1994 and 2003 for a country to be included in our full sample.

Empirical studies have also documented the importance of a country's openness to trade as a determinant of FDI (among others, Bevan & Estrin, 2000; Hallward-Driemeier, 2003; Yeyati et al., 2002). In our analysis, we follow Bevan and Estrin (2000), Hallward-Driemeier (2003), and Yeyati et al. (2002) and use the openness to trade as a proxy for the openness to foreign investment. Our measure of the openness to trade of country i at time t is defined as follows:

$$OPEN_{it} = \frac{EXPORTS_{it} + IMPORTS_{it}}{GDP_{it}}, \qquad (3)$$

where $exports_{it}$ are the exports, calculated on a free on board basis, made from country i at time t; $imports_{it}$ are the imports, calculated on a cost, insurance, and freight basis, received by country i at time t; and GDP_{it} is the gross domestic product of country i at time t. We retrieve the exports and imports series from the IFS database.

In his description of various openness indexes, Edwards (1998) points out that the trade dependency ratio, to which our measure of openness is related, does not directly capture the

trade policies in force and that the ratio is endogenously determined. However, Edwards (1998) simultaneously recognizes that "the vast majority of indexes continue to be subject to limitations" (p.386). Therefore, we maintain our choice for the openness index but we acknowledge its weaknesses: We recognize that our openness variable is at best an acceptable proxy for the host country's *bona fide* openness to foreign investment.

5.3 Integration Variables

In addition to the host countries' economic characteristics, we need variables that account for the accession process to the economic union. We thus design four dummy variables that each represents a major stage in the process that the candidate countries must go through in order to access to the EU. The four dummy variables are all designed in a similar manner, namely

$$Dummy_{ikt} = \begin{cases} 1 \text{ if country } i \text{ is experiencing stage } k \text{ at time } t \\ 0 \qquad\qquad\qquad\qquad\qquad\qquad \text{otherwise} \end{cases} \qquad (4)$$

Specifically, we design one dummy variable each for the candidate country's formal application to the EU (hereafter, *application*), the opening of the accession negotiations with the candidate country *i* (*negotiations-opening*), the formal statement of a favorable opinion concerning country *i*'s progress (*favorable-opinion*), and the formal announcement of the future accession of the candidate country *i* (*accession-announcement*). We collect the information necessary to the specification of these variables from the official Web site of the European Union (European Union, 2005c).

As opposed to the other events in the process toward integration to the EU, the negotiations are not sporadic by nature. Indeed, accession negotiations are a relatively lengthy and complex process, whose exact issue and ending date are not known a priori. It is possible that some firms wish to delay an investment until they have more information concerning the

issue and ending date of the accession negotiations. In order to account for this behaviour, we design a variable describing the negotiations process (hereafter, *negotiations-progress*):

$$N\text{-}p_{it} = \begin{cases} 1 & if\ negotiations\ \ are\ in\ progress\ \ with\ \ country\ \ i\ at\ time\ t \\ 0 & otherwise \end{cases} \quad (5),$$

where $N\text{-}p_{it}$ stands for the negotiations-progress dummy for country i at time t. Because the negotiations-progress dummy encompasses the negotiations-opening dummy, we suspect that both variables are highly correlated. Section 5.5 contains a detailed correlation analysis.

A considerable part (approximately 15%) of our full sample consists of observations with zero- or negative-valued dependent variables. However, when we take the logarithm of (1+FDI flows) as the dependent variable, we need to discard only about 2% of our full sample because of zero or negative values. As mentioned above, we thus run regressions with both specifications of the dependent variable as part of our sensitivity analysis.

Also, certain series included in our sample contain a limited number of missing values and therefore, these series do not conform exactly to our sample requirements. However, discarding complete country series because of a restricted number of missing observations downsizes considerably our sample. Furthermore, owing to their infrequent occurrence, missing observations probably have a minimal impact on the analysis we conduct. We thus retain the series that have no more than two missing observations between 1994 and 2003. However, in order to ensure that these missing observations have marginal effects on the regression results, we conduct additional tests using series for which missing values have been extrapolated. We use the average growth rate of the two observations preceding the missing observations to extrapolate the missing values.

5.4 Descriptive Statistics

Altogether, our full sample comprises 1928 observations, representing 53 countries, of which 17 are Western European, 4 Eastern European, 13 Latin American, 12 Asian, 1 North American, and 6 are African and Middle Eastern countries.

Table 2 reports the number of observations, means, and standard deviations for each of the FDI flows, GDP, and openness variables. For sake of clarity, the statistics are broken down by geographical regions of the host countries.

On average, Canada (that is, the only country that we include in the North American region) receives more U.S. FDI flows than any other region. Eastern European countries appear to receive little U.S. FDI relative to other regions. The lower levels of average FDI flows in Eastern Europe may be due to the fact that in Eastern Europe, there is no major FDI recipient, like the United Kingdom in Western Europe. It may also be that the Eastern European countries were still in the economic transition process at the time of the investment. Thus, the economic environment may not have been favorable to FDI, as evidenced for instance by the average GDP that is lower in Eastern Europe than in Western Europe.

However, the Eastern European countries appear to have a high average openness to trade. In fact, there are some further points worth mentioning about the openness to trade. For instance, the largest FDI receiver, Canada, has the lowest value for the openness to trade. Western Europe's openness to trade is also low relative to other regions. This inverse relationship between openness to trade and FDI flows seems to be in accordance with the theories predicting the substitutability of trade and FDI. Nonetheless, a more detailed analysis is needed before reaching a conclusion on the nature of the relationship between trade and FDI flows. We turn to this in the next section.

Table 2: Sample distribution across geographical regions

Region and variable	N	Mean	SD
North America			
FDI Flows	38	11.058	29.725
GDP	38	300,732	165,000
Openness	38	0.477	0.109
Western Europe			
FDI Flows	675	3.163	6.611
GDP	684	55,451,600	3,844,864,000
Openness	684	0.627	0.41
Eastern Europe			
FDI Flows	51	0.169	0.313
GDP	80	72,502	7,410
Openness	80	0.681	0.374
Latin America and the Caribbean			
FDI Flows	491	1.386	6.209
GDP	493	53,917	106,000
Openness	493	0.819	1.399
Africa and Middle East			
FDI Flows	176	0.532	3.309
GDP	190	49,203	36,200
Openness	190	0.610	0.232
Asia-Pacific			
FDI Flows	440	1.644	5.38
GDP	443	234,547	580,000
Openness	443	0.837	0.862

Note. This table reports the number of observations, means, and standard deviations of the FDI, GDP, and openness to trade variables. The statistics are broken down into geographical regions. FDI figures are the average percentage of total FDI outflows from the U.S.A. into the host region. GDP figures are in millions of SDR.

5.5 Correlation Analysis

Table 3 reports Pearson's correlation coefficients among the independent variables, as well as some basic descriptive statistics for the full sample. Consistent with our expectations, the correlation between the negotiations-progress and negotiations-opening dummies is high and significant. Therefore, we use the negotiations dummies interchangeably.

Also, the correlation between the GDP and openness variables is significant even though the correlation coefficient is low, at -0.0708. However, further tests do not reveal any

severe multicollinearity. Moreover, we conduct sensitivity tests including either variable. The inclusion of either, or both, variable does not considerably affect the dummy variables' coefficients, which are of interest to us. Further, the inclusion of both variables significantly increases the power of the model. We thus follow Fosfuri (2004), de Soysa and Oneal (1999), Whitman (1969), and Yeyati et al. (2002) among others and include both the GDP and openness variables in our models.

Furthermore, the favorable-opinion and accession-announcement dummies have a significant correlation coefficient of 0.4580. Although the variance inflation factor statistics do not report evidence of severe multicollinearity, the coefficients of the favorable-opinion and accession-announcement dummies change noticeably when including both dummies in our sensitivity regressions. Thus, given the models' sensitivity, we include the favorable-opinion and accession-announcement dummies only one at a time.

We detect similar correlation problems between the negotiations-progress dummy and both the favorable-opinion and the accession-announcement dummies, as shown in Table 3. In both cases, the models are sensitive to the inclusion of either the favorable-opinion or the accession-announcement dummy. Therefore, we include the negotiations-progress, favorable-opinion, and accession-announcement dummies only one at a time in our regressions, and we present the full model for means of comparison only.

Table 3: Descriptive statistics and correlation matrix

	Descriptive statistics			Correlation matrix						
	N	Mean	SD	GDP	Openness	Application	Negotiations opening	Negotiations progress	Favorable Opinion	Accession announcement
GDP (SDR units)	1,928	19,754,100	230,652,000	-	-0.0708 (0.002)	-0.0080 (0.724)	-0.0073 (0.749)	-0.01393 (0.541)	-0.0070 (0.758)	-0.0070 (0.758)
Openness	1,928	0.722	0.867		-	-0.0169 (0.456)	-0.0065 (0.775)	-0.00210 (0.927)	-0.0003 (0.988)	-0.0023 (0.918)
Application	2,014	0.008	0.091			-	-0.0077 (0.729)	0.02016 (0.366)	-0.0074 (0.739)	-0.0074 (0.739)
Negotiations opening	2,014	0.006	0.083				-	0.52437 (<0.001)	-0.0067 (0.762)	-0.0067 (0.762)
Negotiations progress	2,014	0.0248	0.156					-	0.46532 (<.001)	0.26608 (<0.001)
Favorable opinion	2,014	0.006	0.080						-	0.4580 (<0.001)
Accession announcement	2,014	0.006	0.080							-

Note. This table reports the independent variables' means and standard deviations, as well as Pearson's correlation coefficients among the independent variables. P-values are shown in parentheses. GDP figures are in millions of SDR.

6. Analysis

6.1 Regressions with the full sample

Table 4 reports the OLS regression results when we use the full sample. In the first models, we include the integration dummies one at a time. We then include them simultaneously, except for the pairs of dummy variables that are highly correlated, as specified above.

Consistent with previous studies and with the theory, the GDP and openness variables are significant at the 0.1% level in all models and they are positively related to FDI flows. This indicates the importance of the market size and the openness to trade and investment as determinants of FDI flows. However, unlike other researchers (see for example Balasubramanyam et al., 2002; Stein & Daude, 2001; Yeyati et al. 2002), we find that the GDP's and openness' elasticities are less than one, which implies that a unit change in either variable results in a less than proportional increase in FDI flows, all else being equal.

The negotiations-opening and negotiations-progress variables are significant in all models at the 10% and 0.1% level, respectively. In certain models, the accession-announcement variable is significant at the 10% level but it appears to be very sensitive to the addition of the favorable-opinion and the negotiations-progress dummies.

Perhaps contrary to the intuition, and contrary to our hypotheses, most dummies' coefficients are negative. (The positive coefficients of the favorable-opinion dummy in models IX and X seem to result from the correlation with other variables rather than a genuine positive effect.) Indeed, we find that the candidate countries receive less FDI flows during the negotiations than during uneventful years.

Table 4: Regression results obtained with the full sample

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Intercept	-8.9725	-8.9683	-8.9738	-8.9773	-8.9810	-8.9728	-8.9691	-8.9727	-8.9735	-8.9708	-8.9741	-9.2651
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(GDP)	0.3663	0.3664	0.3679	0.36673	0.3669	0.3670	0.3667	0.3670	0.3679	0.3677	0.3679	0.3848
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(openness)	0.3315	0.3321	0.3371	0.3325	0.3327	0.3338	0.3332	0.3335	0.3372	0.3369	0.3372	0.3193
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Application	-0.1583					-0.1721	-0.1694	-0.1709	-0.0977	-0.0949	-0.1053	
	(0.715)					(0.692)	(0.696)	(0.693)	(0.820)	(0.825)	(0.807)	
Negotiations opening		-0.7302				-0.7395	-0.7367	-0.7383				
		(0.092)				(0.088)	(0.089)	(0.088)				
Negotiations progress			-1.1562						-1.2348	-1.2511	-1.1285	
			(<0.001)						(<0.001)	(<0.001)	(<0.001)	
Favorable opinion				-0.6720		-0.3588	-0.6798		0.6435	0.4346		
				(0.154)		(0.509)	(0.149)		(0.267)	(0.405)		
Accession announcement					-0.7501	-0.5938		-0.7581	-0.4131		-0.1728	
					(0.084)	(0.235)		(0.080)	(0.407)		(0.700)	
Candidate dummy												-0.6997
												(<0.001)
No. of observations	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559
Adjusted R-square	0.1780	0.1794	0.1906	0.1790	0.1795	0.1798	0.1796	0.1801	0.1898	0.1900	0.1897	0.2078

Note. This table reports ordinary least squares regression results using the full sample (annual observations, 1966-2003). P-values are reported in parentheses. The dependent variable is the annual logged FDI flow into each country included in the sample. We report the sample size and the adjusted R-square for each regression in the last two rows of the table. We also ran additional regressions where we extrapolated the missing values (using the average growth rate of the previous two observations). The corresponding results were qualitatively similar and are therefore not reported but can be obtained from the author.

This decrease in flows can be as much as 70% relative to uneventful years[3]. Our findings are thus in contradiction with certain theories of regional integration that predict an increase in flows to candidate countries, either before or upon the announcement of the candidate country's integration to a larger economic union.

Because of the nature of FDI, the investment may not immediately follow the decision to invest; there may be a substantial delay between the two events. Also, some firms may not wait for the EU to release the information concerning the candidate countries' progresses, some firms may infer the negotiations outcome on the basis of public macroeconomic data, or some firms may benefit from information leaks. In order to account for these possibilities, we introduce lags and leads in the dependent variable. However, introducing a lag or a lead of one or two years does not qualitatively modify the results (results are not reported here but can be obtained from the author).

In order to investigate this issue further, and whenever possible given our sample's limitations, we add 13 dummy variables to account for the year of the integration, the eight years preceding the integration, and the four years following the adhesion of the candidate countries to the EU. The number of additional dummies is arbitrary but it is chosen in order to encompass even the lengthiest negotiations processes. None of the additional dummy variables are significant at conventional levels (results are not reported here but can be obtained from the author).

We also run further regressions in which we include an additional dummy variable set to 1 if a country *i* is a member of the EU and 0 if else. Results are reported in Table 4 (model 12). Results once again appear contrary to the theoretical intuition but consistent with certain previous studies (see for example Hallward-Driemeier, 2003). Indeed, after controlling for the GDP and openness levels of the host countries, we find that countries that are members of the

[3] Exp(-1.2511)-1=-0.7138

EU do not receive more FDI flows than non-member countries. In fact, EU-member countries receive less FDI flows, all else being equal.

To assess the sensitivity of our results to the zero- or negative-value observations, we conduct the same analysis but we use log(1+FDI flows) as our dependent variable. The results are similar to the base case: The GDP, openness, and negotiations-progress variables are all significant at the 1% level and the negotiations-progress dummy remains negatively signed. Table A1 of the Appendix reports detailed corresponding results.

6.2 Robustness tests

We conduct additional tests in order to determine the robustness of our results. We thus define different subsamples and we repeat the analysis using these subsamples.

6.2.1 Candidate countries.

Our first subsample includes candidate countries only (hereafter, the candidates subsample). When the sample also comprises non-candidate countries, the real impact of the candidate's progress on FDI flows to candidate countries may be diluted or biased. Moreover, our integration dummy variables may capture more information than was originally intended. Indeed, because we have no control variable for a possible candidate versus non-candidate effect (that is, other than the dummy variable used in Model 12 of Table 4), our integration dummies partially reflect the difference in flows due to a difference in status. This warrants a more detailed analysis.

Table 5: Regression results obtained with the candidate subsample

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept	-8.5350	-8.0657	-8.4237	-8.4654	-8.4611	-8.0933	-8.0977	-8.1073	-8.4395	-8.4505	-8.4441
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(GDP)	0.3281	0.3130	0.3242	0.3257	0.3257	0.3140	0.3141	0.3145	0.3251	0.3253	0.3252
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(openness)	0.3203	0.3185	0.3187	0.3195	0.3198	0.3188	0.3186	0.3191	0.3199	0.3197	0.3199
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Application	0.1666					0.1357	0.1388	0.1300	0.1446	0.1497	0.1457
	(0.737)					(0.783)	(0.778)	(0.792)	(0.772)	(0.764)	(0.770)
Negotiations		-0.7279				-0.8304	-0.8344	-0.7340			
progress		(0.006)				(0.005)	(0.004)	(0.008)			
Negotiations			-0.2515						-0.2569	-0.2518	-0.2559
opening			(0.598)						(0.592)	(0.599)	(0.593)
Favorable opinion				-0.1816		0.5739	0.4956		-0.0629	-0.1860	
				(0.725)		(0.361)	(0.381)		(0.915)	(0.720)	
Accession					-0.2585	-0.1555		0.0595	-0.2351		-0.2631
announcement					(0.588)	(0.774)		(0.903)	(0.667)		(0.582)
No. of observations	385	385	385	385	385	385	385	385	385	385	385
Adjusted R-square	0.079	0.097	0.080	0.079	0.080	0.092	0.094	0.092	0.073	0.075	0.076

Note. This table reports ordinary least squares regression results using the candidate subsample (annual observations, 1966-2003). P-values are reported in parentheses. The dependent variable is the annual logged FDI flow into each country included in the sample. We report the sample size and the adjusted R-square for each regression in the last two rows of the table. We also ran additional regressions where we extrapolated the missing values (using the average growth rate of the previous two observations). The corresponding results were qualitatively similar and are therefore not reported but can obtained from the author.

We thus retain the candidate countries only (namely, Austria, the Czech Republic, Denmark, Finland, Greece, Hungary, Ireland, Norway, Poland, Portugal, Spain, Sweden, Turkey, and the United Kingdom), for the period 1966-2003. Table 5 presents the regression results using the candidates subsample. We proceed as with the full sample: We include the dummy variables one at a time first and then simultaneously.

The negotiations-progress dummy is always significant at the 0.1% level and its coefficient is always negative, which is similar to the results we obtain with the full sample. Also, FDI flows appear relatively inelastic to changes in GDP and the openness to trade. The other dummy variables are insignificant in all models. We therefore again reject our two hypotheses.

Again, the results remain unchanged for the most part when we use log(1+FDI flows) as the dependent variable: The negotiations-progress variable is significant in all models but only at the 10% level. Table A2, in the Appendix, shows complete results.

Our rationale for the latter robustness test is that the inclusion of non-candidate countries in the sample may dilute or modify the effect that the progress of the candidate countries in their accession process have on the FDI flows to the candidate countries. To verify this statement, we repeat the analysis but we use only non-candidate countries. We replace the five integration dummies with four dummies that are equal to 1 if the year is an enlargement year and zero if else. The results are qualitatively similar for the GDP and openness variables. However, it appears that the FDI flows into non-candidate countries increased significantly at the time of the 1973 and 1981 enlargements and in both cases, the increase continued for the year following the enlargement. We observe the same pattern when we include only European non-candidate countries in the analysis. It thus seems that the FDI flows into candidate and non-candidate countries follow opposite patterns.

6.2.2 The quarterly subsample

In Section 5, we mentioned that the quarterly data possibly contain additional information that the annual data do not contain. In order to verify this assertion empirically, we run regressions with a subsample of quarterly observations. The quarterly subsample covers the period from the first quarter of 1994 to the third quarter of 2004. Table 1, Panel B shows the countries included in this subsample.

Table 6 reports the regression results obtained with the subsample of quarterly observations. Panel A shows the results when the dependent variable is the logarithm of FDI flows, whereas Panel B presents the results when the dependent variable is the logarithm of (1+FDI flows). In both cases, the application and negotiations-opening dummies are not defined because of missing observations. Further, the favorable-opinion dummy is not defined in Panel A because of negative values of the dependent variable. However, taking the logarithm of (1+FDI flows) as the dependent variable makes the definition of the favorable-opinion dummy possible and therefore, we include the favorable-opinion dummy when we use log(1+FDI flows) as the dependent variable.

Table 6: Regression results obtained with the subsample of quarterly observations

Panel A: Using log(FDI flows) as the dependent variable				
Independent variables	Model 1	Model 2	Model 3	Model 4
Intercept	-12.6697	-13.0702	-12.6142	-12.4895
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(GDP)	0.5298	0.5444	0.5279	0.5239
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(openness)	0.5073	0.5045	0.5074	0.5136
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Negotiations Progress	-1.3436		-1.3527	
	(<0.001)		(<0.001)	
Accession announcement		-0.9408	-1.0046	
		(0.092)	(0.068)	
Candidate dummy				-1.6172
				(<0.001)
No. of observations	1,251	1,251	1,251	1,251
Adjusted R-square	0.2390	0.2219	0.2404	0.2555

Panel B: Using log(1+FDI) flows as the dependent variable					
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	-5.4356	-5.5547	-5.5589	-5.4287	-5.3862
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(GDP)	0.2571	0.2613	0.2614	0.2568	0.2556
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(openness)	0.2158	0.2146	0.2144	0.2159	0.2178
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Negotiations Progress	-0.4264			-0.4116	
	(<0.001)			(0.003)	
Favorable Opinion		-0.6591		-0.2696	
		(0.214)		(0.621)	
Accession announcement			-0.1776	-0.1985	
			(0.609)	(0.567)	
Candidate dummy					-0.5146
					(<0.001)
No. of observations	1,497	1,497	1,497	1,497	1,497
Adjusted R-square	0.1445	0.1394	0.1387	0.1436	0.1496

Note. This table reports the ordinary least squares regression results using the subsample with quarterly observations (first quarter of 1994 to third quarter of 2004). P-values are reported in parentheses. In Panel A, the dependent variable is the quarterly logged FDI flow into each country included in the sample, whereas in Panel B, the dependent variable is the quarterly logarithm of (1+FDI flow). We do not include the application and negotiations-opening dummy variables because they are not defined (due to missing values). Similarly, we do not include in Panel A the favorable opinion dummy: It is not defined because of negative values in the dependent variable. When taking the log(1+flows) as the dependent variable, the favorable opinion dummy is defined and we thus include it in the second part of the analysis (Panel B). We report the sample size and the adjusted R-square for each regression in the last two rows of each panel of the table. We also ran additional regressions where we extrapolated the missing values (using the average growth rate of the previous two observations). The corresponding results were qualitatively similar and are therefore not reported but can be obtained from the author.

For the most part, the results are similar to those obtained with the full sample: We reject our two hypotheses. Indeed, the negotiations-progress dummy variable is again significant at the 0.1% level in all models, and its coefficient is negative. The accession-announcement dummy is also negatively signed and significant but at the 10% level. However, when the dependent variable is log(1+FDI flows), the accession-announcement dummy variable is not significant. Also, Model 4 of Panel A (from Table 6) shows that the candidate dummy, which is equal to 1 if a country has been a candidate to the EU and 0 if else, is significant but negatively signed. With the exception of the accession-announcement dummy, results are similar when taking log(1+FDI flows) as the dependent variable.

Also, the logged GDP and openness variables are always significant at the 0.1% level and their respective coefficients are less than 1, which shows the inelasticity of FDI flows to changes in GDP and openness to trade.

In short, it seems that the observations contained in our quarterly subsample do not convey additional or different information than the annual data. Therefore, for reasons of data availability, we continue our analysis using annual data.

6.2.3 The 1999-2003 subsample.

The candidates to the 2004 enlargement are different from previous candidate countries: Indeed, most candidates to the latest enlargement were in an economic transition process at the time of the Copenhagen promise (1993) and during at least a part of their process toward the accession to the EU. Also, the 2004 enlargement was the largest simultaneous EU enlargement to date and the accession process was the lengthiest. Consequently, FDI flows to Eastern European candidate countries may differ from flows to the countries that were candidates to previous enlargements. We thus investigate whether our model also applies to Eastern European candidate countries.

Our full sample includes only three Eastern European candidates. We thus extend our sample to include more Eastern European countries. However, because the complete breakdown of FDI recipient countries is available only from 1999 onward, we restrict this subsample to the period 1999-2003 (hereafter, the 1999-2003 subsample).

Therefore, we include 15 more countries, most of them Eastern European (with the exception of Cyprus). Table 1, Panel C presents the complete country breakdown. Like the full sample, the 1999-2003 subsample contains economic variables and integration dummies. However, because no country formally applied to the EU during this period, we exclude the formal-application dummy from the 1999-2003 subsample. We exclude the negotiations-opening dummy for a similar reason.

Table 7, Panel A reports the results of the regression using the 1999-2003 subsample. Panel B of Table 7 shows the regression results when we use only the candidate countries of the 1999-2003 sample, the rationale being again that the integration effect may be diluted or biased when computed over a sample including candidate and non-candidate countries alike.

Results are similar to those we find when we use the full sample. FDI flows appear inelastic to changes in the GDP and the openness to trade. Also, the negotiations-progress dummy is significant at the 1% level in all models and negatively signed, thus rejecting our two hypotheses. Of particular interest is the accession-announcement variable, which is significant at the 5% level. We discuss this issue, along with the rest of our results, in more detail in the next section.

Table 7: Regressions results obtained with the 1999-2003 sample

Panel A : Including all countries						
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-14.7345	-15.2425	-15.6570	-14.5643	-14.7518	-14.5469
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(GDP)	0.5434	0.5578	0.5568	0.5399	0.5441	0.5393
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(openness)	0.2630	0.2222	0.2394	0.2886	0.2611	0.2905
	(0.027)	(0.065)	(0.045)	(0.015)	(0.028)	(0.014)
Negotiations progress	-1.4870			-1.8495	-1.7590	-1.5798
	(0.002)			(0.008)	(0.001)	(0.001)
Favorable opinion		-0.5259		1.0448	1.0533	
		(0.567)		(0.305)	(0.306)	
Accession announcement			-1.9165	-2.1195		-2.1223
			(0.023)	(0.011)		(0.011)
No. of observations	273	273	273	273	273	273
Adjusted R-square	0.275	0.251	0.264	0.290	0.275	0.290

Panel B : Including candidate countries only						
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-14.0782	-20.9298	-19.4304	-6.9312	-14.2589	-6.7157
	(0.003)	(<0.001)	(<0.001)	(0.142)	(0.002)	(0.155)
Log(GDP)	0.5211	0.7715	0.7176	0.2653	0.5279	0.2573
	(0.004)	(<0.001)	(<0.001)	(0.142)	(0.004)	(0.154)
Log(openness)	0.6030	0.7093	0.7008	0.5200	0.6048	0.5181
	(0.004)	(0.001)	(0.001)	(0.007)	(0.004)	(0.007)
Negotiations progress	-1.6577			-2.9323	-1.8897	-2.7289
	(0.009)			(<0.001)	(0.005)	(<0.001)
Favorable opinion		0.0176		0.8744	0.9624	
		(0.985)		(0.323)	(0.315)	
Accession announcement			-1.6008	-3.1693		-3.1915
			(0.059)	(0.003)		(0.003)
No. of observations	82	82	82	82	82	82
Adjusted R-square	0.271	0.204	0.240	0.378	0.271	0.377

Note. This table reports the ordinary least squares regression results using the 1999-2003 subsample (annual observations, 1999-2003). P-values are reported in parentheses. The dependent value is the annual logged FDI flow into each country included in the sample. We report the sample size and the adjusted R-square for each regression in the last two rows of the table. We also ran additional regressions where we extrapolated the missing values (using the average growth rate of the previous two observations). The corresponding results were qualitatively similar and are therefore not reported but can be obtained from the author.

Again, our rationale is that including non-candidate countries may dilute the effect that the progress of the candidate countries in their accession process have on the FDI flows to the candidate countries. To verify this statement, we repeat the analysis but we use only non-candidate countries. We define two dummies that account for the favorable opinion and the accession announcement, respectively. We cannot find any evidence of an abnormal movement in the FDI flows to non-candidate countries during the years associated with the statement of the favorable opinion and the accession announcement, respectively. (Results are not reported here but can be obtained from the author.).

7. Discussion and Conclusion

In this paper, we hypothesize that *ceteris paribus*, countries with the option of joining a larger economic union attract more FDI flows than countries with no such option. We also hypothesize that the increase in FDI flows to candidate countries is positively correlated with the release by the economic union of official information concerning the candidate country's progress toward its possible integration to the economic union. We test our hypotheses using FDI flows from the United States to 53 host countries, among them 18 European countries and four Central and Eastern European countries, thus allowing us to analyze the consequences of the consecutive enlargements of the European Union on FDI flows to candidate countries.

Our empirical findings do not support our hypotheses. Indeed, we find that *ceteris paribus*, candidate countries attract less FDI flows than countries that do not have the option to join the EU. We also find that the release by the EU of the official information concerning the candidate country's progress toward its integration to the EU is negatively correlated with the FDI flows to the candidate countries. Our results are thus in line with those of Blomström and Kokko (1997) and Hallward-Driemeier (2003). However, our results contradict those reported by Stein and Daude (2001) and Yeyati et al. (2002).

A few caveats are in order when assessing our results. First, we do not include control variables for country-fixed effects. As a part of the robustness analysis, we include country dummies in our regression model. Although the results are qualitatively similar for the GDP and openness variables, none of the integration dummies are significant (results reported in Table A3, in the Appendix). Also, the majority of the country dummies are significant and the adjusted R-square increases twofold. It thus seems that our integration dummies capture part of the country-fixed effects when no control variables are included. It also appears that the pure regional integration effect, that is the effect of regional integration that remains after controlling for country-fixed effects, is more subtle than anticipated.

It is possible that our integration dummies are negatively signed or insignificant because the hypothesized increase happens before the beginning of the accession process. Indeed, most candidate countries ratified a free-trade agreement or were members of the European Free Trade Area – which concluded a free-trade agreement with the EU in 1994 – before they started the process toward their integration to the EU. Thus, the hypothesized increase in FDI flows may have taken place earlier, that is, at the time of the candidate country's ratification of the free trade agreement.

We test for the impact of the ratification of a free-trade agreement between the EU and the candidate countries on the FDI flows to the candidate countries of the first four enlargements of the EU. Specifically, we add controls for the consequences of the ratification of the free-trade agreement with Switzerland in 1973, with the countries members of the European Free Trade Area in 1994, and with Turkey in 1996 (Turkey is still a candidate country). However we cannot find evidence of an increase in FDI flows following the ratification of a free-trade agreement. (Results are not reported here but can be obtained from the author).

Our data include FDI flows to individual Eastern European countries from 1993 onward only, thus not allowing us to test empirically for the consequences of the conclusion of the Europe Agreements on FDI flows to the Eastern European countries. Similarly, and again due to the limitations of our dataset, we cannot test for the consequences of the Copenhagen promise on FDI flows to Central and Eastern European countries. We recall that during the Copenhagen conference in 1993, the European Council stated that the integration to the EU is possible for all European countries that satisfy basic economic and political criteria and that are willing to adopt the EU's *acquis communautaire*. From the perspective of foreign investors, it may thus be that the integration of the Eastern European countries was already considered certain in 1993.

In short, it seems that our results are fairly robust. It appears indeed that FDI flows to the candidate countries did not increase during the candidate countries' accession process to the EU. Our empirical results do not support our hypotheses but some findings are worth of mention nonetheless.

For example, among our integration dummies, only the negotiations-progress and negotiations-opening dummies are consistently significant. If firms indeed use the official information released by the economic union to form their expectations concerning the candidate country's integration, then it seems that the announcement of the negotiations opening, as well as the announcement of the candidate country's progress in the negotiations process, conveys more information of interest to the firms than the announcements of other major events in the accession process.

A candidate country's formal application does not guarantee an immediate opening of the negotiations. In fact, the EU often imposes conditions that the applicant must fulfill before the negotiations open, thus creating additional delays. For example, although Turkey formally applied to the EU in 1987, the EU recommended the opening of the negotiations only in its 2004 Regular Report (European Union, 2004). Thus, for the purpose of estimating the probability that a candidate country integrates the EU, it seems that the negotiations-related events are more meaningful than a country's formal application.

In fact, until now, all candidate countries that opened negotiations have been successful in their accession process.[4] Indeed, the EU seems to screen the applicants before proceeding to the negotiations stage, such that the negotiations with the selected candidate countries focus only on the length of the transition periods, and not on the basic economic and political conditions that the candidate country must fulfill. Therefore, from an historical perspective, the integration of candidate countries that open negotiations appears certain. The only uncertainty thus remaining is to determine the exact date of the candidate country's accession.

[4] Norway is the exception to the rule. However, Norway's population rejected the integration to the EU in consecutive referenda; it is not the EU which refused Norway's candidacy.

Consequently, the EU's formal opinion on the candidate country's progress toward integration, as well as the accession announcement, does not convey much new information of interest to the foreign firms. This may explain why the favorable-opinion and accession-announcement dummies are not significant in most of our analysis.

However, the accession-announcement dummy is significant in all models when we use the 1999-2003 subsample. We offer here a tentative explanation for these results. We recall that the accession process of the fifth enlargement is the most complex accession process to date. Thus, after the lengthiest and most complicated negotiations in the history of the EU, investors may have had doubts about the integration of the candidate countries and therefore, the accession announcement may have conveyed more information than in the case of non-Eastern European candidates. In any case, this possible causal relation is a complex question and as such, it deserves a discussion of its own. We thus leave this question for future research.

Some other issues remain for future research. For example, it could be that the free movement of production factors and the harmonization of economic policies are not as important FDI determinants as the free-trade policies. Our model could thus be tested with forms of regional integration less involving than economic unions, free-trade agreements and customs unions for instance.

Our model could also be generalized in order to include the economic union's member countries as other source countries. Including European countries as source countries would greatly increase the generality of the model because intra-European investment has traditionally been more important than investment from non-European countries (Dobosiewicz, 1992). It would also allow for the comparison of intraregional and interregional flows. This would undeniably provide a more complete depiction of the firms' behaviour. In addition, our model could be extended to encompass other modes of internationalization, joint ventures for example. Moreover, because managers are ultimately

responsible for the FDI decisions, and because they may not behave as assumed, an analysis based on interviews with the managers responsible of the foreign operations could provide an enlightening perspective on the FDI location issue.

It would also be instructive to include both the bilateral trade and investment flows in our model, thus allowing for a more thorough description of foreign firms' behaviour. Indeed, the bilateral trade and investment flows would help to determine whether foreign firms use their initial investment in the candidate country as a platform for trade and investments. Including bilateral trade and investment flows would also eliminate the need to make implicit assumptions about the substitutability or complementarity of trade and foreign investment.

Finally, a study aiming at providing a complete explanation for the importance of regional integration as an FDI flows determinant should include an analysis of FDI flows to countries that are already members of the regional integration agreement. This would allow researchers to model explicitly the substitutability or complementarity of trade and FDI flows.

In short, the relationship between foreign direct investment and regional integration – under its various forms – remains not fully understood. Therefore, and especially owing to the growing importance of both the FDI and regional integration phenomena, there is an urge for more research in this area

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APPENDIX A – Additional regressions results

Table A1: Regression results obtained with the full sample, with log(1+FDI flows) as the dependent variable

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept	-3.2063	-3.2140	-3.2069	-3.2087	-3.2095	-3.2139	-3.2131	-3.2139	-3.2095	-3.2082	-3.2090
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(GDP)	0.1630	0.1638	0.1631	0.1632	0.1632	0.1640	0.1639	0.1639	0.1635	0.1634	0.1634
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(openness)	0.1379	0.1394	0.1379	0.1380	0.1380	0.1397	0.1396	0.1397	0.1386	0.1395	0.1385
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Application	-0.3260					-0.3131	-0.3124	-0.3148	-0.3301	-0.3297	-0.3297
	(0.138)					(0.154)	(0.155)	(0.152)	(0.133)	(0.134)	(0.134)
Negotiations progress		-0.3880				-0.4075	-0.4118	-0.3755			
		(0.003)				(0.006)	(0.005)	(0.005)			
Negotiations opening			-0.2089						-0.2148	-0.2141	-0.2141
			(0.389)						(0.375)	(0.377)	(0.377)
Favorable opinion				-0.2565		0.1641	0.1114		-0.1805	-0.2617	
				(0.308)		(0.595)	(0.695)		(0.523)	(0.298)	
Accession announcement					-0.2548	-0.1273		-0.0651	-0.1773		-0.2598
					(0.311)	(0.662)		(0.802)	(0.531)		(0.302)
No. of observations	1,806	1,806	1,806	1,806	1,806	1,806	1,806	1,806	1,806	1,806	1,806
Adjusted R-square	0.115	0.118	0.114	0.115	0.115	0.118	0.118	0.118	0.115	0.115	0.115

Note. This table reports the ordinary least squares regression results using the 1999-2003 subsample (annual observations, 1999-2003). P-values are reported in parentheses. The dependent variable is the annual logged value of (1+ FDI flow). We report the sample size and the adjusted R-square for each regression in the last two rows of the table. We also ran additional regressions where we extrapolated the missing values (using the average growth rate of the previous two observations). The corresponding results were qualitatively similar and are therefore not reported but can obtained from the author.

Table A2: Regression results obtained with the candidate subsample, with log(1+FDI flows) as the dependent variable

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept	-3.9493	-3.8941	-4.0179	-4.0139	-4.0168	-3.8081	-3.8096	-3.8102	-3.9218	-3.9251	-3.9284
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(GDP)	0.1871	0.1856	0.1895	0.1895	0.1896	0.1826	0.1826	0.1827	0.1863	0.1863	0.1865
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log(openness)	0.1610	0.1616	0.1620	0.1621	0.1622	0.1604	0.1603	0.1604	0.1609	0.1609	0.1610
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Application	-0.2522					-0.2670	-0.2661	-0.2683	-0.2589	-0.2575	-0.2574
	(0.274)					(0.248)	(0.249)	(0.245)	(0.264)	(0.266)	(0.266)
Negotiations		-0.2339				-0.2697	-0.2707	-0.2411			
progress		(0.089)				(0.081)	(0.079)	(0.089)			
Negotiations			-0.0331						-0.0493	-0.0479	-0.0479
opening			(0.893)						(0.841)	(0.845)	(0.846)
Favorable opinion				-0.0869		0.1451	0.1253		-0.0691	-0.0996	
				(0.733)		(0.638)	(0.659)		(0.808)	(0.696)	
Accession					-0.0870	-0.0467		0.0053	-0.0689		-0.0955
announcement					(0.732)	(0.869)		(0.983)	(0.808)		(0.696)
No. of observations	438	438	438	438	438	438	438	438	438	438	438
Adjusted R-square	0.080	0.084	0.078	0.078	0.078	0.081	0.083	0.082	0.074	0.076	0.076

Note. This table reports the ordinary least squares regression results using the 1999-2003 subsample (annual observations, 1999-2003). P-values are reported in parentheses. The dependent variable is the annual logged value of (1+ FDI flow). We report the sample size and the adjusted R-square for each regression in the last two rows of the table. We also ran additional regressions where we extrapolated the missing values (using the average growth rate of the previous two observations). The corresponding results were qualitatively similar and are therefore not reported but can be obtained from the author.

Table A3: Regression results with individual country dummies (full sample)

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept	-3.2341	-3.1992	-3.2106	-3.2254	-3.2256	-3.2163	-3.2057	-3.2313	-3.2063	-3.2168	-3.2166
	(<0.001)	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*
Log(GDP)	0.10353	0.1021	0.1025	0.1032	0.1032	0.1028	0.1024	0.1035	0.1024	0.1028	0.1028
	(<0.001)	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*	*(<0.001)*
Log(Openness)	0.0499	0.0503	0.0494	0.0498	0.0498	0.0497	0.0504	0.0499	0.0504	0.0496	0.0497
	(0.081)	*(0.079)*	*(0.084)*	*(0.082)*	*(0.082)*	*(0.083)*	*(0.079)*	*(0.081)*	*(0.078)*	*(0.083)*	*(0.0833)*
Application	0.0776					0.0670	0.0632	0.0765	0.0635	0.0672	0.0676
	(0.806)					*(0.833)*	*(0.842)*	*(0.809)*	*(0.841)*	*(0.832)*	*(0.831)*
Negotiations progress		-0.2269					-0.2672		-0.2344		
		(0.229)					*(0.201)*		*(0.227)*		
Negotiations opening			-0.2085			-0.2076				-0.2072	-0.2070
			(0.509)			*(0.513)*				*(0.513)*	*(0.514)*
Favorable opinion				-0.0285		-0.0245	0.1792	-0.0188			-0.0359
				(0.933)		*(0.950)*	*(0.670)*	*(0.962)*			*(0.917)*
Accession announcement					-0.0255	-0.0217	-0.0002	-0.0139	0.0669	-0.0326	
					(0.935)	*(0.952)*	*(0.999)*	*(0.969)*	*(0.836)*	*(0.918)*	
No. of observations	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559
Adjusted R-square	0.5836	0.5839	0.5837	0.5835	0.5835	0.5829	0.5832	0.5830	0.5834	0.5831	0.5831

Note : This table reports the ordinary least squares regression results using the full sample (annual observations, 1966-2003). P-values are reported in parentheses. The coefficients and p-values of the 52 country dummies are not reported. The dependent variable is the annual logged value of (FDI flow). We report the sample size and the adjusted R-square for each regression in the last two rows of the table. We also ran additional regressions where we extrapolated the missing values (using the average growth rate of the previous two observations). The corresponding results were qualitatively similar and are therefore not reported but can be obtained from the author.

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