FDI and world heterogeneities: The role of absorptive capacities

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Resumen

Una idea bastante aceptada en la literatura económica es que la entrada de flujos de inversión directa extranjera (IDE) puede generar efectos beneficiosos en las economías receptoras. Las diversas estrategias tecnológicas de las empresas multinacionales determinan, no obstante, la existencia y magnitud de los potenciales spillover. Al considerar las distintas formas de entrada de la IDE, las fusiones y adquisiciones presentan, por lo general, un mayor grado de interacción con los sistemas productivos locales y, por ello, cabe esperar impactos diferenciados, condicionados por el nivel de desarrollo y las características de los sistemas nacionales receptores. El propósito en este trabajo es examinar la importancia relativa de los determinantes locales que explican las diversas opciones de entrada de las empresas multinacionales. En el análisis se trata de contrastar cuál es el peso de los factores predominantes en las explicaciones económicas más convencionales, así como el efecto de la estabilidad institucional y el grado de consolidación de las capacidades nacionales de absorción. Los resultados nos permiten confirmar que los factores condicionantes de los flujos de IDE en general, difieren de los que atañen a las fusiones y adquisiciones transfronterizas, lo que justifica la necesidad de explorar nuevos elementos de atracción de IDE. Mientras que los factores estructurales explican bien el comportamiento de la IDE en general, los factores relacionados con los sistemas nacionales de innovación están más estrechamente relacionados con las fusiones y adquisiciones. Finalmente, aunque las desigualdades internacionales persisten al analizar conjuntamente países desarrollados y en desarrollo, tiene una especial relevancia la heterogeneidad que caracteriza al mundo en desarrollo para futuras investigaciones.

Abstract

It is generally agreed that foreign direct investment (FDI) flows can contribute to the local upgrading of host economies, whereas the diverse technological strategies of multinational companies (MNCs) can determine the existence and size of spillover effects. When considering FDI entry modes, merger and acquisitions (M&As) reveal a higher level of interaction with local productive systems than general FDI. Accordingly, their impacts may differ depending on the development level of countries and on the characteristics of national systems. Our aim is to exam the relative importance of local determinants explaining different choices of FDI entry. We explore both the strengths of the traditional explanation of FDI flows as well as the relevance of institutional stability and consolidation of national absorptive capabilities; the latter are considered key features of national systems. Our findings confirm that the factors at a country level affecting general FDI differ from those concerning cross-border M&As and support the need to investigate new drivers for attraction of FDI. Structural factors explain better the behaviour of FDI, whereas the factors of national systems of innovation are more closely correlated with the cross-border M&As trend. Finally, although international inequalities persist when both developed and developing countries are considered, it is interesting to note the importance of the heterogeneity that characterises the developing world as a topic for further research.

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1. Introduction

The motives for FDI differ according to the development level of countries, as is also the case with local factors for the attraction of foreign capital flows. In fact, international inequalities persist and FDI outflows and inflows are mainly concentrated in the most developed countries. However, recent trends confirm a certain shift in the direction of investments, and developing countries are also entering the global scene. On the other hand, cross-border mergers and acquisitions (M&As) have experienced a notable increase during the last decades and, although these operations are still mainly concentrated in developed countries, since they are simultaneously home and host economies, developing countries are gaining ground in this general trend (UNCTAD, 2005; 2007). The economic literature on foreign direct investment (FDI) in general, and M&As in particular, has been mainly focused on international business perspectives and there is a lack of empirical evidence from the point of view of national economies, as Lall (2002) has already pointed out.

Taking into account the geographical reorientation of FDI flows as well as the different level of interaction with local economies, it is interesting to analyse the conditioning factors of FDI behaviour in a multi-country analysis. The question is to what extent the shift in the types of FDI operation responds to a set of determinants, already agreed in the economics literature and development studies, as well as to other more qualitative aspects. It is also possible to include in the analysis a study of potential effects of the institutional framework and the absorptive capacities on FDI attraction. In particular, more advanced societies show higher education levels and they are more advanced in science and technology – aspects which are positively related to their level of development. Consequently, it is plausible to think that the relationship between national characteristics, the nature of FDI and its temporal behaviour may define a process with coevolutionary features.

Previous findings confirm: first, that FDI may contribute to the local upgrading of host economies; second, the kind of technological strategies of transnational corporations (TNC) may determine the existence and size of spillover effects; third, regarding FDI entry modes, M&As show a higher level of interaction with local productive systems. According to available empirical evidence, largely based on the Dunning OLI theory, some driving forces are common to FDI and M&As, whereas different effects in host economies may derive from the two modes of entry. It is generally assumed that local conditions in terms of factor costs, market structure, human skills and regulatory frameworks are determinant factors for attracting foreign investment. However, the explanatory capacity of these local assets as determinants of inward investments could differ between developed and developing countries. Moreover, technological upgrading is one of the positive effects that both *greenfield* and M&A operations may generate in host economies. Our hypothesis is related to the fact that heir impact may differ depending on the countries´ level of development and on the characteristics of the national systems.

We would expect that the evolution of countries based on their development path, runs alongside a shift in international investment inflows and an increase in cross-border M&As. Data for a broad sample of both developed and developing countries, over a time span of seven years, have enabled us to analyse FDI in general and M&As in particular, regarding the main features of national systems of innovations. It is possible to think that both the more traditional variables associated with costs in the explanation of international competitiveness, market size and its orientation, and the more qualitative determinants of human capital, absorptive capacities and evolution of the institutional framework, are all correlated with the levels of inward investments and the presence of foreign capital in a national economy. Nonetheless, it is of interest to analyse, first, whether their relative importance differs when considering cross-border M&A as an FDI entry mode and second, to explore the specificity of the developing world.

The use of panel data seems to be the most appropriate technique for carrying out this analysis. Aggregated information from UNCTAD and World Bank statistics are the major sources of accurate data at an international level. This paper includes, in the next section, a short review of the theoretical issues most closely related to our empirical questions. Some FDI and M&A descriptive indicators at an international level can be found in the third section. In the fourth section, we attempt to detect what local determinants explain the

worldwide evolution of FDI and particularly cross-border M&A flows. The aim of the analytical section is to explore the strengths of traditional determinants of FDI as well as the relevance of institutional stability and the consolidation of national absorptive capabilities – key features of national systems – for a better understanding of FDI behaviour. The findings highlight some issues related to the international spread of M&As which also includes developing economies. Finally, we present some conclusions in the last section.

2. Literature background

The literature highlights market seeking, efficiency seeking and knowledge seeking among the different motives for FDI (Dunning, 2006). The relative importance of each of them and the evolution of FDI flows interact with the stage of economic development of countries (Narula & Dunning, 2000; Narula, 1996, 2004). Taking into account the existence of differences between the asset-exploiting and asset-augmenting strategies pointed out by Narula & Dunning (2000), resource seeking prevails in least developed countries (LDCs). On the other hand, market seeking predominates in catching-up economies. The overall rationale is, then, that transnational companies (TNCs) may play a fundamental role in the relationship between international generation and diffusion of knowledge, and welfare improvements.

From a macro perspective, the investment development path hypothesis (Dunning & Narula, 1994, 1996; Lall, 1996) enables us to observe how countries evolve through different stages defining different patterns of FDI behaviour according to their development path. There is a positive relationship between countries catching up and the improvement of their outward position in relation to the inward one – the third stage moving on to the fourth in the hypothesis referred to above. Most of the new Eastern EU countries, for instance, would still be in stage two, with a notable increase in their inward position, and where outflows of FDI are still low.
An idea to recall is that the globalisation trend has not substantially modified the behaviour of FDI. The main changes can be particularly observed in relation to the greater variety of types of FDI operations, to the benefits that FDI generates and to the way in which there is interaction with local economies. In fact, the learning system seems to be a good perspective from which to analyse the role of the TNC in industrial development (Narula & Lall, 2004). From previous evidence, one of the key issues for this paper is the consideration of absorptive capacities as a crucial aspect in understanding the evolution of FDI in developing countries. Despite the liberal trend regarding the globalisation process, institutions and government still have a function in the attraction of FDI, as well as in the promotion of conditions for the generation of positive external effects.

Other main findings in the related literature support the questions set out in this piece of research. In cross-border M&As, firms consider various local conditions in the host economy, including those related to domestic firms and factors at both industry and country levels. Factors such as capital, labour, natural resource endowment as well as institutional variables – legal, political and cultural environment – are significant (Shimizu et al, 2004; Globerman and Shapiro, 2002). Indeed, a major focus of research in this line of the literature is related to market growth in host countries, cultural idiosyncrasies between home and host countries and the specific culture of acquiring firms. Empirical findings confirm that market growth, cultural proximity and low uncertainty are factors that increase the likelihood of entry via M&A (Kogut & Singh, 1988; Brouthers & Brouthers, 2000; Chang & Rosenweig, 2001)

On the other hand, following a study of the effects that FDI is able to generate in local productive systems, it is generally accepted that a necessary condition for technology transfer is related to the international generation of knowledge.[1] The expression of technological change in host locations may be manifested by different means: the increase of competition due to the presence of foreign-owned firms, the demonstrative effects as well as the mobility of a highly skilled labour force. Nonetheless, there is no strong support for those positive external effects that TNC subsidiaries generate and, on the contrary, the empirical evidence is mixed and differences among countries are found (Kokko, 1992: Blomström & Kokko, 1998; Perez, 1998; Aitken & Harrison, 1999; Álvarez & Molero, 2005). It is plausible to think that positive effects in terms

[1] The different forms of internationalisation are described in Archibugi & Michie (1995).

of knowledge spillovers are more likely to occur when considering the types of activities carried out by TNC subsidiaries; for instance, whether they are oriented to production or to R&D activities in the host location. A very interesting distinction is that established between *home base exploiting* strategies, which implies the exploitation of technological advantages a firm has in its domestic activity, and *home base augmenting,* in which the bulk of the activity is oriented to increasing the technological basis through the incorporation of other created assets available in advanced foreign countries (Kuemmerle, 1999). Moreover, differences arise when the time dimension is taken into consideration. In fact, the evolution of firms' strategies in foreign countries changes over time: on the one hand, towards being more integrated with local firms and institutions (Pearce, 1999); on the other, due to the cumulative character that the presence of FDI generates in the local economies and how it provides incentives for new inward FDI (Mudambi, 1995).

Other main questions regard the explanatory mechanisms related to a firm's decisions on whether to centralise or decentralise key activities such as R&D through its subsidiaries (Petit & Sanna-Randaccio, 2000; Sanna-Randaccio, 2002). When the latter choice prevails, it is plausible to wonder about the existence of international technological flows in both directions, from the parent to the subsidiary and *vice versa* as well as about the main determinant factors of such a process. Indeed, there are a few formal essays that underline some organisational implications for TNCs of benefiting from interaction with host productive systems when choosing to decentralise (Siotis, 1999; Sanna-Randaccio and Veuglers, 2007).

In the extended body of empirical research based on the effects that FDI has on the growth of countries, it is positively confirmed that the effects are smaller in LDC due to the existence of a threshold level for the generation of externalities; this would imply that countries need a certain level of education, technology, infrastructures and health to benefit from investment flows (OECD, 2002). In particular, the literature has remarked that FDI enhancing growth require a minimum threshold of human capital (Borensztein et al., 1998); although the relevance of human capital differs according to industries, it constitutes a basic condition for the upgrading of domestic capabilities from FDI. Technology transfer from TNCs may generate positive impacts in host economies in several ways and the size of the gap between domestic and foreign units may become an important element when assessing them.

Then, a study of the effects of FDI on host locations should take into account aspects related to international business strategies and to local capabilities. The choice of location depends on the changing strategies of TNCs, home base augmenting *versus* home base exploiting, as well as whether subsidiaries are assigned as a competence creating mandate. The original idea is based on findings arising from the international business perspectives along which it is of interest to understand how TNC strategic behaviour affects the development of the global economy (Pearce, 2006; UNCTAD, 2007). The efficiency searching argument focuses on differences between locations and illustrates the case of both developing and transition economies. The potential interface of national/TNCs describes the transitory nature of competitiveness forces – low costs – and the necessary shift toward a higher investment in upgrading knowledge base and human capital. On the other hand, the location characteristics are also relevant, such as those related to adequate infrastructure, public research facilities, the educational system and science bases (Cantwell & Piscitello, 2002; Cantwell & Mudambi, 2005).

In short, the role of FDI is a crucial factor for international technology diffusion. It may also be a channel of access to international markets through the dynamics of trade and it may permit the extension of productive systems in which TNCs operate. But a greater intra-firm interaction in relation to technical change and the greater mobility of TNCs do not reduce the likelihood of local capabilities in least developed countries. In fact, a study in a multi-country model of the effects of technological transfer from US TNCs confirms the existence of some conditional local factors. Positive and significant effects were detected for developed countries but not for LDC, and human capital levels play a crucial role (Xu, 2000). Moreover, an analysis of two countries in Latin America by Mortimore and Vegara (2004) shows that the nature of FDI and its effect depends on technological capacities, human capital thresholds and supplier capabilities in the host country, defining a minimum level of capability threshold to benefit from technology diffu-

sion from the TNC. These findings provide some plausible arguments to support our approach to integrate in the analysis some differentiated local determinant factors as well as the role of the national systems of innovation for FDI and cross-border M&A attraction. Moreover, they also support the idea that the study of international technology diffusion in developed countries and LDC should be carried out separately.

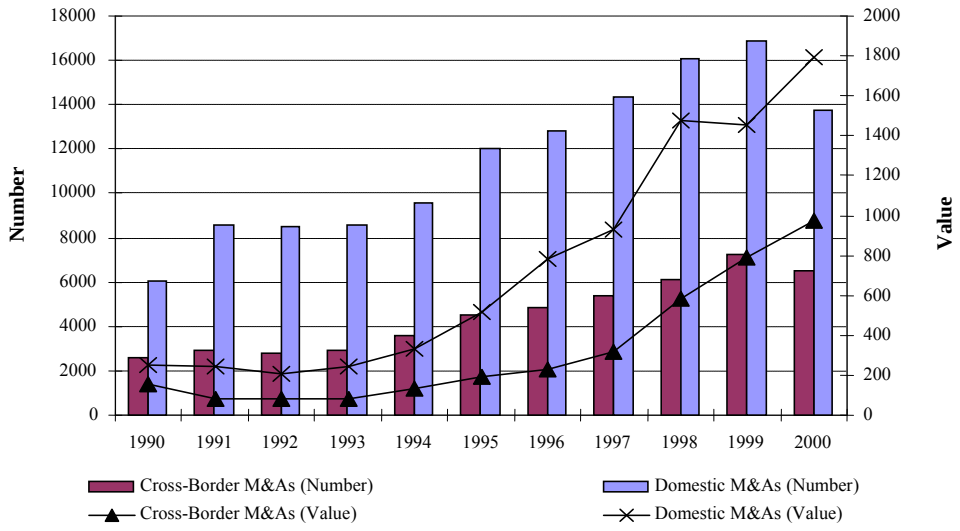
3. Description of aggregated FDI trends

Since the 1980s, FDI flows have notably contributed to globalisation forces, affecting both the behaviour and growth of international production and markets. Nowadays, the strength of direct investment is greater for cross-border M&As than for *greenfield* operations since an overwhelming percentage of FDI currently takes place through the former type of investments (UNCTAD, 2003). In fact, although evolution of the different entry modes of FDI followed similar trends during the 1990s – foreign capital stock achieved around 20 per cent of world GDP – there was a spectacular rise in the value of M&As in the second half of the decade.

Recent data from UNCTAD reveal that there has been a rebound in FDI after three years of declining. The world distribution of this type of investments is not uniform and on the contrary, this is a field in which inequalities still persist. Nonetheless, flows to developing countries and the transition economies attained their highest levels ever and the rise of FDI from developing and transition economies and the growth of South-South FDI are important recent trends (UNCTAD; 2007) In fact, looking at the distribution of FDI inflows by world regions, the share of developing countries reached 38 per cent of world FDI flows in 2004, which is the highest for this group of countries since 1997. It is remarkable that after the USA, the UK and France, China is among the main receptor economies of FDI. Additionally, among the top 100 TNCs, some of them are based in developing countries and total FDI outflows from these groups of economies reached 16% of world FDI outflows (UNCTAD, 2005; 2007). According to the *World Investment Report* by the UNCTAD, some main factors explain the growth of FDI in developing countries: first, competitive pressures which force firms to look for new ways of improving competitiveness; second, the fast growing of markets which implies increasing economies of scale and a reduction of production costs; and third, an upturn toward M&A operations.

Amongst recent features of M&As are the increasing importance of cross-border transactions. Although the majority of M&As is still domestic, representing 70 per cent of the total up to 1998, cross-border M&As have increased in both number and value, achieving a maximum share of 35 per cent in 1999 and 2000 (Graph 1). Furthermore, M&As involving total control of the company (100 per cent of the capital) predominated in this decade, representing more than half of those deals. As regards the type of transactions during the 1990s, there was a predominance of horizontal M&As, in terms of both volume and number of deals, followed by the conglomerates, and with vertical M&As representing only a minimal percentage – less than 8 per cent (UNCTAD, 2000).

Graph 1. Value and Number of Cross-Border and Domestic M&As –– 1991-2000



Source: OECD (2001) – Thomson Financial Securities Data Company.

When the regional distribution of M&As is considered, macroeconomic and political factors may offer additional explanations of the process of business internationalisation through M&As. The leading players in the rapid growth of cross-border M&As between 1990 and 2002 were developed countries. Developing countries, however, underwent a considerable increase in the volume of assets involved in M&As. The contribution of the Triad – formed by the USA, the EU and Japan – to world volume was more than 80 per cent in these years. Up to 1998, the EU and the USA experienced similar growth, but the former was the top-ranking region in this period, the United Kingdom being the leading country. The share of the Japanese economy was relatively small up to 1999, mainly due to a recession resulting from the monetary crisis of 1997-98 and the features of its business culture. The change undergone since 1999 has been due to a fall in the assets price and to changes in business practices (Kang and Johansson, 2000).

With regard to developing countries, Asian and Latin American cases are particularly significant – both contribute over 90 per cent to the total volume of this group of countries. On the one hand, Latin America is the main recipient economy, in which the leading players have been Brazil and Argentina. In these countries, privatisations have played a crucial role as a way through which American and European firms – particularly Spanish – can get into these economies. In terms of Central and Eastern European countries, their participation is relatively small although since the mid-1990s they have become predominantly recipient countries, mainly due to privatisation processes in these economies, Poland, the Czech Republic and Croatia being the main targets of acquisitions.

In short, the direction of international M&As appears to be predetermined, firstly, by industrial and business features of the recipient economy being sufficiently viable to think that the existence of local firms worth buying by foreigner investors is a key determinant for cross-border M&A; secondly, by changes in the institutional and regulatory environment, such as the development of capital markets in host economies; thirdly, by economic growth; and lastly, by regional integration processes, considering them as a factor fostering M&As.

The sectoral dynamism of M&As in the last decade is also a prominent feature of cross-border M&As and has achieved greater importance in explaining the strategies of large TNCs. It is clear that services played a leading role in cross-border M&As between 1990 and 2002. Indeed, services have gone from representing less than 50 per cent of total deals in the mid-1990s to reaching a peak in 2000 of nearly 74 percent. The main leading sectors in 2002 were financial, business services, transport, storage and communications and the utilities – electricity, gas and water – (UNCTAD, 2003). In contrast, in 2000 when the services sector achieved its greatest share,

manufacturing industries achieved approximately 25 per cent, the lowest for the whole decade. Only in 2001 and 2002, when there was a marked decline in cross-border M&As, did manufacturing firms regain ground. In the manufacturing sector, the industries with greater participation in internationalisation through M&As in 2002 were chemicals, electronics, food, beverages and tobacco, and metals and metal products (UNCTAD, 2003).

A set of common factors explain the changes that have taken place in the leading industries mentioned above. In particular, deregulation and liberalisation processes have had a considerable impact on the financial and telecommunications industries, in which the generation of sectoral and geographic synergies have brought success in the fierce competition of the international market (OECD, 2001). Another explanatory factor is technological change and, especially, the development of information and communication technologies (ICT), which has helped to generate new business opportunities at an international level. In the electronics and chemicals sector, technical change is also the main driving force for the increase in M&As (Blonigen & Taylor, 2000; Danzon et al., 2004). Similarly, in motor vehicles and other transport, a significant factor is the high cost of innovation, which has encouraged manufacturers to search for new markets and to restructure their operations in order to gain in efficiency (Kang & Johansson, 2000). In energy industries, improvement in fuel extraction techniques and regulatory changes that have taken place in oil-producing countries, have permitted the entry of foreign firms basically through M&As (Cantwell & Santangelo, 2002).

4. The empirical analysis

a) Data description

It is reasonable to think that the determinants of both *greenfield* and cross-border M&A as types of FDI entry modes differ according to the features of host economies. So, our objective is to assess the relationship between FDI and national systems of innovation through the combination of two different components. One refers to FDI flows in general terms, that is to say, it does not discriminate between how long the foreign capital remains in the host economies, or the qualitative nature of the investment flows. The second is an indicator more related to the presence of foreign capital which is measured by the annual number of cross-border M&As, integrating a point of view based on the higher degree of interaction that investments through M&As generate in host economies (Xu, 2000).

The existence of worldwide differences in the behaviour of FDI can be observed through the level of development across countries. We use World Bank criteria for the classification of countries according to GDP per capita – income variable – in four different groups. We make calculations of some basic statistics for both developed countries – integrated in the high income level group – and developing countries which are divided into two different groups: upper-middle and lower-middle economies[2] – in Table 1. Developing countries are not a homogeneous group of economies and, on the contrary, the diversity among them is observable; the heterogeneity between groups is more noticeable in some variables than in others and also intra-group differences arise inside some income levels. This aspect may have specific consequences for the definition of policies on the international community, enhancing the development processes in laggard countries.

It can be noted that developing countries (lower and upper middle income) present similar mean values in inward FDI flows whereas the other group shows a notable higher value. The higher dispersion in this indicator corresponds to the group of least developed economies. On the other hand, regarding the profile describing the foreign presence variable (M&A), it is remarkable that the most developed countries are less heterogeneous whereas the highest value of the coefficient of variation in cross-border M&A corres-ponds to lower-middle income countries, demonstrating the diversity of these operations in the least developed economies considered.

[2] We have added India to the lower-middle group because of its economic magnitude while we discarded a group of low income countries for several reasons of data availability and for the low dynamic impact of FDI in these economies.

Table 1. Descriptive statistics, 1997-2003

	High Income		Upper-Middle Income		Lower-Middle Income	
	Mean	Std. Dev/Mean	Mean	Std. Dev/Mean	Mean	Std. Dev/Mean
FDI	19,345.62	2.05	3285.51	1.42	4219.01	2.55
M&A	17,967.12	2.43	1517.28	1.90	1269.65	2.78
FDI Stock	10.81	0.18	9.32	0.16	8.81	0.17
GDP	828.85	2.32	100.73	1.38	132.59	2.27
GDP Growth	3.01	0.84	3.67	1.19	4.38	0.87
Openness	94.54	0.68	98.21	0.47	72.95	0.42
Wages	33,084.67	1.72	7326.82	1.40	8412.25	1.50
Human Capital	109.82	0.19	84.39	0.15	76.91	0.21
R&D/GDP	1.92	0.55	0.59	0.53	0.44	0.75
Governance Matters	1.32	0.33	0.35	1.49	-0.39	0.37

The accumulation of foreign capital, measured by the FDI stock in host economies, does not show large inter-group differences. However, there is still a significant difference in the level of salaries in developed economies compared to the developing world – notably higher in the former group when we observe the relative internal market size of the different groups of countries. The developed economies present a higher mean value than middle income economies and the dispersion is also higher in the highest income group. The opposite is shown in the dynamism of the market, revealing largest mean values for the countries with least level of development, although the dispersion of variable distribution is larger for them.

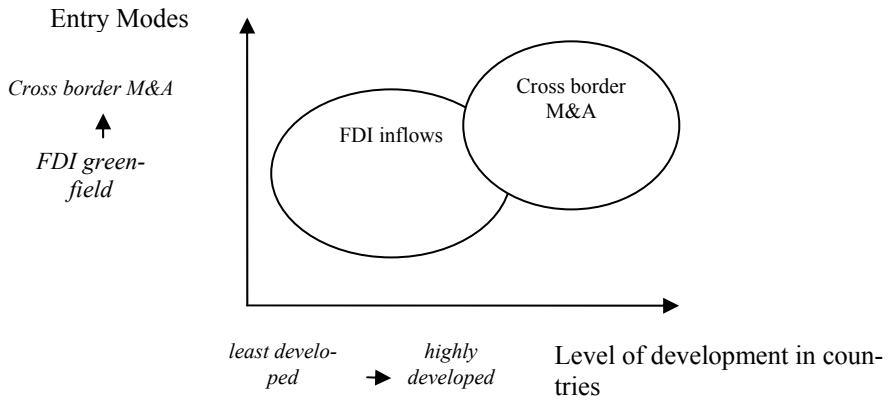
The differences between developed and developing countries are even more marked with the qualitative local factors of FDI attraction, such as educational level and R&D intensity. Two important factors defining the existing gap between high income countries and the others are the indicators of human capital and absorptive capacities. However, in aspects such as the openness level of both high and upper-middle income countries, the averages for these two groups are very similar, even greater for the latter group with a greater dispersion in the former. With institutional stability, it is not surprising that the statistics obtained also reveal the existence of a large gap between developed and developing worlds. The mean values for countries integrated in the group of lower-middle income show the lowest stability and regulatory framework, and even become negative. In short, these statistics show the extreme heterogeneity of the developing world, here represented by 71 countries, as well as the potential and the weaknesses that countries belonging to the group of middle-income countries have for catching-up in the economic globalisation process (Álvarez and Magaña, 2007).

b) Empirical analysis

In this paper, with empirical analysis we look at whether M&As as a mode of entry may denote a higher interest in the productive system of host economies, assuming that this FDI type will imply a greater interaction with domestic capabilities than considering FDIs in general. Therefore, the aim is to relate the level of development of countries with the type of FDI they receive, as shown in Figure 1. We hypothesize that the behaviour of inward FDI and a country's level of development describe a co-evolutionary path which is determined by the positive effects that previous FDI generated in laggard economies, favouring a process of catching-up which makes it more attractive for cross-border M&A. In other words, there is a threshold effect on the level of development achieved by countries to participate in the shift of FDI entry modes, from which M&As are gaining more ground. Thus, it can be expected that the relationship illustrated in Figure 1 is closely associated with the set of factors mentioned in the previous section and with the development levels achieved by countries. Cross-border M&As account for a mod-

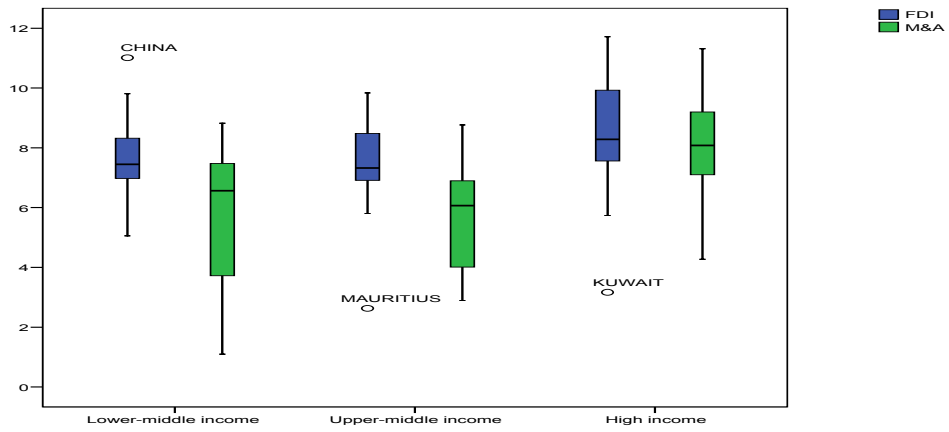
est share of the overall FDI activity in developping countries, although firms from these countries are increasingly involved in M&As (UNCTAD, 2005). For these reasons, it is of interest to explore what the national conditions are when explaining M&A operations and in particular, to detect differentiation aspects for the definition of specific profiles for host economies.

Figure 1. Development level and type of FDI



Graph 2 shows the distribution of FDI and cross-border M&A by groups of countries, taking normalized values of the two variables. It illustrates first, the positive relationship existing between the two kinds of capital internationalization and the income levels of countries, and second, the greater heterogeneity of cross border M&A. We can see that there is still a notable gap on FDI inflows between the more advanced countries and developing economies. High-income economies present the highest levels of FDI and cross border M&A, a more homogenous distribution of the two kinds of flows and there are only few differences between them. For the two groups of less developed economies, it is noticeable that M&A present lower levels than FDI and although the distribution of FDI is similar for the two groups of middle income countries. However, the heterogeneity of cross-border M&A is more pronounced for lower middle income countries, India and China integrating this group, aspect that underline the non-deterministic behavior of the relationship and the possible co-evolutionary features.

Graph 2. Distribution of FDI and M&A, by groups of countries, 2004



There are several elements which could reveal the qualification of the type of FDI in host countries. Some of them can be considered as more conventional determinants of FDI, such as productive costs (i.e. wages), the openness level of countries (Open) and the size and growth of the internal market (GDP). Others are more related to features of the national systems of innovation, such as, first, the path of foreign capital presence; second, the human capital level (HK) which provides a plausible argument to explain the evolution of FDI in countries and particularly in LDCs, measured through the level of school enrolment in secondary education; and third, the absorptive capacities. The latter, adopted from the micro concept formulated by Cohen and Levinthal (1990), is understood as the possibility to benefit from innovation carried out externally to the firms and defining a second phase of learning. At an aggregated level (Narula et al., 2002), absorptive capacities can be measured through national R&D expenditures (R&D). On the other hand, we find aspects regarding the institutional and regulatory features of host economies. The idea is that institutional stability can be seen as a determinant factor of attractiveness. Although imperfect, the institutional framework can be measured by the *Government Matters Indicator* that has been built under the auspices of the World Bank.[3]

The empirical model tries to explain FDI flows and cross-border M&A as a function of the following determinants: labour costs, size and growth of the internal market, level of openness, cumulative nature of foreign capital, as well as human capital level, R&D intensity and institutional framework.[4] All these variables are introduced into the estimations taking logarithm transformations, with the exception of the last.[5] In a first test, our dependent variable is FDI while in the second it will be cross-border M&A. Each will be regressed against the set of determinants previously mentioned.

For a dynamic approach to understanding the relative importance local determinants have in each FDI mode of entry, the estimation method and the availability of panel data are crucial. The time dimension is an element to be observed from the estimations of both FDI and M&A variables. The model will be estimated following a dynamic approach where the inherent endogenous structure of the model is taken into account: the dependent variable, present and lagged, may be correlated with the independent variables (determinants); that is, past results may determine the FDI type of entry now. A common way of dealing with the problem is to test to what extent the determinants affect FDI results, as well as to eliminate non-observable effects. The generalised method of moments (GMM) uses the first differencing transformation to wipe out non-observable individual effects and all possible lags of regressors as instruments to eliminate possible correlations with the individual effect (Arellano & Bond, 1991). An extension of the GMM estimator considers both the original instruments in levels for equations in first differences and instruments in first differences for equations in levels (Arellano & Bover, 1995; Blundell & Bond, 1998). In this estimation procedure, which is called system-GMM, predetermined variables in levels are instrumented with lags of their own first differences. The system-GMM estimation procedure is the

[3] The "Governance Matters Indicator" is the average of six different indicators: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption. For each one and for each country, 352 indicators were collected from different sources: international organisms, rating agencies and others.

[4] A detailed description of these variables can be found in Table 2 and correlations among variables in Table 1A of the Annex.

[5] The *Government Indicator* is the average of a set of indicators on voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption.

Table 2. Summary of variables

Variable	*Definition*	*Source*
FDI	Foreign Direct Investment (net inflows)	UNCTAD, FDI database
MA	Mergers and Acquisitions (inflows)	UNCTAD, FDI database
FDIStock	Stock of FDI	World Bank, WDI 2005
GDP	Gross Domestic Product at US$ constant 2000	World Bank, WDI 2005
ΔGDP	Annual growth rate of GDP	World Bank, WDI 2005
OP	Openness: Exports and imports of goods and services (%GDP)	World Bank, WDI 2005
W	Compensation of employees	World Bank, WDI 2005
HK	Human Capital: School enrolment in secondary education (%Total)	World Bank, WDI 2005
RD	Research and Development expenditures (%GDP)	World Bank, WDI 2005
GMI	Governance matters indicator	World Bank

one adopted in estimating our equations, because of its superior performance and its inherent advantages over the first differenced GMM estimator.

Equation (1) is adopted for estimation of both FDI and M&A, separately. Moreover, time and country dummies are also included to consider those macro impacts not explicitly controlled in the model. The variables and their definitions are listed in Table 2.

$$\log y_{it} = \alpha 1 \log \text{FDIstock}_{it} + \alpha 2 \log \text{Wages}_{it} + \alpha 3 \log \text{GDP}_{it} + \alpha 4 \log \text{GrowthGDP}_{it} + \alpha 5 \log \text{OPEN}_{it} + \alpha 6 \log \text{HK}_{it} + \alpha 7 \log \text{R\&D}_{it} + \alpha 8 \text{GOV}_{it} + \eta dj + \upsilon dt + \varepsilon it \qquad \text{Eq (1)}$$

The estimation results of the dynamic panel allow us to confirm that FDI flows present a positive relationship with the previous presence of foreign capital in the economy, the size and dynamisms of the internal market and the institutional features of host countries, whereas labour costs act in a negative direction – column 1 of Table 3. By contrast, the openness degree and factors revealing the qualification of national systems, such as human capital and R&D intensity, do not seem to explain worldwide FDI flows. Nonetheless, results in the second column of Table 3 manifest the persistence of world inequalities and differentiated results arise when controlling by the national level of income per capita. Absorptive capacities become even more significant for those countries with a lower level of development; the interacted variable (R&D*lower-middle income) behaves differently and better than the higher income group. These findings may be linked to the general nature of the investment operation behind the variable FDI and they indicate a combination of traditional determinants and the institutional factors of host economies in the explanation of worldwide FDI flows.

Table 3. GMM estimations

	FDI		*MA*	
	(1)	(2)	(1)	(2)
FDIStock	0.800***	0.814***	0.833***	0.851***
	(0.068)	(0.073)	(0.143)	(0.165)
GDP	0.296**	0.304**	0.249	0.341
	(0.117)	(0.121)	(0.242)	(0.252)
ΔGDP	0.042**	0.041**	0.076*	0.064*
	(0.018)	(0.018)	(0.043)	(0.037)
OP	-0.240	-0.255	-1.294***	-1.333***
	(0.169)	(0.175)	(0.342)	(0.378)
W	-0.252**	-0.278**	-0.186	-0.328
	(0.127)	(0.134)	(0.259)	(0.241)
HK	-0.264	-0.184	0.237	0.516
	(0.272)	(0.307)	(0.523)	(0.398)
RD	0.171		0.601***	
	(0.118)		(0.220)	
GMI	0.214*	0.192	0.664**	0.617**
	(0.122)	(0.124)	(0.277)	(0.275)
RD*High		0.108		-0.031
		(0.245)		(0.356)
RD*UpperMiddle		0.178		1.088***
		(0.208)		(0.400)
RD*LowerMiddle		0.243*		1.080**
		(0.139)		(0.459)
Hansen test Chi^2	48.21**	48.38**	53.80**	53.92**
Arellano-Bond test for AR(1)	-2.79***	-2.80***	-1.94**	-1.95**
Arellano-Bond test for AR(2)	0.35	0.34	-0.81	-0.87
Number of observations	404	404	364	364
Number of individuals	72	72	71	71

* significant at 10% level; ** significant at 5% level; ***significant at 1% level
Robust standard errors in parentheses
All variables are in logarithms except the Governance Matters Indicator

The institutional framework is also a significant factor which is positively related to the presence of foreign capital via cross-border M&A in host productive systems. M&As seem to be related negatively with the degree of openness of host economies, absorptive capacities gaining ground in the explanation of this entry mode while the costs variable loses importance (third column of Table 3). Nevertheless, when the development level of coun

tries is considered (last column of Table 3), our findings reveal that the absorptive capacity of national systems of innovation tends to distinguish the behaviour of M&A and there is also a coincidence between institutional factors, such as political stability and regulatory quality of host countries.

In short, there are significant elements of differentiation in understanding the path of M&As versus general FDI flows in the last decade. Internal market size, labour costs and level of human capital in host systems do not seem to play a significant role as determinants of cross-border M&A. Meanwhile, government indicator is a significant determinant for both FDI and M&A while absorptive capacity is a feature more related to the attraction capacity of FDI flows looking for acquiring, getting a more permanent establishment and positioning in productive systems. In addition, from exploration of the differences that are observable in the behaviour of cross-border M&A according to the income level of countries, findings confirm the evidence of world heterogeneity. This aspect is noticeable even when leaving aside the least developed countries, integrated by low income economies and considering the intra group differences of the segment of developing economies, integrated by middle income countries. Then, new and

further research is required on differences found in the developing world.

5. Conclusions

It is broadly agreed that FDI entry modes can be affected by international business strategies (as set out in the OLI theory) in which ownership and internalisation advantages combine with the features of host locations, altogether defining the determinants of FDI. The existence of world inequalities is highlighted here as an issue which needs to be further considered in economic research into the behaviour of FDI, the local determinants for its attraction and their impact on host economies. In fact, although international investments are still highly concentrated, developing economies are gaining some ground for FDI flows and their path may differ from developed countries. The evidence on determinants of FDI modes of entry opens up new questions about the role of national capabilities, both in attracting FDI and understanding global learning processes. Our findings allow us to confirm the existence of differences in the factors at country level affecting more general investment, integrated by FDI and the particular entry mode of cross-border M&A. The empirical results confirm that structural factors better explain FDI behaviour in general, whereas the factors of national systems of innovation are more closely related to cross-border M&A trends. In both cases, the relevance of host institutional frameworks is noteworthy. Finally, although international inequalities persist when both developed and developing countries are studied, there is a noticeable heterogeneity that characterises the developing world in which catching-up and laggard economies co-exist but with differentiated profiles. This is an issue which needs to be explored in further research.

ANNEX

Table 1A. Rank correlations: FDI, M&A and national factors (1998-2004)

	Total Sample		High Income		Upper-Middle Income		Lower-Middle Income	
	FDI	**MA**	**FDI**	**MA**	**FDI**	**MA**	**FDI**	**MA**
FDI	1	0.754**	1	0.706**	1	0.740**	1	0.637**
MA	0.754**	1	0.706**	1	0.740**	1	0.637**	1
FDIStock	0.887**	0.695**	0.877**	0.670**	0.805**	0.593**	0.871**	0.547**
GDP	0.783**	0.642**	0.723**	0.690**	0.790**	0.609**	0.822**	0.525**
ΔGDP	-0.048	-0.095*	0.015	0.009	-0.088	-0.095	0.127	0.007
OP	-0.231**	-0.229**	-0.193**	-0.396**	-0.281**	-0.233**	-0.439**	-0.344**
W	0.728**	0.626**	0.664**	0.580**	0.777**	0.564**	0.599**	0.419**
HK	0.364**	0.388**	0.272**	0.260**	0.029	0.102	0.081	0.068
RD	0.563**	0.533**	0.434**	0.455**	0.370**	0.303**	0.429**	0.237**
GMI	0.439**	0.450**	0.355**	0.250**	-0.237**	-0.142	0.350**	0.352**

** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

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