Is there a home bias in mergers and acquisitions?
And does it depend on the type of acquirer and on its home country?

by

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Master in Economics

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2015

Biographic Note

André Manuel Teixeira Gomes Cardoso was born on August 7th, 1992 in Baião, Porto. His academic career at the School of Economics and Management – University of Porto (FEP) began in 2010 with a degree in Economics. After its completion, in 2013, he joined the Master in Economics.

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Apart from that, between March 2014 and September 2014, André Cardoso was a research assistant in an OECD project entitled "A comparative analysis of the financing of international investments by privately owned and state owned firms"; and between August 2013 and December 2013 he participated in the summer internship of Banco de Portugal (Statistics Department).

Acknowledgements

There are several people that contributed to the elaboration of this dissertation to whom I am truly thankful.

First of all, I would like to thank my supervisor, Professor Ana Teresa Tavares-Lehmann, for all the support, availability and dedication, share of knowledge and incredible capacity of motivation. Foremost, I would like to acknowledge Professor Ana Lehmann for being an example of all I admire in a professional.

Secondly, I gratefully acknowledge the very significant contribution and critical thoughts of Professor Frederick Lehmann at all stages of this dissertation.

Then, my acknowledgement to the OECD (in particular to Dr. Michael Gestrin and the International Investment Division) for providing a leading comprehensive database (*Dealogic*) on mergers and acquisitions, without which this work would not be possible.

I wish to thank to my family as well, especially to my parents, who have always encouraged me and supported me throughout my life, and my brothers for being my best friends.

To all the Professors of the Master in Economics, especially Professor Joana Resende for her guidance and help at the initial stage of the dissertation, I also express my deepest gratitude.

Finally, to my colleagues of the Master in Economics and at Banco de Portugal for their encouragement.

Abstract

This dissertation aims to investigate whether firms have a greater predisposition to conduct domestic rather than international merger and acquisition (M&A) deals (home bias), distinguishing state owned enterprises (SOEs) from privately owned enterprises (POEs) and acquirers originating in developed economies from those originating in emerging and developing economies. Financial theory predicts no existence of home bias in M&As because well diversified investments can reduce risk significantly without affecting expected return. However, empirical studies conclude that firms are only partially diversified internationally (i.e. argue in favour of the existence of home bias) mostly due to geographical and asymmetric information aspects. Making use of data (from *Dealogic* database) on worldwide M&A deals between 1996 and 2013, we test three hypotheses: 1) there is a home bias in M&A deals; 2) SOEs tend to have greater home bias in their M&A activity than POEs; and 3) firms originating in developed economies tend to have a greater home bias in their M&A activity than those from emerging and developing economies. The hypothesis 1 is tested using binomial probability tests and hypotheses 2 and 3 through probit regressions. The results are clear: there is a home bias in M&As, i.e. firms have a greater propensity to undertake domestic than cross-border M&As (it is a fact for the period between 1996 and 2013 as a whole and for all the years under review individually). Moreover, contrary to what we were expecting, we find a strong evidence that: i) SOEs tend to have a lower home bias in their M&A activity than POEs; and ii) firms located in emerging and developing economies tend to have a greater home bias in their M&A activity than firms located in developed economies. As there is a very limited knowledge about home bias in M&As and how it depends on the type of acquirer and on its home country, this dissertation constitutes a very important contribution to the literature on M&As.

JEL Classification: F21; F23; G34

Keywords: Home Bias; Mergers and Acquisitions (M&As); Foreign Direct Investment, State Owned Enterprises; Privately Owned Enterprises; Developed Economies; Emerging and Developing Economies

Resumo

Esta dissertação tem como objetivo investigar se as empresas têm uma maior predisposição para realizar fusões e aquisições (M&As) no mercado doméstico do que no exterior (*home bias*), distinguindo empresas públicas (SOEs) de empresas privadas (POEs) e empresas localizadas em economias desenvolvidas das localizadas em economias emergentes e em desenvolvimento. A teoria financeira prevê a inexistência de um *home bias* em M&As dado que investimentos diversificados podem reduzir significativamente o risco sem afetar o retorno esperado. No entanto, estudos empíricos concluem que as empresas estão apenas parcialmente diversificadas internacionalmente (i.e. argumentam a favor da existência de *home bias*) devido principalmente a aspetos geográficos e de assimetria de informação. Utilizando os dados (da base de dados *Dealogic*) sobre M&As realizadas em todo o mundo entre 1996 e 2013, testamos três hipóteses: 1) existe um *home bias* em M&As; 2) as SOEs tendem a ter um maior *home bias* em M&As do que as POEs; e 3) as empresas localizadas em economias desenvolvidas tendem a ter um maior *home bias* em M&As do que as localizadas em economias emergentes e em desenvolvimento. A hipótese 1 é testada utilizando testes de probabilidade binomial e as hipóteses 2 e 3 através de regressões probit. Os resultados são claros: existe um *home bias* em M&As, ou seja, as empresas têm uma maior propensão para realizar M&As no mercado doméstico do que no exterior (é um facto para o período entre 1996 e 2013 como um todo e para todos os anos em análise individualmente). Além disso, contrariamente ao esperado, encontramos uma forte evidência de que: i) as SOEs tendem a ter um menor *home bias* na atividade de M&A do que as POEs; e ii) as empresas localizadas em economias emergentes e em desenvolvimento tendem a ter um maior *home bias* na atividade de M&A do que as empresas localizadas em economias desenvolvidas. Dado que existe um conhecimento muito limitado sobre *home bias* em M&As e de como ele depende do tipo de adquirente e do país de origem, esta dissertação constitui um contributo muito importante para a literatura sobre M&As.

Códigos JEL: F21; F23; G34

Palavras-Chave: *Home Bias*; Fusões e Aquisições (M&As); Investimento Direto Estrangeiro; Empresas Públicas; Empresas Privadas; Economias Desenvolvidas; Economias Emergentes e em Desenvolvimento

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1. Introduction

Global Foreign Direct Investment (FDI) flows increased considerably over the last years, with a total growth of 271% and an average yearly growth of 8% between 1996 and 2013[1] (calculations based on UNCTAD, 2014). Moreover, these flows grew, in the same period, at a much faster yearly pace than worldwide Gross Domestic Product (GDP) (5.3%) and international trade (5.5%) (IMF, 2014). According to UNCTAD (2014), international mergers and acquisitions (IM&As) have been of critical relevance, representing almost 40% of the total FDI flows between 1996 and 2013. A key economic player, notably in recent years, has been the public sector – through state owned enterprises (SOEs) – both in developed and emerging economies (Sauvant and Strauss, 2012).

This dissertation aims to investigate whether SOEs and privately owned enterprises (POEs) have greater predisposition to conduct domestic than cross-border deals (i.e. have greater home bias), measured by the share of domestic mergers and acquisitions (M&As) in total M&A deals. In other words, the main research question that this dissertation aims ultimately to answer is: "Is there a home bias in M&A deals?". Two complementary research questions are also addressed, notably: "Is the home bias more predominant in M&As made by SOEs or in M&As made by POEs?" and "How does home bias in M&As differ between acquirers originating in developed economies and those from emerging and developing economies?".

Until now, as far as we are aware, this kind of research – focused specifically on home bias in M&As, distinguishing SOEs from POEs and firms located in developed economies from those located in developing and emerging economies – has never been done. Thus, we contribute to the literature by treating a novel angle of research, analyzing a large number of countries (extant literature usually focuses on a specific economy/ limited group of countries) and a large sample period (former studies typically use a small number of years). In order to do that we (1) conduct a rigorous literature review on home bias, highlighting differences (or similarities) between M&A deals made by SOEs vs. POEs, emerging/developing economies vs. developed economies; (2) develop hypotheses

[1] The figures refer to Foreign Direct Investment inflows, i.e. the value of inward direct investment made by non-resident investors in the reporting economy (OECD, 2008).

allowing to test the chosen research questions; (3) conduct a descriptive analysis of the general patterns on M&A activity; (4) test the posited hypotheses through binomial probability tests and appropriate econometric models; and (5) discuss the results obtained, in the light of other studies analyzed in the literature review.

The empirical study is based on data extracted from *Dealogic*[2], a database on M&As including both domestic and international deals. The sample period is 18 full years (1996-2013), and includes over 200,000 observations. In addition, we also make use of data from UNCTAD (UNCTAD, 2015) and OECD (OECD, 2000).

The dissertation is structured in the following way. After this introduction, a literature review is developed, highlighting key concepts and the main existent contributions on home bias in M&As. Subsequently, the empirical research methodology and the dataset are explained. The section after reports the empirical results and their discussion. Lastly, we present the conclusions and issues for future research.

[2] Further details about the *Dealogic* database can be obtained in www.dealogic.com.

2. Literature review

This chapter aims to address some of the most important concepts, theories and literature on home bias in M&As.

Firstly, the key concepts of this study are explained. Following that, we present the main theories on internationalization through IM&As (industrial organization literature and international business theories). Lastly, a literature review on home bias in M&As is developed, distinguishing SOEs from POEs and firms originating in developed economies from those located in emerging and developing economies.

2.1. Key concepts

Before analyzing the extant literature on home bias in M&As (and how it ranges between SOEs and POEs and between firms located in developed economies and firms originating in emerging and developing economies), it is crucial to clarify the concepts of the underlying assumptions and approaches raised throughout this study. As such, we provide a definition of foreign direct investment, state owned enterprise, mergers and acquisitions and developed economies vs. emerging and developing economies.

Defining foreign direct investment

According to UNCTAD (2009), FDI is an "investment involving a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor (FDI enterprise or affiliate enterprise or foreign affiliate)" (UNCTAD, 2009, p. 243). The lasting interest is achieved when the foreign direct investor owns 10% or more of the voting power of the FDI enterprise (OECD, 2008).

In addition, it is important to note that FDI and IM&As are different concepts. In a nutshell, IM&As are one of the modes of establishment via which FDI may occur (the other being greenfield investment) (Dunning and Lundan, 2008). Between 1996 and 2013, IM&As represented almost 40% of the total FDI flows (UNCTAD, 2014).

Defining state owned enterprise

The literature is not unanimous in what concerns the definition of SOE. Sauvant and Strauss (2012) define SOEs as firms in which the government has a controlling interest defined as a stake of 10% or more of the voting power, while Kowalski, Büge, Sztagerowska and Egeland (2012) define as firms in which the government has a stake of 50% or more of the voting power. There are studies and databases that use a more restrictive definition of SOE (e.g. *Dealogic* database) imposing 100% government ownership. The dissertation will adopt this more restrictive, yet unequivocal, last definition, as that is the one used in the large-scale dataset available, and that we employ in our estimations.

Defining mergers and acquisitions

Mergers and acquisitions are two different concepts that should be distinguished. A merger is a combination of two (or more) firms, in order to "share resources" and reach "common objectives" (OECD, 2008, p.198). On the other hand, an acquisition is the purchase of existing shares issued by another firm for increasing ownership or control level by the acquiring firm. There are two types of acquisitions: take-over (the acquirer is larger than the target firm) and reverse take-over (the target firm is larger than the acquirer) (OECD, 2008). An international merger and acquisition (IM&A) occurs when the acquirer and the target are firms based in two different national jurisdictions.

Defining developed economies and emerging/ developing economies

The designation of developed and emerging/ developing economies is not obvious as there are several approaches usually derived from statistical standards (UNSTATS, 2015)[3]. Below, we present an overview of the United Nations', World Bank's and International Monetary Fund (IMF)'s country classification system.

The United Nations Development Programme's Country Classification System depends on the Human Development Index that is built taking into account the longevity (life expectancy at birth), education (actual and expected years of schooling) and income

[3] According to the United Nations Statistics Division, "the designations 'developed' and 'developing' are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process" (http://unstats.un.org/unsd/methods/m49/m49.htm, accessed on September 6th, 2015.

(Gross National Income per capita). Developed economies are countries in the top quartile in the Human Developed Index; all others are designated as developing economies (Nielsen, 2011). In turn, the World Bank's Country Classification System is based on criteria relating to poverty incidence, infant mortality and economic variables such as Gross National Income per capita (Nielsen, 2011). Lastly, according to the IMF (IMF, 2015), the designation depends on the per capita income, export diversification and on the degree of integration into the global financial system[4].

For the empirical study included in this dissertation, we decided to use the information provided by the IMF as it is the only one among the three sources identified above that explicitly identifies which economies are developed vs. emerging and developing. The World Economic Outlook report published in April 2015 (IMF, 2015) makes use of data from 189 economies, classifying 37 as developed economies and the remaining 152 as emerging/ developing economies[5]. As the IMF does not consider (and does not classify) all countries in the world (and all countries in *Dealogic* database), other sources were used as well, including the United Nations Statistics Division (UNSTATS, 2015a)[6].

2.2. Theoretical background

The theories on internationalization through IM&As span the areas of industrial organization and international business (covered in this section). On home bias specifically, it is useful also to draw theoretical insights from financial theory (to be explained in section 2.3.). Below, we clarify the theoretical background to this dissertation, and how it relates to home bias.

2.2.1. Industrial organization

Industrial organization (IO) literature usually does not address explicitly IM&As, as most IO studies investigate domestic M&As across different industries (Brakman,

[4] http://www.imf.org/external/pubs/ft/weo/faq.htm, accessed on August 31st, 2015.
[5] The appendix 2 contains the list of countries considered by the IMF as well as its classification.
[6] The countries' classification is explained in depth in appendix 1.

Garretsen, Marrewijk and Witteloostuijn, 2013). According to Brakman *et al.* (2013) domestic M&As may occur due to efficiency or strategic motives, i.e. to increase scale and scope economies or change the market structure, respectively.

Nevertheless, IO literature argues that firms' internationalization (e.g. through cross-border M&As) is related to the level of competition within the industry in which they operate. Hence, when the level of competition is high, firms tend to conduct FDI projects to obtain new profitable opportunities (Hymer, 1976 and Boter and Holmquist, 1996, as mentioned by Wang, Hong, Kafouros, and Boateng, 2012). Thus, different industries may have different internationalization potential. For example, it is expected that sectors which produce standardized products or services as well as high technology industries have more pronounced FDI flows, i.e. have a lower home bias (Wang *et al.*, 2012). Sometimes, FDI is also the result of legal and regulatory issues, i.e. firms conduct IM&As because they have no permission to increase the market share in their country (Brakman *et al*., 2013).

2.2.2. International business theories

According to international business theories, internationalization can be explained (in the aspects we are concerned about) by theories/frameworks such as the Uppsala model, the OLI framework (also known as the eclectic paradigm), oligopolistic interaction theory, and the resource-based view. In addition, the motivations for FDI developed by Dunning and Lundan (2008) are also addressed.

Uppsala model

According to the Uppsala model (Johanson and Wiedersheim-Paul, 1975; Johanson and Vahlne, 1977), the internationalization of a firm is in most cases not immediate, and tends to occur after its development in the domestic market (initial home focus), as this process requires the accumulation of resources and knowledge about the host country (e.g. language, business practices, culture, level of industrial development and education, political systems, etc). At the cornerstone of this model is the concept of "psychic distance", that means all the factors that disturb the information channel between the firm and the market.

Moreover, as shown in figure 1 below, the internationalization process usually follows some stages, notably: (i) no regular export activities (the firm does not have any regular information channel); (ii) export via independent representatives (the firm has a regular information channel to the market which allow it knows the influencing factors); (iii) sales subsidiary (the firm has more control over the market information, i.e. it has the ability to select the information that comes from the market to the firm) and, if applicable (iv) production subsidiary (the firm has a larger resource commitment).

Figure 1: Internationalization process (Uppsala model)

Source: Own elaboration based on Johanson and Wiedersheim-Paul, 1975; and Johanson and Vahlne, 1977.

So, according to the Uppsala model: (1) there is an initial home bias that is mitigated and eventually disappears over time; and (2) firms tend to conduct international deals in countries with similar characteristics to their own, at least at an early stage of the internationalization process.

The eclectic paradigm

The eclectic paradigm (Dunning, 1977), also called the OLI framework, states that FDI only occurs when firms have simultaneously three types of advantages: ownership (O), location (L) and internalization (I) advantages. Ownership advantages[7] refer to competitive advantages a firm may have over other firms in the host country, and can result from asset-based ownership advantages or transaction-based ownership advantages (Dunning, 1977). The first encompass technological capabilities, human skills and competence, privileged access to markets and financial and marketing capabilities; the latter refer to advantages arising from the very multinationality and international

[7] The concept of ownership advantage proposed by Dunning is reminiscent of the concept of advantage advanced by Hymer (1976). Hymer (1976) states that there are costs of operating abroad (e.g. related to the knowledge of the market, communication) and defends that FDI only occurs if firms possess some specific advantages that outweigh the relative costs of foreign production. Firm-specific advantages usually derive from intangible assets (e.g. technology, business techniques and skilled personnel), for which international markets are imperfect.

experience of the firm, and are related to economies of scale and scope, the size of the firm, risk diversification and arbitrage among markets (see Caves, 1974; Saunders, 1982). Location advantages denote advantages related to the location of the host country by comparison with the home country, in terms of a multiplicity of factors such as lower costs and abundance of natural and other resources, and legal, political, cultural and institutional features, among other aspects. In turn, internalization advantages exist when firms are more efficient than markets in the organization of the international economic activity, i.e. in markets where price is not easily determined (e.g. markets where knowledge is crucial element; and markets for intermediate goods where the stability of supply is critical for the firm's survival) (see Buckley and Casson, 1976).

Thus, according to the eclectic paradigm, the home bias tends to be less significant for firms that face ownership, location and internalization advantages simultaneously, such as those operating in technologically-intensive industries, which produce intermediate goods and whose knowledge is a crucial input.

Oligopolistic interaction theory

Oligopolistic interaction/ reaction theory (Knickerbocker, 1973; Graham, 1975; Flowers, 1976) tries to understand why FDI tends to agglomerate geographically and sectorally. FDI can be explained by the strategic behaviour of firms in oligopolistic markets. Firms create barriers in new markets, take advantage of scale and scope economies and follow competitors' internationalization process to inhibit them gaining strategic advantage. Hence, this theory predicts no existence of home bias if competitors also invest abroad.

Resource-based view

The resource-based view was developed notably by Penrose (1959) and Barney (1991). These authors investigated how resources influence the direction of expansion of a firm.

Penrose (1959) argues that firms' economic value derives from the possession of resources and its effective and innovative management. In other words, growth opportunities and the innovation of a firm depend on its resources as well as how they are used and managed. In addition, Penrose (1959) also addresses the concept of managerial

slack (i.e. the unusual resource) identified as one of the determinant factors of firms' growth. According to Penrose (1959, p. 68), "unused productive services available from existing resources are a 'waste' (…) but they are 'free' services which, if they can be used profitably, may provide a competitive advantage for the firm possessing them". Given this, it is expected that firms with a greater managerial slack tend to have a greater propensity to invest abroad through IM&As and then a lower home bias in M&A activity.

In turn, Barney (1991) also studied the source of sustained competitive advantage[8] and concluded that it derives from the heterogeneity and imperfect mobility of resources between firms. It is argued that firms cannot obtain sustained competitive advantages when strategic resources are perfectly mobile and equally distributed across all competitors. Thus, resources must be valuable, rare, imperfectly imitable, and without strategic substitutes to generate long-term advantages (Barney, 1991). Given this, it is expected that IM&As are encouraged by strategic resource seeking as it is the determinant of sustained competitive advantages.

Motivations for FDI

Another conceptual contribution is provided by Dunning and Lundan (2008), who propose a typology that identifies four motivations for FDI: (i) resource seeking; (ii) market seeking; (iii) efficiency seeking; and (iv) strategic asset seeking.

(i) Resource seeking: firms try to acquire resources (e.g. raw materials) at a cheaper price or not available in the country of origin.

(ii) Market seeking: FDI with the objective to explore new markets, avoid export barriers, and follow the internationalization process of important clients.

(iii) Efficiency seeking: firms can obtain gains from the common governance of geographically distant activities. These gains are related to the reduction in communication and coordination costs, scale and scope economies, risk diversification, among others.

(iv) Strategic asset seeking: FDI in order to acquire sophisticated resources/competencies not available in the country of origin.

[8] Bernay (1991) stated that sustained competitive advantage occurs "when a firm is implementing value creating strategy not simultaneously being implemented by any current or potential competitors" (p. 102).

2.3. Literature review on home bias

The present section addresses the most relevant literature on home bias in M&As. It is divided into three parts – home bias in M&As: the puzzle and the reason; home bias in M&As by SOEs vs. POEs; and home bias in M&As by firms located in developed economies vs. emerging and developing economies. At the end of each of the parts, we posit a hypothesis which allows to answer the research questions stated before in this dissertation. As most of the studies referenced are empirical, at the end of the section we present a table with a summary of the most relevant studies.

2.3.1. Home bias in M&As: the puzzle and the reasons

Financial theory predicts no home bias in investments because, according to a portfolio standpoint, well diversified investments – acquisition of geographically and culturally distant foreign assets – can reduce risk significantly without affecting expected return (Coval and Moskowitz, 1999). In other words, more internationalized firms provide greater diversification benefits to investors. However, firms are only partially diversified internationally, i.e. they are less internationalized than what financial theory predicts. This is called the "home bias puzzle" or "international diversification puzzle" (Eldor, Pines and Schwartz, 1988; De Santis and Gerard, 1997; Coval and Moskowitz, 1999; Berrill and Kearney, 2010; Cooper, Sercu, and Vanpée, 2012).

Although such phenomenon appears to be inefficient from a diversification perspective, the literature offers a variety of explanations for this behaviour. Two of them are related to geographical and asymmetric information aspects. Firms spatially distant face more difficulties in pursuing M&As because the information of the target's value tends to be more imprecise, and monitoring and communicating costs tend to be higher (Green, 1990; Coval and Moskowitz, 1999; di Giovanni, 2005; Lehto, 2006). Moreover, firms usually merge to share assets in order to increase efficiency and profits, and it is not possible for firms spatially distant (Lehto, 2006).

The propensity to undertake investments in one's home country also remains strong due to governmental and legal restrictions on foreign and domestic capital flows,

sovereign risk, variation in regulation and culture (Coval and Moskowitz, 1999) and risk of expropriation (Eldor, Pines and Schwartz, 1988).

In addition, there are other reasons that may lead companies to continue investing within national boundaries like the corporate tax rate in the host country, exchange rate fluctuations (Coval and Moskowitz, 1999; di Giovanni, 2005; Berrill and Kearney, 2010) as well as financing constraints (insufficient internal funds and debt capacity), which manifest themselves more in IM&As than in domestic M&As (Chen, Huang and Chen, 2009). Berril and Kearney (2010) also argue that firms can diversify their portfolio by investing in home-based domestic firms with foreign assets. In other words, firms can gain international diversification and exposure without having to invest abroad.

Although the empirical literature argues in favour of the existence of a home bias ("home bias puzzle") contrary to what would be expected according to financial theory, there are some factors (besides the risk diversification perspective) that increase the likelihood of internationalization through IM&As. Firms that invest in research and development, have highly educated staff and have export experience (Lehto, 2006) as well as firms with higher productivity, higher goodwill relative to total assets and higher Herfindahl index (proxy for ownership concentration) (Kling and Weitzel, 2011) have increased occurrence of international deals.

Di Giovanni (2005) also studied the effect of financial variables and institutional factors and concluded that the size of financial markets, measured by stock market capitalization to GDP ratio, plays a significant role in the occurrence of IM&As. In addition, investment costs tend to decrease (i) with the liberalization of trade and investment regimes and the deregulation of services (through trade/service agreements and economic integration) as well as (ii) if firms' countries have a common language, which may signal a better monitoring and communicating capacity to internalize the synergies of cross-border M&As (Chen and Findlay, 2003; di Giovanni, 2005).

The legal environment and the financial development in the host country are also important aspects for firms' internationalization decisions. As governments relax their cross-border M&A laws and the domestic credit (as a percentage of GDP) increases, the number of foreign bidders tends to rise, i.e. the home bias in M&As would decrease (Moskalev, 2010).

Globerman and Shapiro (2002) studied the role of governance infrastructure on FDI flows and found that policies promoting competition at both domestic and international levels, as well as open and transparent legal and regulatory regimes are key determinants of international deals. Rossi and Volpin (2004) also stressed the relevance of stronger shareholder protection and better accounting standards to increase IM&A activity. As shareholder protection in the home country rises, the likelihood of an all-cash M&A decreases, allowing leveraged firms to conduct international deals.

Finally, investment promotion activities also arise as important drivers for firms' internationalization through IM&As, mainly in countries in which information asymmetries and red tape are relatively more significant (e.g. developing economies) (Harding and Javorcik, 2011). These activities involve "advertising, investment seminars and missions, participation in trade shows and exhibitions, distribution of literature, one-to-one direct marketing efforts, facilitating visits of prospective investors, matching prospective investors with local partners, help with obtaining permits and approvals, preparing project proposals, conducting feasibility studies and servicing investors whose projects have already become operational" (Wells and Wint, 2000, cited in Harding and Javorcik, 2011, p. 1450).

Based on this literature, we posit the following hypothesis:

Hypothesis 1: There is a home bias in M&A deals.

2.3.2. Home bias in M&As by SOEs vs. POEs

In what concerns SOEs and POEs, Chen *et al.* (2009) state that SOEs have less incentives to participate as acquirers in cross-border M&A activities than POEs. SOEs seem to face fewer financing constraints when compared to POEs, but they are averse to transfer abroad (part of) their management control and thus prefer domestic M&As. SOEs' investments are often limited by regulations and its managers do not have complete control over those decisions (Chen *et al.*, 2009).

Kling and Weitzel (2011), who investigated M&As closed by Chinese firms, concluded that most IM&As by SOEs are conducted to restructure the firm and not to acquire strategic foreign assets due to the political opposition in the host country. While POEs are attracted by large markets and host country strategic assets and are averse to

political and economic conditions, SOEs conduct more deals in natural resource sectors following the strategic needs of their home country and are not so averse to the economic and political risks in the host countries (Amighini, Rabellotti and Sanfilippo, 2013). Nutt (2000) and Cui and Jiang (2012) also found that SOEs are highly dependent on home country institutions due to the political affiliation with the home country government, making decisions largely based on social welfare, decreasing the likelihood to undertake IM&As.

However, other studies (for instance, Luo and Tung, 2007; Sutherland and Ning, 2011; Duanmu, 2012; and Wei, Zheng, Liu and Lu, 2014), concluded that home bias is lower in M&As by SOEs because they possess better access to resources (e.g. through their business affiliates or banks) and respond to political risks in the host country less negatively, increasing the likelihood of internationalization. SOEs can obtain external capital from state-controlled financial institutions and from their governments. In addition, SOEs are also more likely to invest abroad compared to POEs as a consequence of the appreciation of the home country's currency because they have an easier access to capital and foreign reserves granted by the government (Duanmu, 2012).

In turn, POEs tend to invest overseas mainly to support their trade activities (to respond to unfavourable domestic environments), to access global production networks, or to raise capital (Luo and Tung, 2007; Sutherland and Ning, 2011).

Based on this literature, on balance, we consider that POEs have a greater predisposition to conduct IM&A deals than SOEs. Thus, we derive the following hypothesis:

Hypothesis 2: SOEs tend to have greater home bias in their M&A activity than POEs.

2.3.3. Home bias in M&As by firms located in developed economies vs. emerging and developing economies

As far as we are aware, the kind of research focused specifically on this has never been done. However, former studies (for instance, Rossi and Volpin, 2004 and Moskalev, 2010) have found that firms located in countries whose real GDP per capita is low but its growth is high have conducted more cross-border M&As. In other words, firms from less

wealthy but faster growing economies have become more internationalized through IM&As. This can be seen as an indicator that home bias is less significant for firms located in emerging/ developing economies.

Moreover, Kowalski *et al.* (2012), who investigate the internationalization of SOEs, concluded that SOEs in OECD countries[9] tend to be relatively more domestically oriented than in emerging economies (BRIICS countries[10]), i.e. considering only SOEs, the home bias is higher in developed than in emerging economies. Indeed, governments from emerging economies have supported outward FDI through financial and fiscal measures (e.g. fast approval process and low lending rates), development assistance programs, risk management (protection through insurance products and services), the provision of information on opportunities in other countries, and international investment agreements (Sauvant and Chen, 2014).

Analyzing the FDI flows over the last years, we found that, although developed economies constitute the main driver of cross-border investments, FDI from developing economies has been growing. In 2013, it already represented 32.2% of the total FDI flows (UNCTAD, 2014). This can be seen as an indicator that home bias in developing economies can decrease.

Based on this literature, we posit the following hypothesis:

Hypothesis 3: Firms originating in developed economies tend to have a greater home bias in their M&A activity than those from emerging and developing economies.

In table 1 below, we provide a summary of the most relevant empirical studies (referred throughout this section) on M&As addressing the determinant factors of home bias in M&As, cross-border deals and internationalization.

[9] The current Member countries of the Organisation for Economic Co-operation and Development are: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States (www.oecd.org).

[10] BRIICS is the acronym for an association of six major emerging economies: Brazil, Russia, India, Indonesia, China and South Africa (www.oecd.org).

Table 1: Home bias in M&As, determinant factors of cross-border deals and internationalization - relevant empirical studies

Author(s)	Main objective/ Research question	Sample	Methodology	Dependent variable(s)	Explanatory variables	Estimated effect[11]	Conclusions
di Giovanni (2005)	Explain the home bias in M&As by the size of financial markets	All deals in the world between January 1, 1990 and August 13, 2001	Gravity model (Tobit model)	Real gross M&A investment flows (deflated by the 1996 US CPI) from country j to country i at year t	Stock market capitalization in country j (current US$) Credit provided to the private sector by banks and near-banks in country j (current US$) The distance between i and j Total gross telephone traffic between i and j Real goods trade flow from country j to i A binary variable equal to 1 if i and j have a common language A binary variable equal to 1 if i and j belong to a common customs union A binary variable equal to 1 if i and j belong to a common free trade agreement A binary variable equal to 1 if i and j belong to a common service agreement The average corporate tax rate in country i A binary variable equal to 1 if i and j have a capital tax treaty Real exchange rate Volatility of the bilateral monthly nominal exchange rate changes for 5 years prior to t Log-difference of country i's real GDP per capita and country j's Square of the wage	(+) (n.s.) (-) (+) (+) (+) (n.s.) (n.s.) (+) (-) (+) (-) (+) (-) (-)	**i)** "Financial variables and other institutional factors seem to play a significant role in M&A flows. In particular, the size of financial markets, as measured by the stock market capitalization to GDP ratio, has a strong positive association with domestic firms investing abroad" p. 127; **ii) "**The importance of investment costs, as proxied by distance and more directly by bilateral telephone traffic, is also affirmed, and the estimated coefficients for these variables are similar to those found in the previous literature on FDI" p.145.
Lehto (2006)	Investigate the home bias in M&As and its determinants	Finnish firms; sample period: 1989-2000	Multilogit analysis	Cross-Border M&A (dummy variable that equals 1 if the M&A is cross-border and 0 if domestic)	The age of a firm The company consists of several establishments = 1, otherwise = 0 The majority share is in foreign ownership = 1, otherwise = 0 The firm has exported = 1, otherwise = 0 A log of the turnover of a firm Gross margin divided by the turnover of a firm Short- and long-term debts divided by the total assets of a firm Fixed tangible assets divided by the total assets of a firm The share of highly educated with technical qualifications of the total number of employees in a firm The share of highly educated (excluding the number of highly educated with technical qualifications) of the total number of employees in a firm	(n.s.) (-) (-) (+) (+) (-) (-) (-) (+) (n.s.)	**i)** "The firm characteristics of an acquiring firm such as the high educational level of the staff, which can be regarded as an indication of a good monitoring capacity or ability to internalize the potential synergies of distant M&As, increase the probability of cross-border M&As at the expense of domestic M&As" p. 17; **ii)** "A firm's R&D stock, which may signal a good monitoring ability, increases the probabilities for

[11] The acronym n.s. means that the result is not statistically significant at a significance level less than or equal to 10%. In all other cases, the results are statistically significant at a significance level less than or equal to 10%.

Author(s)	Main objective/ Research question	Sample	Methodology	Dependent variable(s)	Explanatory variables		Estimated effect[11]	Conclusions
					A log of [(R&D stock + 1)/turnover].* R&D stock of a company that is estimated based on the previous R&D expenditures (see Lehto and Lehtoranta 2002)		(+)	cross-border or distant domestic M&As" p. 17.
					A log of the number of firms whose turnover is over €0.5 million in the same region		(-)	
Chen *et al.* (2009)	Investigate the effects of financial constraint determinants on cross-border mergers and acquisitions (M&As) and domestic M&As.	2741 takeover bids announced in nine EastAsian economies from 1998 to 2005	Logistic Regressions (P-values of the Wilcoxon Z-statistics)	Wilcoxon Z-statistics, which allow to understand if the independent variables are, on average, higher for domestic M&A deals or for cross-border ones	Deal characteristics	Logarithm of the deal size	(>IM&As)[12]	**i)** "The extent of stock market and governance developments improves corporate financing conditions and subsequently encourages cross-border M&As in East Asia" p. 665; **ii)** "The firm-specific factors of financing constraints reduce the occurrence of cross-border M&As relative to domestic M&As" p. 665; **iii)** Family- and state-controlled firms prefer domestic M&As to cross-border deals, because they have better access to external financing and "they are reluctant to risk diluting their management control" p. 665.
						All cash (dummy variable that equals 1 if the deal is paid entirely in cash, and 0 otherwise	(n.s.)	
					Firm-specific characteristics	Logarithm of a firm's total assets	(n.s.)	
						Ratio of cash and equivalents to the total assets	(>IM&As)	
						Ratio of debt to total capital (leverage)	(>DM&As)	
						Market value of assets divided by the book value of assets	(>IM&As)	
						Likelihood of financing constraint measured by the KZ Index (Lamon et al, 2001)	(>DM&As)	
						Family (dummy variable that equals 1 if the state is not the ultimate shareholder and the family's ownership is greater than 20 percent)	(n.s.)	
						State (dummy that equals 1 if the ultimate shareholder is a domestic state entity with ownership greater than 10 per cent)	(>DM&As)	
						Cross-List (dummy variable that equals 1 if a firm cross-lists on foreign exchanges)	(>IM&As)	
					Governance environments	Common Law (dummy that equals 1 if the origin of company law is the English common law)	(>IM&As)	
						GI(WB) - the proxy of governance index composed from the World Bank dataset	(>IM&As)	
					Financial market development	Stock Market Depth (ratio of a country's stock market capitalization to its GDP)	(>IM&As)	
						Bond Market Depth (ratio of a country's private domestic debt to its GDP)	(n.s.)	
					Control variables	AHT (dummy that equals 1 if the firm is in the high-tech industry)	(>IM&As)	
						ROA (return on assets)	(n.s.)	
						Logarithm of a country's GDP	(>DM&As)	

[12] (>IM&As) means that the independent variable has a stronger (positive) correlation with the occurrence of IM&As than with the occurrence of domestic M&As (DM&As); (>DM&As) means the opposite.

Author(s)	Main objective/ Research question	Sample	Methodology	Dependent variable(s)	Explanatory variables		Estimated effect[11]	Conclusions
					Annual GDP growth rate		(>DM&As)	
Kling and Weitzel (2011)	Investigate the determinants of Chinese companies' internationalization	M&A deals made by Chinese firms between January 1, 2001 and December 31, 2008	Probit estimations	Cross-Border M&A (dummy variable that equals 1 if the M&A is cross-border and 0 if domestic)	SOEs - dummy variable that equals 1 if the acquirer is a SOE and o if the acquirer is a POE		(-)	**i)** "Chinese cross-border mergers create shareholder value, but it is lower than domestic expansions" p. 357; **ii)** SOEs predicts fewer IM&As; **iii)** "A favourable board structure and corporate transparency explains higher M&A returns" p. 357; **iv)** "In more mature markets, firm- and industry-specific determinants affect M&As in China" p. 357.
					Track record of past acquisitions		(-)	
					Share ownership by the acquirers management		(-)	
					Firms with high return on equity		(+)	
					Goodwill relative to total assets		(+)	
					Herfindahl index		(+)	
					Separation of the CEO position and the chairman of the board of directors		(+)	
					Tobin-q		(n.s.)	
					Independent board members		(n.s.)	
					Disclosure of top executives' salaries		(n.s.)	
					Index that quantifies the degree of development of the regional legal system, enforcement and intermediary organizations		(n.s.)	
					Size (log of the acquirer's total assets)		(n.s.)	
					Leverage (total debt divided by total equity)		(n.s.)	
					Firms that issue B- or H-shares		(n.s.)	
Kowalski *et al.* (2012)	Investigate the internationalization of SOEs	Domestic and foreign subsidiaries of SOEs and non-SOEs available in the Orbis database (over 332 000 observations)	OLS regressions	Ratio foreign over domestic subsidiaries (proxy for internationalization)	Considering all firms	Sales	(n.s.)	**i) "**SOEs in the sample do not differ from private firms with regard to their number of domestic subsidiaries but their number of foreign subsidiaries and as such the ratio of foreign over domestic subsidiaries is significantly lower than for private firms. These findings suggest that the SOEs among the world's largest publically listed companies tend to be less internationally oriented than their private counterparts" p. 35; **ii)** "The SOE coefficients for the OECD and BRIICS countries indicate that SOEs in the OECD countries tend to be relatively more domestically oriented than in emerging economies" p. 35.
						Profits	(n.s.)	
						Assets	(-)	
						Market value	(+)	
						SOE (dummy variable that equals unity if the firm is a SOE and equals zero otherwise)	(-)	
					Considering firms located in OECD countries	Sales	(n.s.)	
						Profits	(n.s.)	
						Assets	(-)	
						Market value	(+)	
						SOE (dummy variable that equals unity if the firm is a SOE and equals zero otherwise)	(-)	
					Considering firms located in BRIICS countries	Sales	(n.s.)	
						Profits	(n.s.)	
						Assets	(n.s.)	
						Market value	(n.s.)	
						SOE (dummy variable that equals unity if the firm is a SOE and equals zero otherwise)	(-)	
					Considering firms located in other countries	Sales	(+)	
						Profits	(-)	
						Assets	(-)	
						Market value	(+)	

Author(s)	Main objective/ Research question	Sample	Methodology	Dependent variable(s)	Explanatory variables	Estimated effect[11]	Conclusions
					SOE (dummy variable that equals unity if the firm is a SOE and equals zero otherwise)	(-)	
Wei *et al.* (2014)	Examine the impact of multi-dimensional factors on firms' decisions about whether to engage on outward foreign direct investment	225 Chinese firms; sample period: 2008	Logit and Tobit models	Outward Foreign Direct Investment (OFDI) - dummy variable that equals 1 if firm i reported engaging in OFDI	Total factor productivity Technology-based capability Brands (whether the firm owns internationally registered brand names) Entry barriers Industry R&D (R&D expenditure of the industry in which firm operate Reduction in regulatory uncertainty Intellectual property rights protection Reduction in government interference (reduced role of government in business) Institutional support Size Age Firm with at least 10% of their sales to foreign countries whithin 3 years after their inception Export experience	(-) (+) (n.s.) (-) (n.s.) (-) (+) (-) (+) (+) (n.s.) (+) (+)	**i)** The "findings suggest the importance of internal factors including productivity, technological capabilities and export experience, industry conditions including entry barriers, subnational institutions and intermediate institutional support" p. 365; **ii)** This study "highlights the importance of the subnational institutions, including the elements of regulatory uncertainty, government interference and intellectual property protection which are key units of analysis for firms' outward internationalization strategy" p. 365; **iii)** "It is clear that internal resources and capabilities are still the backbone for firms undertaking OFDI (…)" p. 365.
Moskalev (2010)	Investigate the link between host country laws restricting the ability of foreign bidders to conduct cross-border mergers and acquisitions (M&As) and the dynamics of domestic and foreign markets for corporate control	All domestic and cross-border M&As and JVs in 57 countries (developed and developing economies) during the period 1986-2000. Data extracted from SDC database.	Logistic regressions	Cross-Border M&A (dummy variable that equals 1 if the M&A is cross-border and 0 if domestic)	Real GDP per capita Growth in real GDP per capita M&A openness score - this implies that, as cross-border M&A laws in host countries become less restrictive, the probability of a cross-border M&A deal, relative to all other deals, increases Labor costs Exports plus imports divided by GDP Skills of the host country (ratio of skilled labor to the total labor force) Proxy for investor protection Host country legal environment IGRG composite risk rating from the World Development Indicators Market capitalization of domestic firms as a percentage of GDP Domestic credit as a percentage of GDP (it measures host country financial development) Real effective exchange rate	(-) (+) (+) (+) (+) (-) (-) (+) (-) (+) (+) (+)	This study allows to conclude that, "as governments, especially governments of less wealthy, faster growing economies, relax their cross-border M&A laws, foreign bidders increase the number of cross-border M&As. The likelihood that foreign bidders establish cross-border M&As in which they obtain a controlling stake in the target is greater in host countries with less restrictive cross-border M&A laws." p. 69 "As host country cross-border M&A laws improve, foreign bidders are increasingly more likely to seek the types of entry modes that provide them with greater control over their investments" p. 48.

Author(s)	Main objective/ Research question	Sample	Methodology	Dependent variable(s)	Explanatory variables		Estimated effect[11]	Conclusions
Globerman and Shapiro (2002)	Investigate the effects of governance infrastructure on both foreign direct investment (FDI) inflows and outflows. In addition, the role of other forms of infrastructure, including human capital and the environment, are also examined.	Developed and developing countries over 1995–97	Regressions estimated by OLS, with heteroskedastic-consistent standard errors	i) Natural logarithm of foreign direct investment inflows and ii) Natural logarithm of foreign direct investment outflows, considering all countries and only developing and transition economies	FDI inflows (all countries; only developing and transition economies)	Ln GDP	(+,+)[13]	**i)** "Governance infrastructure is an important determinant of both FDI inflows and outflows" p. 1899. For most countries, both inflows and outflows respond positively to good governance. In particular, good political governance is characterized by policies promoting competition on both a domestic and an international level, as well as by open and transparent legal and regulatory regimes, and effective delivery of government services. The evidence also suggests that the returns to investments in good governance (in terms of net FDI flows) are greater for developing and transition economies" p. 1915; **ii)** "Investments in education are likely to attract FDI" but "such investments are not associated with capital outflows" p. 1915; **iii)** Study's "results also provide some support for a claim that initiatives to promote environmental protection and remediation encourage, rather than discourage, inward FDI" p. 1915; **iv)** "Policies promoting inward FDI will likely indirectly encourage increased outward FDI by promoting the emergence and growth of successful home-country MNCs" p. 1915.
						Human Developed Index	(n.s., n.s.)	
						Education Index	(+, +)	
						Governance infrastructure index	(+, +)	
						Regulation index	(+, +)	
						Environment sustainability index	(n.s., n.s.)	
						ln*GDP*Governance sustainability index	(-, n.s.)	
					FDI outflows (all countries; only developing and transition economies)	Ln GDP	(+, +)	
						Human Developed Index	(n.s., n.s.)	
						Education Index	(n.s., n.s.)	
						Governance infrastructure index	(n.s., -)	
						Regulation index	(-, -)	
						Environment sustainability index	(-, -)	
						ln*GDP*Governance sustainability index	(+, +)	
						ln*GDP*Regulation index	(+,+)	
Rossi and Valpin (2004)	Investigate the determinants of mergers and acquisitions around the world by	All mergers and acquisitions announced between January 1, 1990 and	Tobit models and OLS regressions	Volume of M&A activity (percentage of traded firms that are targets of	Logarithm of the 1995 per capita GNP (which proxies for the country's wealth		(+)	**i) "**The volume of M&A activity is significantly larger in countries with better accounting standards and stronger shareholder protection" p. 277; **ii) "**The
					GDP growth (which proxies for the change in economic conditions)		(-)	
					Common law		(+)	

[13] The first column shows the results considering all countries, and the second column shows the results considering only developing and transition economies.

Author(s)	Main objective/ Research question	Sample	Methodology	Dependent variable(s)	Explanatory variables	Estimated effect[11]	Conclusions
	focusing on differences in laws and regulation across countries	December 31, 1999, completed as of December 31, 2002, and reported by SDC Platinum, a database from Thomson Financial		successful mergers and acquisitions)	Accounting standards	(+)	probability of an all-cash bid decreases with the level of shareholder protection in the acquirer country" p. 277; **iii)** "In cross-border deals, targets are typically from countries with poorer investor protection than their acquirers' countries, suggesting that cross-border transactions play a governance role by improving the degree of investor protection within target firms" p. 277.
					Shareholder protection	(+)	
					Ownership concentration	(+)	
					Mandatory bid rule	(n.s.)	
					Market return	(n.s.)	
				Hostile takeover, or attempted hostile takeovers as a percentage of traded firms	Market dominance	(n.s.)	
					Logarithm of the 1995 per capita GNP (which proxies for the country's wealth)	(+)	
					GDP growth (which proxies for the change in economic conditions)	(n.s.)	
					Common law	(+)	
					Accounting standards	(+)	
					Shareholder protection	(+)	
					Ownership concentration	(n.s.)	
					Cross-border regulation	(-)	
					Market return	(n.s.)	
					Mandatory bid rule	(n.s.)	
				Cross-border ratio, or cross-border deals as a percentage of all completed deals	Logarithm of the 1995 per capita GNP (which proxies for the country's wealth)	(-)	
					GDP growth (which proxies for the change in economic conditions)	(n.s.)	
					Common law	(-)	
					Accounting standards	(-)	
					Shareholder protection	(-)	
					Ownership concentration	(n.s.)	
					Cross-border regulation	(n.s.)	
					Market return	(n.s.)	
					Openness	(+)	
				Governance motive in cross-border M&A (number of cross-border deals where the target is from country s and the acquirer from country b, as a percentage of the total number of deals in country's)	Dif in accounting standards	(+)	
					Dif in shareholder protection	(+)	
					Dif(log(GNP per capita))	(+)	
					Same language	(+)	
					Same geographical area	(+)	
					Dif in market return	(n.s.)	
					Bilateral trade	(+)	
				Natural logarithm of premium, or the bid price as a percentage	Shareholder protection	(+)	
					Target size	(-)	
					Cross-border	(+)	

Author(s)	Main objective/ Research question	Sample	Methodology	Dependent variable(s)	Explanatory variables	Estimated effect[11]	Conclusions
				of the closing price of the target four weeks before the announcement	Hostile bid	(n.s.)	
					Tender offer	(+)	
					Contested bid	(+)	
					Dif shareholder protection	(n.s.)	
					Bidder M/B	(n.s.)	
					Mandatory bid rule	(-)	
					US target	(+)	
					UK target	(+)	
				Means of payment (dummy variable that equals one if the acquisition is entirely paid in cash, and zero, otherwise)	Shareholder protection	(-)	
					Target size	(-)	
					Cross-border	(+)	
					Hostile bid	(+)	
					Tender offer	(+)	
					Contested bid	(n.s.)	
					Dif shareholder protection	(-)	
					Bidder M/B	(n.s.)	
					Mandatory bid rule	(n.s.)	
					US target	(n.s.)	
					UK target	(n.s.)	

Source: Own elaboration.

3. Empirical Investigation

To answer the research questions – "Is there a home bias in M&A deals?", "Is the home bias more predominant in M&As made by SOEs or in M&As made by POEs?" and "How does home bias in M&As differ between acquirers originating in developed economies and those from emerging/ developing economies?" – we undertook a quantitative approach, i.e. starting by conducting an exploratory statistical analysis of the general patterns on M&A activity (including an analysis by sector and the home bias topic) and subsequently developing an econometric study and performing binomial probability tests as well. Below, we explain the dataset specifically assembled for the purposes of this dissertation, and provide detail on the empirical methodology implemented.

3.1. Data

For this empirical methodology, we make use of data available in *Dealogic* – a leading comprehensive database (licensed by the OECD) on M&As. Data on all M&As closed since January 1st, 1996 until December 31st, 2013 were extracted, including both domestic (i.e. where the acquirer and the target are based in the same country) and international deals (IM&As, i.e. where the acquirer and the target are based in different national jurisdictions).

In order to ensure a rigorous analysis, several transformations to the database were undertaken. It was decided to consider a minimum threshold for the deal value. In the original dataset, there were numerous cases without deal value and a considerable number of transactions were of quite low value, which would be insignificant for the objectives of this research. The selected dataset includes only deals with a value equal or superior to $5 million[14]. This threshold means that the dataset covers a wide range of observations in terms of deal value, from small value transactions (by international standards) to a considerable number of mega-deals. The present dataset includes an impressive total

[14] All monetary values are reported in US dollars, the currency used in the database.

number of 206,140 M&A deals with values per deal ranging from $5 million to $172 billion[15]. The average value of a deal in the dataset is $241 million and the total value of the deals included in this dataset is $49.7 trillion.

Moreover, in addition to *Dealogic* data (mainly of financial nature), it was decided to make use of data assembled by UNCTAD and OECD as well. From UNCTAD we used the information on Bilateral Investment Treaties (BITs) available on the website (UNSTAT, 2015a) and from the OECD we make use of data on tax havens (OECD, 2000).

Finally, as *Dealogic* does not provide any information on countries' classification – as developed economies vs. emerging and developing economies (a key variable in this dissertation) – we had to take into account other sources. In appendix 1, we explain in detail how we classified all countries in *Dealogic*.

3.2. Data treatment methodologies

In order to answer the research questions two main data treatment methodologies were used (with a general-to-particular logical sequence):

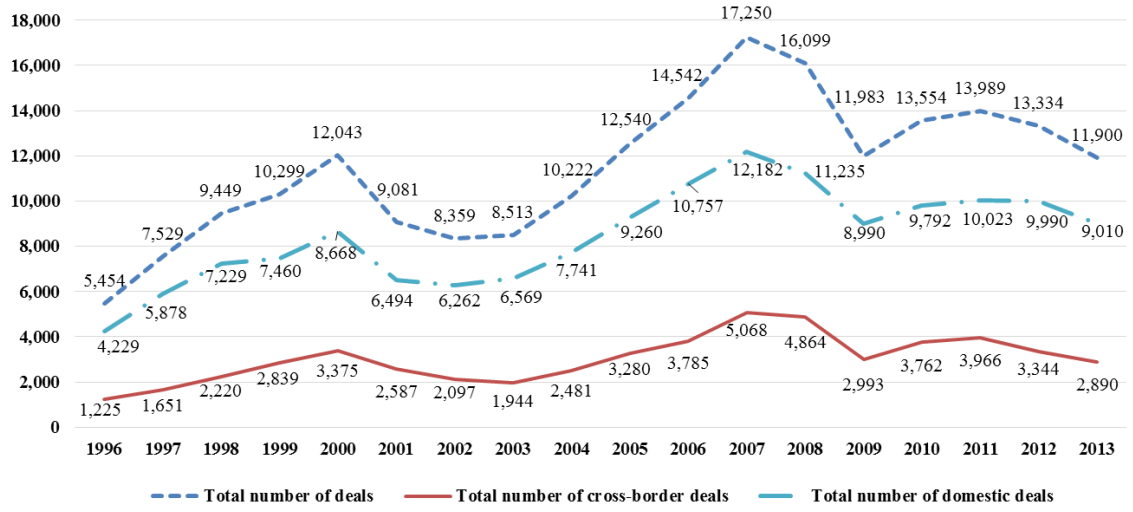
1) Descriptive analysis: based on syntheses using descriptive statistics to aggregate and organize the data (e.g. means, percentages) – this method is used to analyze in depth the general patterns on M&A activity as well as the home bias issue (measured by the share of domestic M&A deals in total M&A deals).
2) Econometric study: through the use of binomial probability tests to find whether there is a home bias in M&As; and through appropriate models to test whether there are systematic differences in the home bias in M&As between SOEs and POEs and between acquirers originating in developed economies and acquirers originating in emerging and developing economies. The econometric models are presented in section 3.2.2.

[15] This larger deal was the acquisition of Mannesmann AG (from Germany) by Vodafone AirTouch plc (from the UK) in 2000.

3.2.1. General patterns on M&A activity – descriptive analysis

Figure 2 shows that, between 1996 and 2013, the tracked number of M&A deals worldwide grew from 5,454 to 11,900, more than doubling in the 18 years' period – an overall growth of 119%, or an average yearly growth[16] of 4.4%. The number of domestic M&As increased from 4,229 in 1996 to 9,010 in 2013 (4.3% of average yearly growth), and the number of cross-border M&As grew faster (with an average yearly growth of 4.9%), going from 1,225 in 1996 to 2,890 in 2013.

Figure 2: Number of M&A deals per year in the period 1996-2013

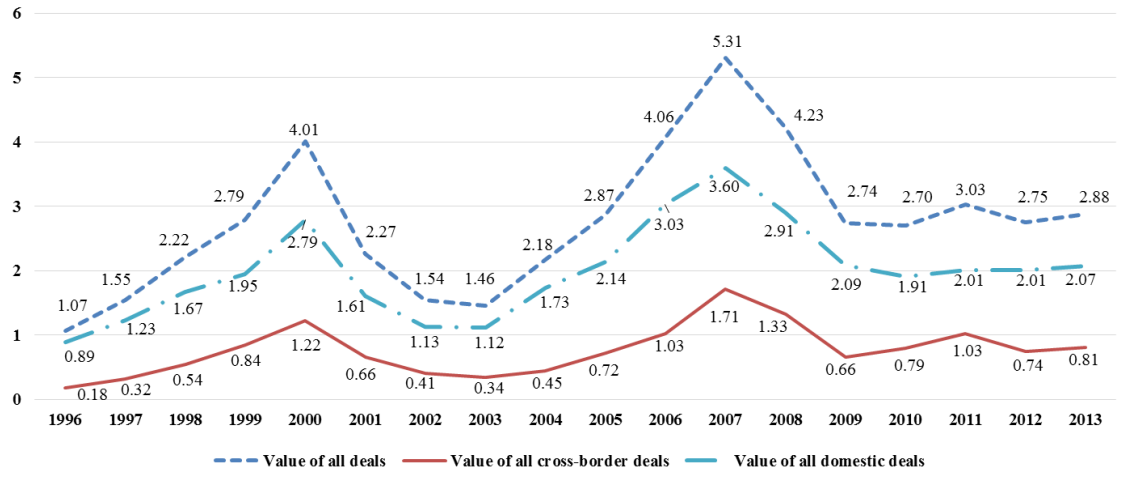


Source: Own elaboration based on *Dealogic* data.

Figure 3 below shows that the total value of the deals also grew in the same period – from $1.1 trillion in deals in 1996 to $2.9 trillion in deals in 2013 – an overall growth of 169%, or an average yearly growth rate of 5.6%. Cross-border deals grew much faster than domestic M&As with an average yearly growth rate of 8.6% and 4.8% respectively.

[16] Compound Average Growth Rate (CAGR).

Figure 3: Total value of M&A deals per year in the period 1996-2013 ($ trillion)



Source: Own elaboration based on *Dealogic* data.

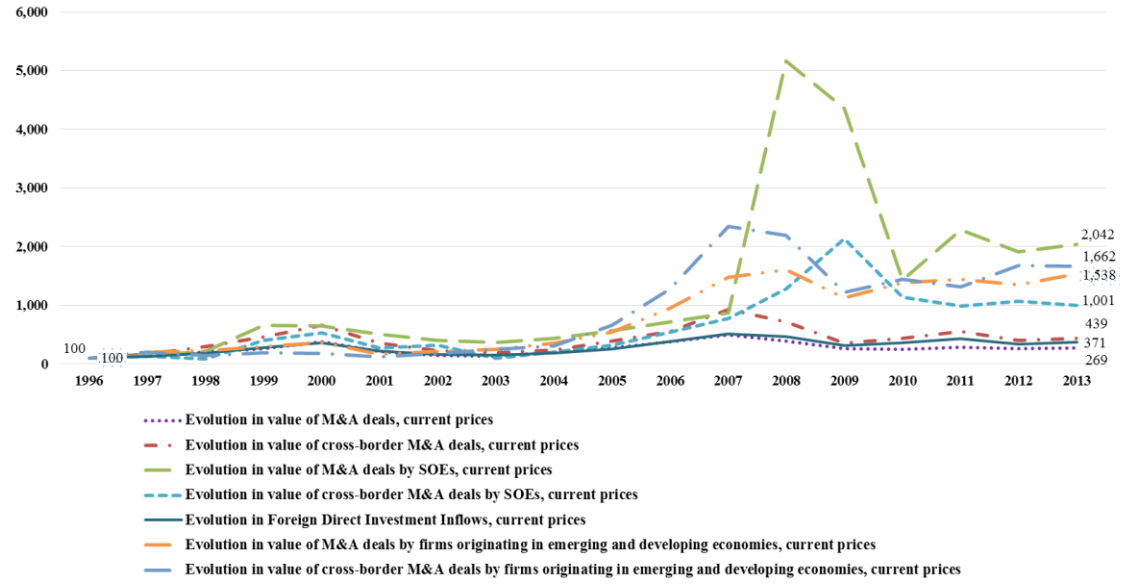
Both figures 2 and 3 allow noticing a continuous growth in domestic and international M&As and cyclical patterns analogous to overall M&As, in yearly number of deals and in yearly value of deals. Moreover, it is important to note that the bulk of M&A activity still occurs within national borders, i.e. firms seem to have greater predisposition to conduct domestic than cross-border deals. In other words, there seems to be a home bias in M&A deals[17].

Additionally, it is important to note that the increase in the value of M&As between 1996 and 2013 (169%) is bigger than the growth in number of M&As (119%). This tell us that the average value of a M&A had to increase over the period – indeed the average value of a M&A went from $197 million in 1996 to $242 million in 2013. This growth is mainly due to the increase in the average value of IM&As (it was $151 million in 1996 and $281 million in 2013, which represents an overall growth of 86%). The average value of domestic M&As also grew over the period, but at a much slower pace (10% of overall growth – the average value was $210 million in 1996 and $230 million in 2013).

It is also important to compare: i) the evolution in worldwide M&A activity with the evolution of FDI; ii) the evolution in M&A deals made by SOEs with those made by POEs; (iii) and the evolution in M&A deals made by firms originating in developed economies with those from emerging and developing economies.

[17] This point will be developed in depth later making use of binomial probability tests.

Figure 4: The evolution in value of worldwide M&As (by all firms: total and cross-border; by SOEs: total and cross-border; by firms originating in emerging and developing economies: total and cross-border) vs. FDI inflows (1996 index=100)



Source: Own elaboration based on *Dealogic* and *Unctad* data (UNCTAD, 2014a).

IM&As are a very important component of FDI flows (OECD, 2014; UNCTAD, 2014). Although the values of IM&As and those of FDI flows cannot be perfectly compared, it is important to contrast what happened in the period to these two indicators, in order to discern how fast they grew relative to each other.

Figure 4 above shows that the value of cross-border M&As (IM&As total growth equaled 339%, or a yearly annual growth of 8.6%) grew faster than FDI flows (total growth 271%, yearly annual growth 7.6%) in the period considered. However, the shape of the evolution in the value of cross-border M&As and FDI flows is similar.

Figure 4 also shows a world of M&A activity chronologically split into two periods, one between 1996 and 2007, where privately driven M&As were not growing as fast as SOEs' M&A activity[18] but were growing relatively fast; and a more recent period between 2007 and 2013 where there is a much faster growth in the value of M&As done by SOEs than by POEs[19], and where M&A activity by POEs had several periods of contraction.

[18] Between 1996 and 2007, in terms of total value, M&As by POEs had an overall growth of 391%, while M&As by SOEs grew 772% in the same period.
[19] Between 2007-2013, in total value, M&As by SOEs grew 134% while M&As by POEs experienced a reduction (-49%). IM&As by POEs decreased (-55%), as well as domestic M&As by POEs (-46%).

This is true for both domestic and cross-border M&As, and proves the remarkable recent dynamism of M&A transactions by SOEs, both in their respective countries and abroad.

To start with the first period, from 1996 to 2007 overall M&A activity grew 395%, driven by, in decreasing order of growth, SOEs' domestic M&A activity (952%), POEs' IM&A activity (832%), SOEs' IM&A activity (677%) and by POEs' domestic M&A activity (303%). The second period, since 2007, has seen a dual phenomenon, that is, the drop in POEs' M&A activity and the rapid increase in M&A activity by SOEs. For instance, in 2007, the total value of M&As, domestic M&As and IM&As conducted by POEs was respectively $5.2, $3.6 and $1.7 trillion. In contrast, in 2013, these amounts were reduced to $2.7, $1.9 and $0.7 trillion respectively; almost a 50% cut across the board for all types of M&A activity conducted by POEs. Now, looking at M&A activity by SOEs we have an opposite story than that for POEs (although we have to keep in mind that there is a difference in order of magnitude between the total value of transactions conducted by these two types of companies/ acquirers). In 2007, the total value of M&As, domestic M&As and IM&As conducted by SOEs was respectively $86.813, $36.093 and $50.721 billion. In contrast, in 2013, these amounts had grown to $203.387, $138.070 and $65.317 billion respectively; a healthy growth pace for all categories and a very strong increase for the total value of domestic M&As made by SOEs.

Thus, while SOEs' M&A activity has been growing at a fast pace since 1996, its relative weight in the context of overall M&As has more than proportionately increased since 2007 because of both an acceleration in the total value of deals made by SOEs and a simultaneous reduction of the overall value of M&A deals made by POEs.

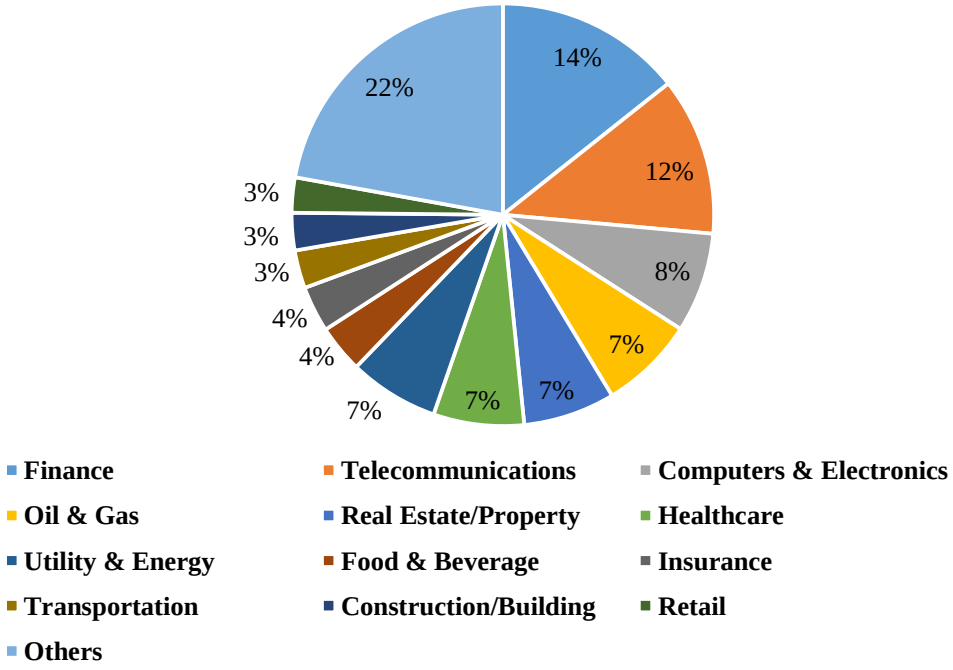
A world of M&A activity chronologically split into two periods is also observed when the focus is on M&A deals by firms located in emerging and developing economies *versus* those conducted by firms located in developed economies. Between 1996 and 2007, M&As made by firms originating in developed economies were not growing as fast as M&As made by firms originating in emerging and developing economies but were growing relatively fast. Between 2007 and 2013 there was a faster growth in the value of M&As conducted by firms located in emerging and developing economies than in developed economies (where M&A activity had periods of contraction). Indeed, in 2007, the total value of M&As, domestic M&As and IM&As undertaken by firms located in

developed economies was respectively $4.7, $3.2 and $1.5 trillion. In contrast, in 2013, these amounts were reduced to $2.2, $1.6 and $0.6 trillion respectively, this representing more than a 50% cut across all types of M&A activity. In what concerns M&As made by emerging and developing economies, we find evidence that although the pace of growth in this period (2007-2013) was much slower than before, overall M&A activity by emerging and developing economies continued to grow. In 2007, the total value of M&As, domestic M&As and IM&As conducted by firms located in these economies was respectively $609.091, $237.878 and $371.213 billion. In 2013, these amounts were $634.185 (increased 4%), $168.364 (decreased 29%) and $465.821 billion (increased 25%) respectively.

Analysis of M&A activity by sector

Figure 5 shows the sectors in which M&A activity occurred (from the point of view of targeted companies).

Figure 5: Main sectors of the deal's target in all M&A deals in the period 1996-2013 (measured by total value of deals)

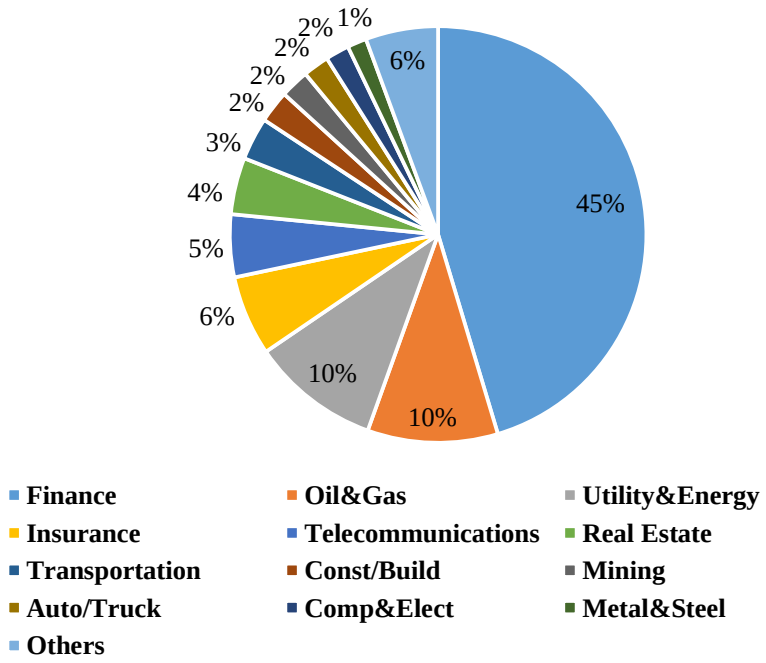


Source: Own elaboration based on *Dealogic* data.

Figure 5 shows that in the period 1996-2013, 14% of all M&As had targets in the financial sector (14%), followed by telecommunications (12%), computers & electronics (8%) and oil & gas, real estate/property, healthcare and utility & energy (all the latter 4 sectors representing 7% of all M&A activity).

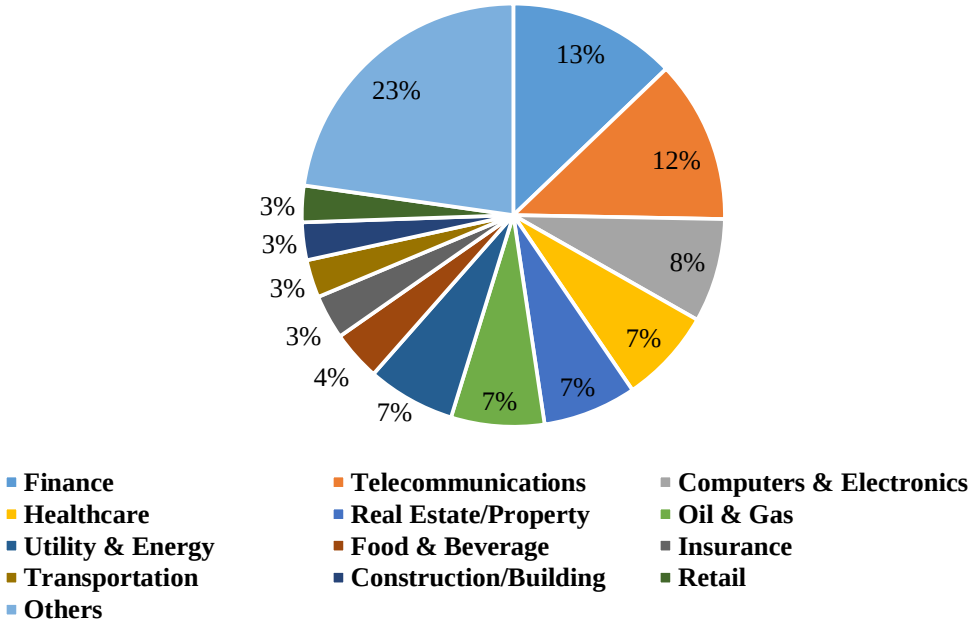
When the focus is on M&A deals by SOEs in the period 1996-2013, as in figure 6, there is a very different sectoral distribution. An outstanding percentage of deals targeted financial sector firms (45%), followed by oil & gas (10%), utility and energy (10%), insurance (6%), telecommunications (5%) and real estate (4%). Considering POE's deals (table 7), we find that, although the percentage is significantly lower when compared with SOEs' M&As, the financial sector is also the sector where more M&As were conducted, followed by telecommunications (12%) and computers & electronics (8%).

Figure 6: Main sectors of the deal's target in M&A deals by SOEs in the period 1996-2013 (measured by total value of deals)



Source: Own elaboration based on *Dealogic* data.

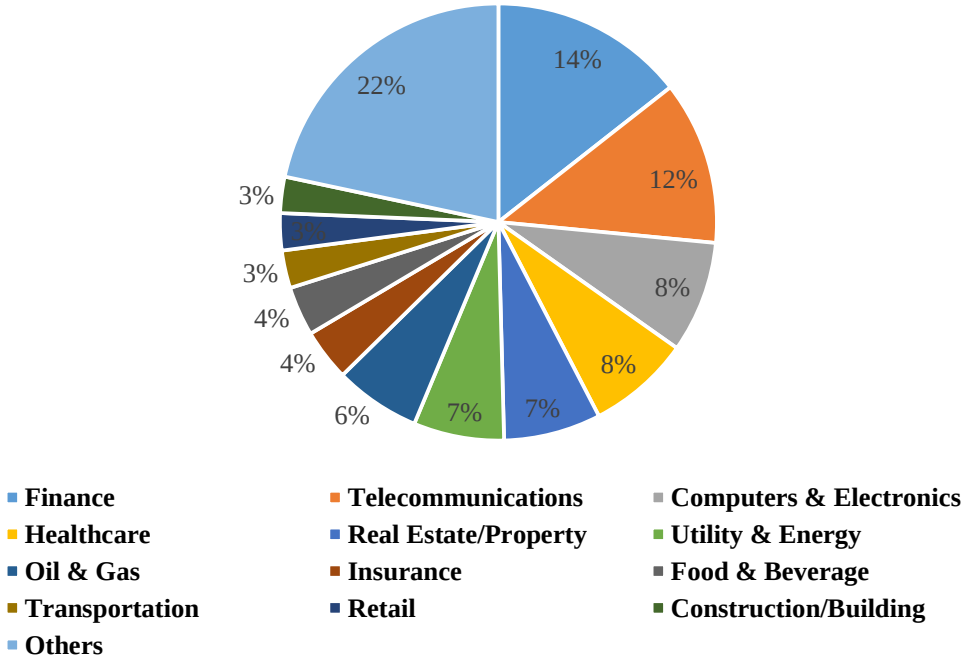
Figure 7: Main sectors of the deal's target in M&A deals by POEs in the period 1996-2013 (measured by total value of deals)



Source: Own elaboration based on *Dealogic* data.

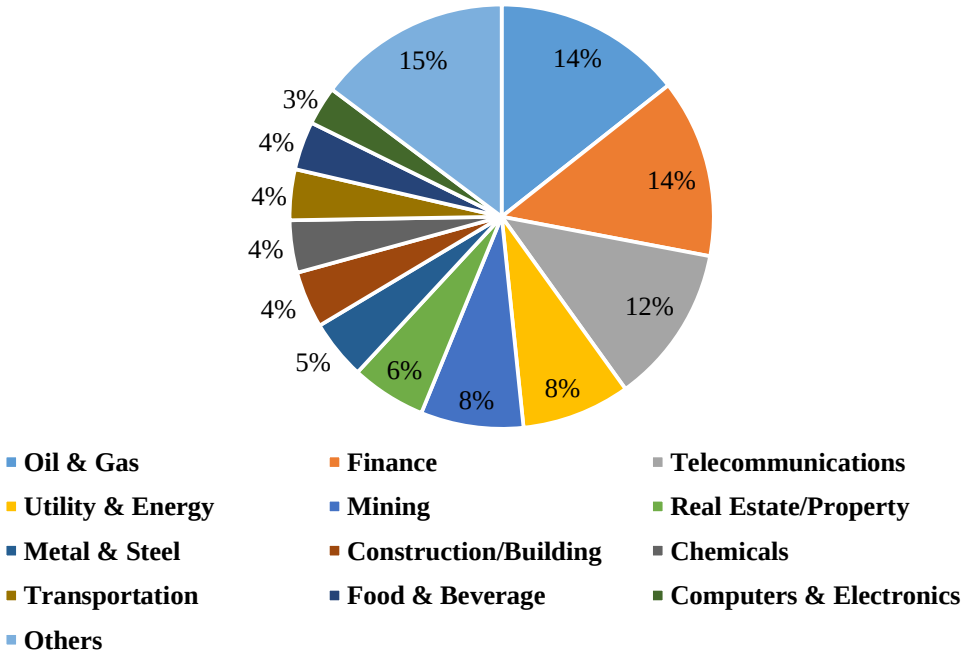
Now, looking at the sectoral distribution of M&As made by firms originating in developed economies versus those made by firms originating in emerging and developing economies (figures 8 and 9 below), we find evidence that in both cases finance and telecommunications are sectors where a significant percentage of all M&As were conducted (14% and 12% respectively). The main differences between them are the following: while firms located in emerging markets and developing economies seem to undertake more deals in sectors such as oil & gas (14%), utility and energy (8%) and mining (8%), firms originating in developed economies have targeted other sectors, e.g. computers & electronics (8%) and healthcare (8%).

Figure 8: Main sectors of the deal's target in M&A deals conducted by firms located in developed economies in the period 1996 – 2013 (measured by total value of deals)



Source: Own elaboration based on *Dealogic* data.

Figure 9: Main sectors of the deal's target in M&A deals conducted by firms located in emerging and developing economies in the period 1996-2013 (measured by total value of deals)

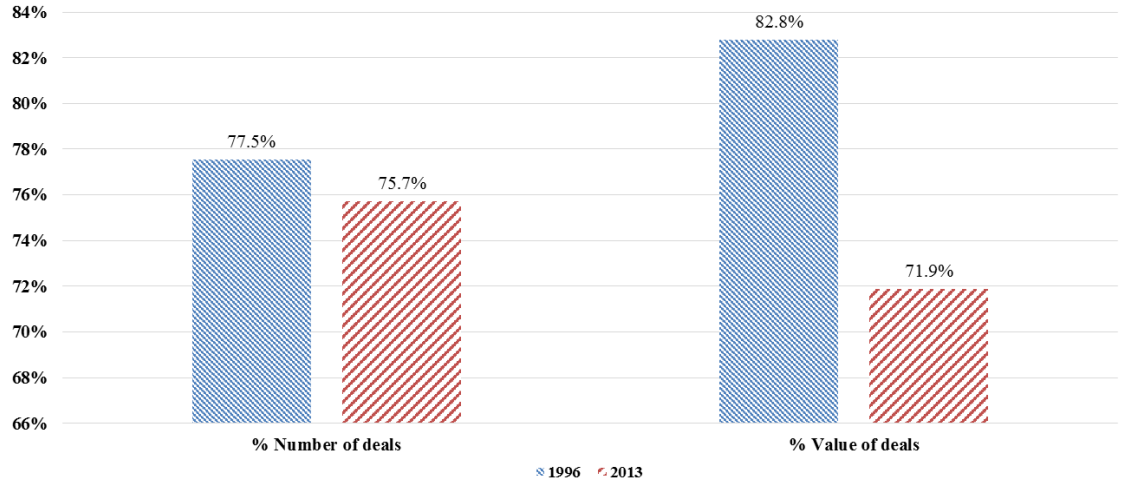


Source: Own elaboration based on *Dealogic* data.

Home bias: as worldwide M&A activity increases, do domestic M&As remain the dominant area of transactions?

Home bias – the focus of our study – means the greater propensity to undertake domestic than international deals, and is measured by the percentage of domestic M&A deals with respect to all M&A deals.

Figure 10: Home bias of all investors (SOEs and POEs) - % of domestic deals [1996 vs. 2013]



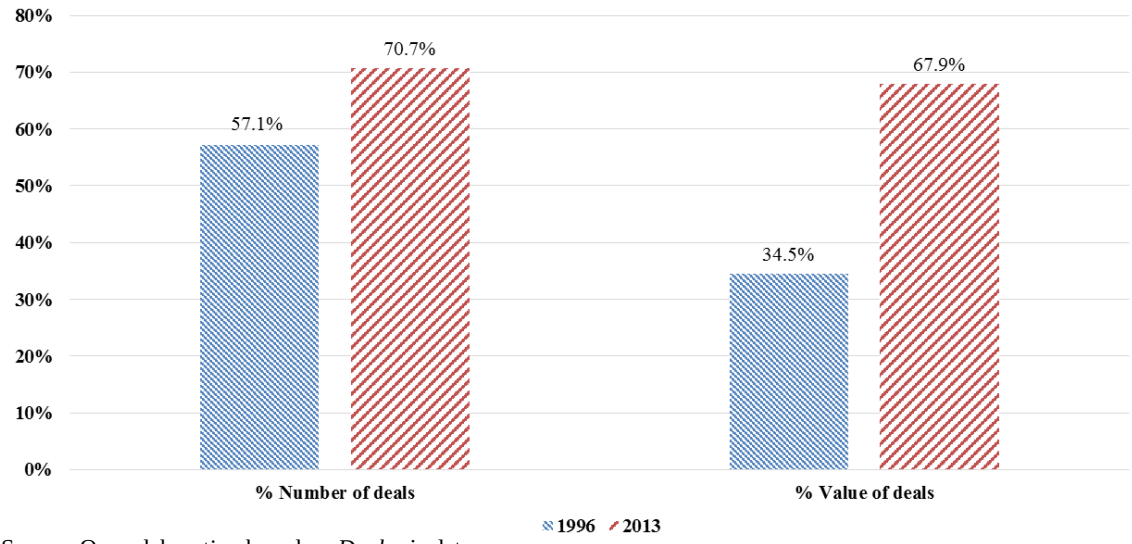
Source: Own elaboration based on *Dealogic* data.

Even though both the number of deals and the total value of deals show some decrease in the home bias in M&As, the percentage of domestic deals in total M&A transactions is solidly above 70% throughout the period under scrutiny. As shown in the figure 10, in 2013, the share of domestic M&As in total M&As was about 75.7% when considering the number of deals, and 71.9% when considering the value of deals. As such, home bias seems to be a fact, when all investors (SOEs and POEs) are taken together.

Home bias in M&As by SOEs vs. POEs

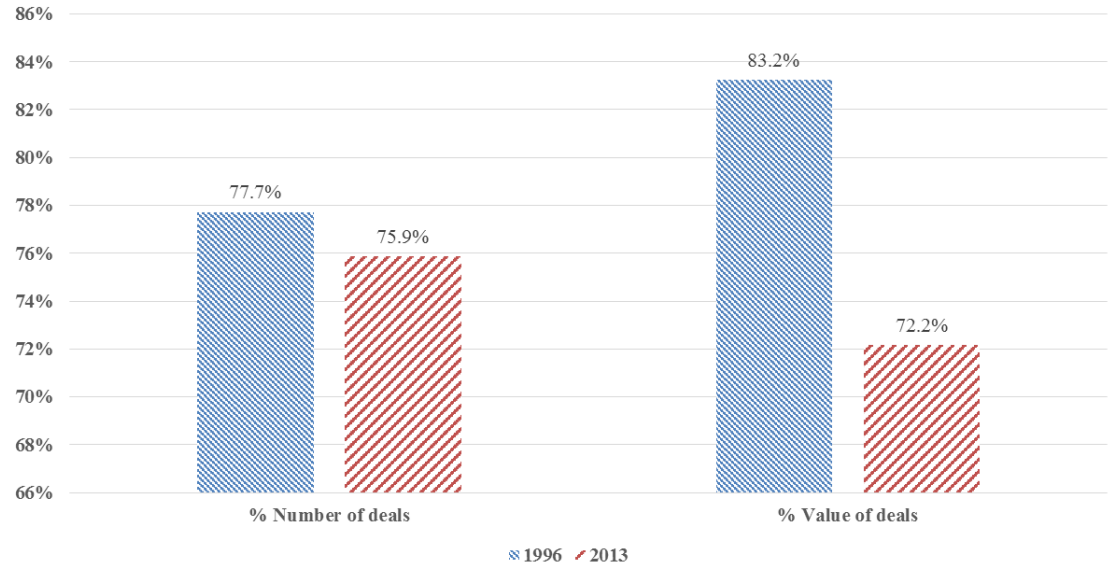
The following two figures (11 and 12) document the existence and evolution (throughout the period considered) of home bias specifically in SOEs and POEs.

Figure 11: SOEs' home bias - % of domestic deals [1996 vs. 2013]



Source: Own elaboration based on *Dealogic* data.

Figure 12: POEs' home bias - % of domestic deals [1996 vs. 2013]



Source: Own elaboration based on *Dealogic* data.

Despite the increase in home bias in M&As by SOEs in the period under analysis – more so in the value of deals than in terms of number of deals – we find evidence that POEs seem to have greater home bias in their M&A activity than SOEs. This is patent in the comparison of figures 9 and 10 above.

Hence, two important observations emerge when we compare figures 9 and 10:

1) Home bias in SOEs seems to be smaller than that of POEs;
2) Home bias in SOEs has increased, while that of POEs has decreased;

even so, POEs seems to continue displaying greater home bias.

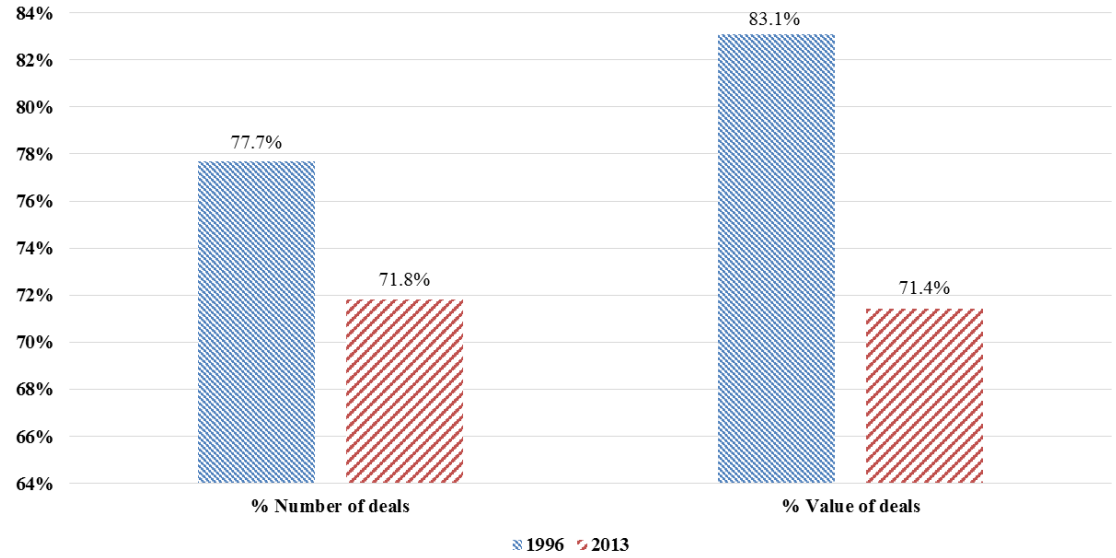
Home bias in M&As by firms located in developed economies vs. emerging and developing economies

According to the figures 13 and 14 below, in 1996, the home bias in M&As (measured by the number of domestic M&As in total M&As) was slightly smaller for those deals conducted by firms originating in emerging and developing economies than for those where the acquirer is located in developed economies. Moreover, the conclusion is exactly the same when we consider the deal's value.

In 2013, we observe a different world of M&A activity – the home bias in M&As seems to be smaller for firms located in developed economies (71,8% of M&As conducted by firms located in developing economies were domestic deals, while the percentage was 84.8% for firms originating in emerging and developing economies). Indeed, if we consider the figures over the period between 1996 and 2013, we find evidence that:

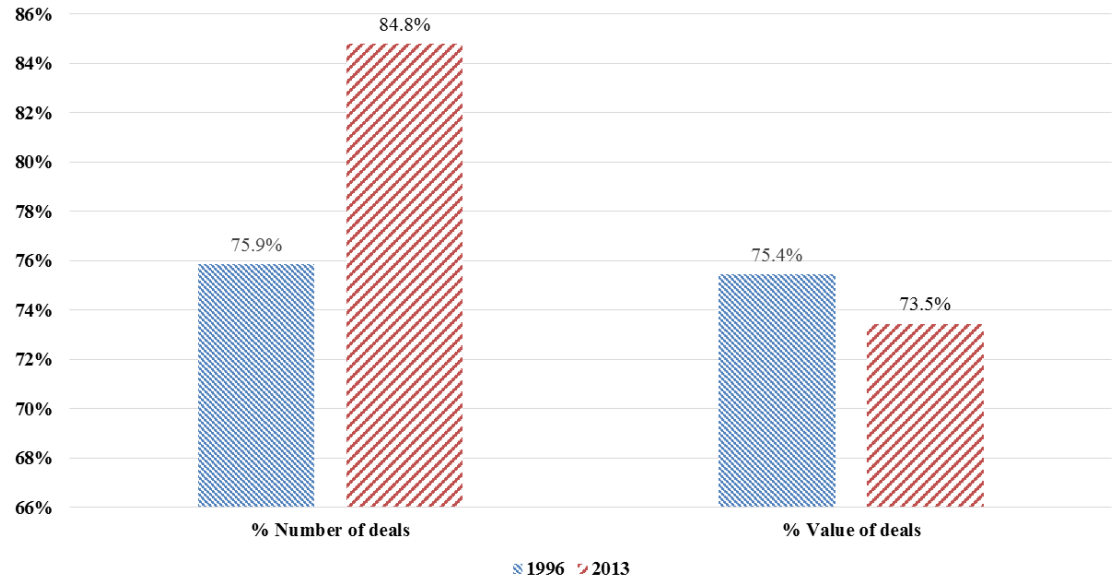
1) Home bias in M&As seems to be smaller for developed economies than for emerging and developing economies;
2) Home bias in M&As conducted by firms originating in emerging and developing economies has increased, while that of developed economies has decreased.

Figure 13: Home bias in M&As by firms originating in developed economies - % of domestic deals [1996 vs. 2013]



Source: Own elaboration based on *Dealogic* data.

Figure 14: Home bias in M&As by firms originating in emerging and developing economies - % of domestic deals [1996 vs. 2013]



Source: Own elaboration based on *Dealogic* data.

3.2.2. Econometric study

This section starts by explaining the variables selected (dependent and independent) and proceeds to the specification of the models used to test econometrically the hypotheses formulated throughout this dissertation.

3.2.2.1. Variables

In order to test the hypotheses stated in section 2, we needed to use a considerable array of variables. This section intends to present and explain all the variables that were used in the present econometric study.

Dependent variable

This dissertation aims to investigate whether there is a home bias in M&A deals and whether it depends on the type of acquirer and on its home country. Given these aims, the dependent variable selected was *cross-border* (a dummy variable that equals 1 if the M&A is cross-border and 0 if domestic). The home bias is defined in this dissertation by the share of domestic M&A deals in total M&A deals. As *cross-border* indicates the type of M&A activity, this variable allows to find evidence on home bias.

In the table below, we present the descriptive statistics of the dependent variable.

Table 2: Descriptive statistics of the dependent variable (1996-2013)

Dependent variable		**Number of observations**	**Mean**	**Standard deviation**	**Minimum**	**Maximum**
Type of M&A activity	Cross-border	206,140	0.26	0.44	0	1

Source: Own elaboration based on *Dealogic* data.

Independent variables

The literature review presented in chapter 2 allowed to identify possible home bias' drivers which are herein considered as independent/ explanatory variables.

Below, we present a table with the descriptive statistics of the explanatory variables included in the empirical models.

Table 3: Descriptive statistics of the explanatory variables (1996-2013)

Explanatory variable		Expected effect	N	Mean	Standard deviation	Min.	Max.
Acquirer's ownership	SOE (dummy)	(-)	206,140	0.02	0.14	0	1
Acquirer's country	Emerging and developing economy (dummy)	(+)	206,140	0.18	0.38	0	1
Investment size	Deal value ($m)	(+)	206,140	240.95	1,462.44	5	171,977.1
Acquired stake	Acquired stake (%)	?	186,549	70.54	37.55	0.0008	100
Source of capital for M&A financing	Cash only (dummy)	(+)	206,140	0.78	0.42	0	1
	Share only (dummy)	(-)	206,140	0.07	0.26	0	1
Leveraged buyout	Leveraged buyout (dummy)	(-)	206,140	0.05	0.22	0	1
Acquirer's size	Acquirer total assets ($m)	(+)	13,492	57,526.1	2,378,016	0	226,000,000
	Acquirer long-term debt ($m)	(+)	10,610	3,124.69	18,898.39	0	1,431,185
Acquirer's business efficiency	Acquirer gross profit ($m)/ Acquirer total assets ($m)	(+)	8,960	4.04	32.82	-178.48	2,020.86
Acquirer's fixed assets	Acquirer fixed assets ($m)/ Acquirer total assets ($m)	(-)	12,182	1.35	64.51	0	4,802.72
Investment Treaties	Number of Bilateral Investment Treaties of the host country	(+)	205,994	63.71	35.43	0	134
Tax breaks	Target tax haven (dummy)	(+)	206,140	0.005	0.07	0	1

Source: Own elaboration based on *Dealogic* data.

Note: $m means million US dollar; N represents the number of observations; min. indicates the minimum value; and max. the maximum value.

As it was clear throughout this dissertation, our key explanatory variables are: i) acquirer's ownership (as we are interested in identifying the effect of ownership control on the probability of conducting cross-border M&As, and thus on home bias); and ii) acquirer's country (allowing to test whether the home bias is more predominant in M&As

undertaken firms located in emerging and developing economies or in developed economies)[20]. The variable used for acquirer's ownership was *SOE*, a dummy variable that equals 1 if the M&A is cross-border, and 0 if domestic. For acquirer's country, we used the variable *emerging and developing economy*, also a dummy variable that equals 1 if the acquirer is located in an emerging and developing economy and 0 if it is located in a developed economy.

In addition to these two variables and in order to study some of the possible determinants of home bias in M&As addressed in the literature review, other variables were added. First, it was decided to include the investment size and the acquired stake through the variables *deal value* (in $ million) and *acquired stake* (in percentage), respectively.

Another feature considered in this study is the source of capital for M&A financing using the variables *cash only* (dummy variable that equals 1 if the M&A is fully funded by cash, and 0 otherwise) and *share only* (dummy variable that equals 1 if the M&A is fully funded by shares, and 0 otherwise). Finally, and also in this context, it was decided to take into consideration the variable *leveraged buyout* (dummy variable that equals 1 if the M&A is a leveraged buyout deal, and 0 otherwise). These three variables allow to study the impact of financial constraints (insufficient internal funds) on the likelihood of conducting cross-border M&As.

Additionally, we included two variables to analyze the relationship between the acquirer's size and the likelihood to make IM&As: *acquirer total assets ($m)* and *acquirer long-term debt ($m)*. Moreover, we also consider the acquirer's business efficiency (*acquirer gross profit ($m)/ acquirer total assets ($m)*).

Another characteristic of the acquirer considered in this dissertation is the proportion of fixed assets in total assets (*acquirer fixed assets ($m)/ acquirer total assets ($m)*) as some studies conclude that firms usually merge to share assets.

Finally, we also take into consideration some characteristics of the target's country such as the number of Bilateral Investment Treaties (BITs) (UNCTAD, 2015) and whether the target is a tax haven (OECD, 2000)). The first variable (*number of bilateral investment treaties of the host country*) intends to study the impact of the liberalization of

[20] Acquirer's ownership and acquirer's country are our key independent variables as they allow to test the hypotheses 2 and 3 formulated in section 2.3. As it will be explained later, the hypothesis 1 is tested making use of binomial probability tests.

trade and investment regimes and deregulation of services (through BITs) on the home bias in M&As; the second variable (*target tax haven***)** is a dummy that equals 1 if the target is a tax haven, and 0 otherwise, and allows to find evidence on the propensity of firms to conduct M&As in countries known as tax havens.

The correlation matrix of all independent variables is present in appendix 6. We can see that there is a strong correlation between *acquirer gross profit ($m)/ acquirer total assets ($m)* and *acquirer fixed assets ($m)/ acquirer total assets ($m)*. Moreover, as expected, there is also a strong correlation between *acquirer total assets ($m)* and *acquirer debt equity ratio* (proxy variables for acquirer's size) as well as between *cash only (dummy)* and *share only (dummy)* (proxy variables for source of capital for M&A financing).

3.2.2.2. Econometric models

In this section we specify the models used to test econometrically the hypotheses formulated throughout the dissertation:

Hypothesis 1: *There is a home bias in M&A deals.*

Hypothesis 2: *SOEs tend to have greater home bias in their M&A activity than POEs.*

Hypothesis 3: *firms originating in developed economies tend to have a greater home bias in their M&A activity than those from emerging and developing economies.*

Hypothesis 1 is tested making use of binomial probability tests and hypotheses 2 and 3 using probit regressions[21]. All the estimations and binomial probability tests were performed recurring to Stata, which is a statistical and econometrical software that strives for accuracy and precision on its outputs (as pointed out by Acock, 2012, p. 4). As we are estimating the hypotheses through probit models, we run the command *probit*.

[21] As the dependent variable is a dummy variable, it was decided to apply probit regressions (Maddala, 1983; Judge, Griffiths, Hill, Lutkepohl and Lee, 1985; and Greene, 1997).

Hypothesis 1 is tested based on binomial probability tests as they allow to establish whether or not there is a greater propensity to undertake domestic than international deals, i.e. whether the percentage of domestic M&As in total M&As is systematically higher than 50%. The variable used to conduct these tests was *domestic* (it is exactly the opposite of the variable *cross-border*; domestic is a dummy that equals 1 if the M&A is domestic and 0 if cross-border). The rationale for these tests is as follows. The null hypothesis (H_0) states that the percentage of domestic M&As in total M&As is equal to 50%, and the alternative hypothesis (H_A) posits that the percentage is greater than 50% (Keller, 2005). Our main goal is to test whether there is a home bias in M&A activity considering the period between 1996 and 2013 as a whole, however we also test the home bias for each of the 18 years.

Binomial probability tests are performed to answer the question whether there is a home bias in M&A deals, but an econometric model (probit regression) is also estimated in order to find the home bias' drivers.

The empirical model (equation 1) is as follows:

$$Cross\text{-}Border = \alpha + \beta_1 Investment\ size + \beta_2 Acquired\ stake + \beta_3 Source\ of\ capital\ for\ M\&A\ financing + \beta_4 Leveraged\ buyout + \beta_5 Acquirer's\ size + \beta_6 Acquirer's\ business\ efficiency + \beta_7 Acquirer's\ fixed\ assets + \beta_8 Investment\ treaties + \varepsilon^{22} \quad (1)$$

To test hypothesis 2, i.e. to test whether SOEs tend to have greater home bias in their M&A activity than POEs, we included in the model (equation 2) the variable *SOE* (the variable that allows to know the acquirer's ownership).

$$Cross\text{-}Border = \alpha + \beta_1 Acquirer's\ ownership + \beta_2 Investment\ size + \beta_3 Acquired\ stake + \beta_4 Source\ of\ capital\ for\ M\&A\ financing + \beta_5 Leveraged\ buyout + \beta_6 Acquirer's\ size + \beta_7 Acquirer's\ business\ efficiency + \beta_8 Acquirer's\ fixed\ assets + \beta_9 Investment\ treaties + \varepsilon \quad (2)$$

[22] As it will be explained later, the variables acquirer's business efficiency and acquirer's fixed assets are not estimated together as they are highly correlated (see the correlation matrix in appendix 6). The same applies to the equations 2 and 3.

Finally, to test hypothesis 3, i.e. to test whether firms originating in developed economies tend to have a greater home bias in their M&A activity than those from emerging and developing economies, we added in the model (equation 3) the variable *emerging and developing economy* (below designated as acquirer's country). In addition, we also added the variable *target tax haven (dummy)* (below designated as tax breaks) in order to find whether firms located in tax havens economies (OECD, 2000) are more likely to be targeted in IM&A deals than firms located in non-tax haven economies.

$$Cross\text{-}Border = \alpha + \beta_1 Acquirer's\ country + \beta_2 Tax\ breaks + \beta_3 Investment\ size + \beta_4 Acquired\ stake + \beta_5 Source\ of\ capital\ for\ M\&A\ financing + \beta_6 Leveraged\ buyout + \beta_7 Acquirer's\ size + \beta_8 Acquirer's\ business\ efficiency + \beta_9 Acquirer's\ fixed\ assets + \beta_{10} Investment\ treaties + \varepsilon \quad (3)$$

3.3. Empirical results and discussion

In the previous section, we explained how we intend to test the hypotheses formulated throughout this dissertation, presenting the equations as well as the econometric methodology. In the present section, we provide and analyze the results from i) the binomial probability tests; and ii) the estimation of the equations through probit regressions.

3.3.1. Home bias in M&A deals

As already mentioned, to test hypothesis 1 (that states that there is a home bias in M&As) we used binomial probability tests.

Considering all deals completed between 1996 and 2013, we test whether the percentage of domestic M&As in total M&As is greater than 50%. The first part of the table below reveals that, assuming a true probability of success of 50%, the expected number of successes is 103,070 deals (50% of total deals) and that we observed 151,769. Said differently, the assumed frequency under the null hypothesis (H_0) is 50%, and the observed frequency is approximately 74%.

In table 4, we present the results of a one-sided test; it is the probability of observing 151,769 or more successes conditional on p=0.5. It is a test of H_0: p=0.5 (the number of domestic deals do not differ significantly from the number of cross-border deals) versus the alternative hypothesis H_A: p>0.5 (more than 50% of all M&A deals are domestic, i.e. there is a home bias in M&As). The p-value for this hypothesis test is 0.000, which means that we reject the null hypothesis with a confidence level higher than 99%. In other words, we find that there is a home bias in M&A activity, confirming hypothesis 1.

Table 4: Hypothesis 1: Binomial probability tests

Variable	N	Observed k	Expected k	Assumed p	Observed p
Domestic	206,140	151,769	103,070	0.50000	0.73624
Pr (k>=151,769)			=0.000000 (one-sided test)		

Source: Own elaboration using Stata.

Note: N is the number of observations (M&A deals); observed k represents the effective number of domestic M&A deals (number of observations for which the variable domestic equals 1); expected k means the number of domestic M&A deals under the assumption that the percentage of domestic M&A deals in total M&As equals 50%; assumed p is the proportion of domestic M&As in total M&As according to the null hypothesis; and observed p indicates the effective percentage of domestic M&A deals in total M&As.

Additionally, in order to study in depth the existence of home bias in M&As between 1996 and 2013, we conducted binomial probability tests for each year as well.

As shown in table 5 below, the percentage of domestic M&As in total M&As is significantly higher than 50% (with a confidence level greater than 99%) for all the years under review. In other words, there was always a home bias in M&A activity since 1996 until 2013.

This important finding corroborates the results obtained by the few relevant empirical studies on home bias in M&As[23] (for instance Green, 1990; Coval and Moskowitz, 1999; di Giovanni, 2005; Lehto, 2006; Berril and Kearney, 2010) and, as such, contradicts what financial theory predicts (as referred in section 2.3.1., this is designated "home bias puzzle") (Eldor *et al.*, 1988; De Santis and Gerard, 1997; Cooper *et al.*, 2012), and clearly lends support to hypothesis 1.

[23] As far as we are aware, there are few studies that address explicitly the home bias in M&As. As can be seen in section 2.3.1., most of them investigate the determinant factors of cross-border M&As, but do not address the home bias issue.

Table 5: Hypothesis 1: Binomial probability tests by year

Year	N	Observed k	Expected k	Assumed p	Observed p
1996	5,454	4,229	2,727	0.50000	0.77539
	Pr (k>=4,229)			=0.000000 (one-sided test)	
1997	7,529	5,878	3,764.5	0.50000	0.78071
	Pr (k>=5,878)			=0.000000 (one-sided test)	
1998	9,449	7,229	4,724.5	0.50000	0.76505
	Pr (k>=7,229)			=0.000000 (one-sided test)	
1999	10,299	7,460	5,149.5	0.50000	0.72434
	Pr (k>=7,460)			=0.000000 (one-sided test)	
2000	12,043	8,668	6,021.5	0.50000	0.71975
	Pr (k>=8,668)			=0.000000 (one-sided test)	
2001	9,081	6,494	4,540.5	0.50000	0.71512
	Pr (k>=6,494)			=0.000000 (one-sided test)	
2002	8,359	6,262	4,179.5	0.50000	0.74913
	Pr (k>=6,262)			=0.000000 (one-sided test)	
2003	8,513	6,569	4,256.5	0.50000	0.77164
	Pr (k>=6,569)			=0.000000 (one-sided test)	
2004	10,222	7,741	5,111	0.50000	0.75729
	Pr (k>=7,741)			=0.000000 (one-sided test)	
2005	12,540	9,260	6,270	0.50000	0.73844
	Pr (k>=9,260)			=0.000000 (one-sided test)	
2006	14,542	10,757	7,271	0.50000	0.73972
	Pr (k>=10,757)			=0.000000 (one-sided test)	
2007	17,250	12,182	8,625	0.50000	0.70620
	Pr (k>=12,182)			=0.000000 (one-sided test)	
2008	16,099	11,235	8,049.5	0.50000	0.69787
	Pr (k>=11,235)			=0.000000 (one-sided test)	
2009	11,983	8,990	5,991.5	0.50000	0.75023
	Pr (k>=8,990)			=0.000000 (one-sided test)	
2010	13,554	9,792	6,777	0.50000	0.72244
	Pr (k>=9,792)			=0.000000 (one-sided test)	
2011	13,989	10,023	6,994.5	0.50000	0.71649
	Pr (k>=10,023)			=0.000000 (one-sided test)	
2012	13,334	9,990	6,667	0.50000	0.74921
	Pr (k>=9,990)			=0.000000 (one-sided test)	
2013	11,900	9,010	5,950	0.50000	0.75714
	Pr (k>=9,010)			=0.000000 (one-sided test)	

Source: Own elaboration using Stata.

Note: N is the number of observations (M&A deals); observed k represents the effective number of domestic M&A deals (number of observations for which the variable domestic equals 1); expected k means the number of domestic M&A deals under the assumption that the percentage of domestic M&A deals in total M&As equals 50%; assumed p is the proportion of domestic M&As in total M&As according to the null hypothesis; and observed p indicates the effective percentage of domestic M&A deals in total M&As.

Below, we present eight specifications aiming to establish the factors that influence the likelihood of firms conducting cross-border M&As and thus of home bias in M&A activity. The first four models do not consider the variable *acquirer's business efficiency* and the last four do not include the variable *acquirer's fixed assets* as these variables are highly correlated and for that reason they can be included only separately in the estimations (see the correlation matrix in appendix 6). For the same reason, the variables *cash only (dummy)* and *share only (dummy)* as well as *acquirer total assets ($m)* and *acquirer long-term debt* are also not included together in the same model.

Firstly, and before analyzing the results, it is important to note that, while in most linear regression models, the coefficient provides indication on the direction (positive or negative) of the influence of an independent variable and on the magnitude of that influence (the same for all observations and, unless non-linearity of the explanatory variables, independent of the variable value), in probit models the coefficient just gives, immediately, information on the direction of the influence (Greene, 1997).

Taking this into account, we can now analyze the econometric results presented in table 6. According to models (I) and (II), the coefficient of the variable *deal value ($m)* is negative and statistically significant, which means that, as the value of the M&A increases, the likelihood of being cross-border decreases, i.e. IM&A deals tend to be less valuable than those conducted within national boundaries. However, in models III, IV, V, VI, VIII, the coefficient of the variable is not significant, suggesting that the value of the M&A deals does not affect the likelihood of being cross-border. Overall, we can conclude that the influence of the deal value on the likelihood of being cross-border is mitigated, and, having some influence, it would be negative. This result contradicts that obtained by Chen *et al.* (2009), who found that the value of M&A deals tends to be higher for cross-border deals than for domestic ones.

Regarding the variable *acquired stake (%)*, the coefficient obtained is in most cases (in models I, II, III, IV and VI) negative and statistically significant. These results suggest that the acquired stake tends to be lower in cross-border M&As. As far as we are aware,

there is no relevant literature addressing the correlation between the acquired stake and the IM&A activity, so this constitutes an important finding.

Moreover, we found evidence of a significant positive correlation between the *source of capital for M&A financing* and the occurrence of IM&A deals. According to the results presented in table 6, we conclude that, *ceteris paribus*, when a deal is fully funded by cash, the likelihood of being cross-border increases, and when is fully funded by shares the likelihood of being cross-border decreases. These results are in accordance with the findings obtained by Chen *et al.* (2009) and Rossin and Valpin (2004). Chen *et al.* (2009) concluded that financing constraints (e.g. insufficient internal funds) manifest themselves more in IM&As than in domestic M&As; and Rossi and Valpin (2004) found a positive correlation between deals fully funded by cash and cross-border deals. Additionally, we also study the likelihood of leveraged buyout deals being cross-border. All models in table 6 suggest a negative correlation (the coefficient is negative and statistically significant), which means that, *ceteris paribus*, M&As paid using a significant amount of borrowed money are less likely to be cross-border. As these results indicate that firms with insufficient internal funds face more difficulties in conducting IM&As, we can conclude that home bias in M&As is greater for those firms which face financing constraints. This finding is also supported by Chen *et al.* (2009), as mentioned above.

In what concerns the acquirer's size, the coefficient of both *acquirer total assets ($m)* and *acquirer long-term debt ($m)* variables is positive and statistically significant. This result indicates that larger firms have a greater propensity to be involved in cross-border M&As, i.e. large firms tend to have a less significant home bias in their M&A activity than small firms. A similar result was also found by Lehto (2006), who concluded that firms with higher turnover tend to undertake more cross-border M&A deals. In turn, Chen *et al.* (2009) as well as Kling and Weitzel (2011) did not find statistically significant correlation between the acquirer's total assets and the IM&A activity.

In addition, we found that the coefficient of the *acquirer's business efficiency* (measured by *acquirer's gross profit ($m)/acquirer's total assets ($m)*) is not significant,

suggesting that the acquirer's business efficiency does not affect the likelihood of undertaking IM&As and thus does not influence the home bias in M&As. This result compares with that obtained by Kling and Weitzel (2011), who stated that firms with higher productivity have increased occurrence of international deals.

Moreover, we also studied whether firms with a greater proportion of fixed assets in total assets tend to conduct more (or less) IM&As and found that there is not a significant correlation. As such, this result does not support the idea developed by Lehto (2006) that firms usually merge to share assets (in order to increase efficiency and profits). To confirm the finding obtained by Lehto (2006), the coefficient would have to be negative and statistically significant, meaning that firms with a greater proportion of fixed assets in total assets would be reluctant to undertake cross-border M&As and thus would face a greater home bias in their M&A activity.

Finally, according to all models presented in table 6, the coefficient of *number of bilateral investment treaties (BITs) of the host country* is positive and statistically significant, suggesting that firms located in countries with more BITs, *ceteris paribus*, are more likely to be targeted in IM&A deals than firms located in countries with less BITs. This is an important finding and supports the conclusions of other studies (for instance, Chen and Findlay, 2003; and di Giovanni, 2005), which state that investment costs tend to decrease with the liberalization of trade and investment regimes and the deregulation of services (through trade/ service agreements). Given this, we conclude that bilateral investment treaties tend to decrease the home bias in M&A activity.

Table 6 summarizes, in a structured way, the results of the estimation of probit regressions discussed above.

Table 6: Determinant factors of cross-border M&As: Probit regressions

Independent variables		Specifications							
		I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**
Investment size	Deal value ($m)	-7.75e-06**	-7.94e-06**	-2.18e-06	-1.89e-06	-4.36e-06	-5.07e-06	6.76e-07	4.29e-07
		[3.83e-06]	[3.93e-06]	[3.81e-06]	[3.94e-06]	[4.40e-06]	[4.47e-06]	[4.44e-06]	[4.53e-06]
		(0.043)	(0.044)	(0.568)	(0.631)	(0.321)	(0.257)	(0.879)	(0.925)
Acquired stake	Acquired stake (%)	-0.001379*	-0.0015317*	-0.000598***	-0.0007973**	-0.0004804	-0.000847***	0.0002709	-0.0000685
		[0.0003581]	[0.000384]	[0.0003565]	[0.0003831]	[0.0004163]	[0.0004491]	[0.0004124]	[0.0004469]
		(0.000)	(0.000)	(0.094)	(0.037)	(0.249)	(0.059)	(0.511)	(0.878)
Source of capital for M&A financing	Cash only (dummy)	0.2468461*	0.2519588*			0.2655017*	0.2547332*		
		[0.0268295]	[0.0290002]			[0.0313049]	[0.0340021]		
		(0.000)	(0.000)			(0.000)	(0.000)		
	Share only (dummy)			-0.7504908*	-0.8068671*			-0.768663*	-0.8075191*
				[0.0361304]	[0.0409872]			[0.0410418]	[0.0465658]
				(0.000)	(0.000)			(0.000)	(0.000)
Leveraged buyout	Leveraged buyout (dummy)	-0.877001*	-0.7706635*	-0.9683775*	-0.8711604*	-0.9652409*	-0.8318659**	-1.112705*	-0.9776229*
		[0.2634506]	[0.2749109]	[0.2667395]	[0.2781612]	[0.333099]	[0.3474279]	[0.3426489]	[0.3567369]
		(0.001)	(0.005)	(0.000)	(0.002)	(0.004)	(0.017)	(0.001)	(0.006)
Acquirer's size	Acquirer total assets ($m)	1.24e-06*		1.22e-06*		9.05e-07*		8.94e-07*	
		[1.51e-07]		[1.52e-07]		[1.43e-07]		[1.44e-07]	
		(0.000)		(0.000)		(0.000)		(0.000)	
	Acquirer long-term debt ($m)		5.42e-06*		5.40e-06*		4.82e-06*		4.82e-06*
			[9.79e-07]		[9.83e-07]		[1.18e-06]		[1.18e-06]
			(0.000)		(0.000)		(0.000)		(0.000)
Acquirer's business efficiency	Acquirer gross profit ($m)/ acquirer total assets					-0.0012803	-0.0004686	-0.0014827	-0.0006968
						[0.0018449]	[0.00143]	[0.0022896]	[0.0016806]
						(0.488)	(0.743)	(0.517)	(0.678)
Acquirer's fixed assets	Acquirer fixed assets ($m)/ acquirer total assets ($m)	-0.002811	-0.0078651	-0.0057927	-0.012242				
		[0.0071617]	[0.0122171]	[0.0114184]	[0.0167866]				
		(0.695)	(0.520)	(0.612)	(0.466)				
Investment treaties	Number of bilateral investment treaties of the host country	0.0085296*	0.0091493*	0.007744*	0.008399*	0.0100417*	0.0107529*	0.009108*	0.009871*
		[0.0003816]	[0.0004172]	[0.0003873]	[0.0004234]	[0.0004458]	[0.0004971]	[0.000454]	[0.0005059]
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	Observations	11,625	9,670	11,625	9,670	8,896	7,369	8,896	7,369
	Qui Square	766.78	667.77	1,159.02	1,027.53	692.02	597.21	1,008.44	878.87

Source: Own elaboration using Stata.

Note: The values in brackets are the standard errors and in curved parenthesis are the p-values. *p-value<0.01; **p-value<0.05; ***p-value<0.1.

3.3.2. Home bias in M&As by SOEs vs. POEs

In order to test whether SOEs tend to have greater home bias in their M&A activity than POEs, we included in all models the explanatory variable *SOE* (the variable that allows to know the acquirer's ownership). The results are presented in table 7 below.

According to all models estimated, the coefficient of the variable *SOE* is positive and statistically significant, suggesting that, other things being equal, SOEs' acquirers are more likely to undertake cross-border M&A deals than POEs' acquirers, i.e. SOEs tend to have a lower home bias in their M&A activity than POEs. As such, we reject the hypothesis 2 (with 99% of confidence level).

This important finding contradicts most of the literature studied on M&As that addresses the differences (similarities) between SOEs and POEs. This literature argues that SOEs tend to have greater home bias in M&As mainly because: i) SOEs are averse to transfer abroad (part of) their management control (Chen *et al.*, 2009); ii) SOEs' deals are conducted to restructure the firm and not to acquire strategic foreign assets due to the political opposition in the host country (Kling and Weitzel, 2011 and Amighini *et al.*, 2013); and iii) SOEs are highly dependent on home country institutions (Nutt, 2000 and Cui and Jiang, 2012).

Although there are several studies that found a greater home bias in M&A activity by SOEs, our finding (greater home bias in M&As by POEs) is also in accordance with some former studies referenced in the literature review conducted in section 2.3. These studies (for instance, Luo and Tung, 2007; Sutherland and Ning, 2011; Duanmu, 2012; and Wei *et al.*, 2014) concluded that home bias is lower in M&As by SOEs mainly because: i) they possess better access to resources (e.g. through their business affiliates or banks); ii) respond to political risks in the host country less negatively; and iii) are more likely to invest abroad as a consequence of the appreciation of the home country's currency.

Table 7: Hypothesis 2: Probit regressions

Independent variables		Specifications							
		I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**
Acquirer's ownership	SOE (dummy)	0.8865144* [0.1693373] (0.000)	0.8997947* [0.1817762] (0.000)	0.82934* [0.1706794] (0.000)	0.8617325* [0.1836491] (0.000)	1.067799* [0.2293967] (0.000)	1.146319* [0.2562337] (0.000)	1.035003* [0.2307784] (0.000)	1.107594* [0.2590472] (0.000)
Investment size	Deal value ($m)	-7.89e-06* [3.84e-06] (0.040)	-8.03e-06** [3.94e-06] (0.042)	-2.34e-06 [3.82e-06] (0.541)	-2.01e-06 [3.95e-06] (0.611)	-4.52e-06 [4.40e-06] (0.304)	-5.13e-06 [4.47e-06] (0.251)	4.95e-07 [4.44e-06] (0.911)	3.26e-07 [4.53e-06] (0.943)
Acquired stake	Acquired stake (%)	-0.0013036* [0.0003587] (0.000)	-0.0014631* [0.0003846] (0.000)	-0.0005412 [0.000357] (0.130)	-0.00074*** [0.0003837] (0.054)	-0.0004481 [0.0004167] (0.282)	-0.000814*** [0.0004496] (0.070)	0.0002974 [0.0004129] (0.471)	-0.0000451 [0.0004474] (0.920)
Source of capital for M&A financing	Cash only (dummy)	0.2490044* [0.0268585] (0.000)	0.2546036* [0.0290354] (0.000)			0.266521* [0.0313349] (0.000)	0.2572865* [0.0340466] (0.000)		
	Share only (dummy)			-0.7490036* [0.0361539] (0.000)	-0.8064705* [0.0410238] (0.000)			-0.7683102* [0.0410887] (0.000)	-0.8073586* [0.0466181] (0.000)
Leveraged buyout	Leveraged buyout (dummy)	-0.872062* [0.2633472] (0.001)	-0.7654748* [0.2747952] (0.005)	-0.9635505* [0.2666535] (0.000)	-0.8661027* [0.2780593] (0.002)	-0.9607758* [0.3330858] (0.004)	-0.8269026** [0.340466] (0.017)	-1.108365* [0.3426775] (0.001)	-0.972838* [0.3567317] (0.006)
Acquirer's size	Acquirer total assets ($m)	1.25e-06* [1.51e-07] (0.000)		1.23e-06* [1.52e-07] (0.000)		9.14e-07* [1.43e-07] (0.000)		9.03e-07* [1.44e-07] (0.000)	
	Acquirer long-term debt ($m)		5.42e-06* [9.80e-07] (0.000)		5.41e-06* [9.83e-07] (0.000)		4.86e-06* [1.18e-06] (0.000)		4.86e-06* [1.18e-06] (0.000)
Acquirer's business efficiency	Acquirer gross profit ($m)/ acquirer total assets					-0.0012816 [0.0018527] (0.489)	-0.0004684 [0.0014392] (0.745)	-0.0014851 [0.0023037] (0.519)	-0.0006986 [0.0016957] (0.689)
Acquirer's fixed assets	Acquirer fixed assets ($m)/ acquirer total assets ($m)	-0.0030719 [0.0081967] (0.708)	-0.0087002 [0.0129615] (0.502)	-0.0063399 [0.0118485] (0.593)	-0.013871 [0.0193936] (0.474)				
Investment treaties	Number of bilateral investment treaties of the host country	0.0084922* [0.0003819] (0.000)	0.0091032* [0.0004175] (0.000)	0.0077125* [0.0003875] (0.000)	0.0083591* [0.0004237] (0.000)	0.0100501* [0.000446] (0.000)	0.010753* [0.0004974] (0.000)	0.009123* [0.0004542] (0.000)	0.0098785* [0.0005062] (0.000)
	Qui Square Observations	11,625 795.01	9,670 693.32	11,625 1,183.32	9,670 1,050.49	8,896 714.6	7,369 618.57	8,896 1,029.41	7,369 898.4

Source: Own elaboration using Stata.

Note: The values in brackets are the standard errors and in curved parenthesis are the p-values. *p-value<0.01; **p-value<0.05; ***p-value<0.1.

3.3.3. Home bias in M&As by firms located in developed economies vs. emerging/ developing economies

To test whether firms originating in developed economies tend to have a greater home bias in their M&A activity than those from emerging and developing economies, we included in all models the explanatory variable *emerging and developing economy (dummy)*[24]. In addition, we also added the variable *target tax haven (dummy)* in order to find whether firms located in tax havens economies (OECD, 2000) are more likely to be targeted in IM&A deals than firms located in non-tax haven economies.

According to both tables 8 and 9, the coefficient of *emerging and developing economy (dummy)* is negative and statistically significant, which means that, *ceteris paribus*, firms originating in emerging and developing economies are less likely to undertake IM&A deals, i.e. have a greater home bias in their M&A activity than firms originating in developed economies. As such, we reject the hypothesis 3 (with 99% of confidence level).

Although, as far as we aware, there is no relevant literature focused specifically on this, the result obtained seems to contradict former studies, for instance Rossi and Volpin, 2004 and Moskalev, 2010. These studies found that firms located in countries whose real GDP per capita is low but its growth is high have become more internationalized through IM&As, suggesting that home bias less significant for firms located in emerging and developing economies.

In what concerns the variable *target tax haven*, the coefficient is positive and statistically significant, indicating that, other things being equal, firms located in tax haven economies are more likely to be targeted in cross-border M&As than firms located in non-tax haven economies. This result supports the findings obtained by Coval and Moskowitz (1999), di Giovanni (2005) and Berril and Kearney (2010), suggesting a negative correlation between cross-border M&A deals and corporation tax rate in the host country.

[24] In table 8, Hong Kong, Macao and Taiwan were considered as developed economies and, in table 9, were considered as emerging and developing economies (see appendix 1).

Table 8: Hypothesis 3: Probit regressions (considering Hong Kong, Macao and Taiwan as developed economies)

Independent variables		Specifications							
		I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**
Acquirer's country	Emerging and developing economy (dummy)	-0.2993876* [0.0481399] (0.000)	-0.2956932* [0.0532743] (0.000)	-0.289136* [0.0488082] (0.000)	-0.2794103* [0.0541445] (0.000)	-0.3522606* [0.0589313] (0.000)	-0.3136195* [0.0636596] (0.000)	-0.3335496* [0.0597135] (0.000)	-0.2910026* [0.0645756] (0.000)
Tax breaks	Target tax haven (dummy)	2.06865* [0.3507222] (0.000)	2.139928* [0.4208459] (0.000)	1.961895* [0.3468493] (0.000)	2.053463* [0.4108103] (0.000)	1.907693* [0.3368874] (0.000)	2.572301* [0.544421] (0.000)	1.849475* [0.3355031] (0.000)	2.566323* [0.5286512] (0.000)
Investment size	Deal value ($m)	-8.17e-06** [3.84e-06] (0.033)	-8.35e-06** [3.94e-06] (0.034)	-2.61e-06 [3.82e-06] (0.495)	-2.30e-06 [3.95e-06] (0.561)	-4.93e-06 [4.40e-06] (0.262)	-5.66e-06 [4.47e-06] (0.205)	8.28e-08 [4.44e-06] (0.985)	-1.58e-07 [4.53e-06] (0.972)
Acquired stake	Acquired stake (%)	-0.0015987* [0.0003602] (0.000)	-0.0017264* [0.0003859] (0.000)	-0.0008048** [0.0003583] (0.025)	-0.0009727** [0.0003848] (0.011)	-0.000754*** [0.0004192] (0.072)	-0.0010892** [0.0004519] (0.016)	0.000035 [0.0004148] (0.933)	-0.0002778 [0.0004493] (0.536)
Source of capital for M&A financing	Cash only (dummy)	0.2374932* [0.0269387] (0.001)	0.2426503* [0.0291143] (0.000)			0.2509395* [0.0314868] (0.000)	0.2424811* [0.034188] (0.000)		
	Share only (dummy)			-0.7414496* [0.0362423] (0.000)	-0.7988099* [0.0411387] (0.000)			-0.7573353* [0.0412166] (0.000)	-0.8012522* [0.0468263] (0.000)
Leveraged buyout	Leveraged buyout (dummy)	-0.8974115* [0.2640057] (0.001)	-0.7906115* [0.2754488] (0.004)	-0.9867702* [0.2671808] (0.000)	-0.8887655* [0.2786173] (0.001)	-0.9851602* [0.3343121] (0.003)	-0.8488627** [0.3484428] (0.015)	-1.128757* [0.3433878] (0.001)	-0.9914198* [0.3574151] (0.006)
Acquirer's size	Acquirer total assets ($m)	1.18e-06* [1.51e-07] (0.000)		1.16e-06* [1.52e-07] (0.000)		8.60e-07* [1.43e-07] (0.000)		8.49e-07* [1.44e-07] (0.000)	
	Acquirer long-term debt ($m)		5.11e-06* [9.81e-07] (0.000)		5.10e-06* [9.84e-07] (0.000)		4.44e-06* [1.18e-06] (0.000)		4.45e-06* [1.18e-06] (0.000)
Acquirer's business efficiency	Acquirer gross profit ($m)/ acquirer total assets					-0.0012713 [0.0018025] (0.481)	-0.0005033 [0.0014776] (0.733)	-0.0014615 [0.0031855] (0.504)	-0.0007308 [0.001757] (0.677)
Acquirer's fixed assets	Acquirer fixed assets ($m)/ acquirer total assets ($m)	-0.0026912 [0.0065534] (0.681)	-0.0073164 [0.0117127] (0.532)	-0.005467 [0.0110793] (0.622)	-0.0113257 [0.0154198] (0.463)				
Investment treaties	Number of bilateral investment treaties of the host country	0.0087986* [0.0003839] (0.000)	0.0093938* [0.0004195] (0.000)	0.0079907* [0.0003896] (0.000)	0.0086201* [0.0004257] (0.000)	0.0104575* [0.0004503] (0.000)	0.0111296* [0.0005016] (0.000)	0.0094926* [0.0004584] (0.000)	0.0102184* [0.0005103] (0.000)
	Observations	11,625	9,670	11,625	9,670	8,896	7,369	8,896	7,369
	Qui Square	851.7	733.83	1,235.94	1,087.37	765.61	657.45	1,075.28	935.99

Source: Own elaboration using Stata.

Note: The values in brackets are the standard errors and in curved parenthesis are the p-values. *p-value<0.01; **p-value<0.05; ***p-value<0.1.

Table 9: Hypothesis 3: Probit regressions (considering Hong Kong, Macao and Taiwan as emerging and developing economies)

Independent variables		Specifications							
		I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**
Acquirer's country	Emerging and developing economy (dummy)	-0.1420098* [0.0411683] (0.001)	-0.1499084* [0.0453472] (0.001)	-0.1251722* [0.0416406] (0.003)	-0.1260532* [0.0459446] (0.006)	-0.151548* [0.0499878] (0.002)	-0.124089** [0.0541296] (0.022)	-0.1263368** [0.0506414] (0.013)	-0.0942298*** [0.0548881] (0.086)
Tax breaks	Target tax haven (dummy)	2.071868* [0.3508698] (0.000)	2.134191* [0.4214206] (0.000)	1.964133* [0.3470298] (0.000)	2.947374* [0.4114224] (0.000)	1.896483* [0.3374228] (0.000)	2.546553* [0.5467304] (0.000)	1.838968* [0.3361746] (0.000)	2.546066* [0.5313454] (0.000)
Investment size	Deal value ($m)	-7.96e-06** [3.83e-06] (0.038)	-8.18e-06** [3.94e-06] (0.038)	-2.38e-06 [3.82e-06] (0.533)	-2.10e-06 [3.95e-06] (0.595)	-4.74e-06 [4.40e-06] (0.282)	-5.47e-06 [4.47e-06] (0.221)	3.03e-07 [4.45e-06] (0.946)	6.00e-08 [4.53e-06] (0.642)
Acquired stake	Acquired stake (%)	-0.0015638* [0.0003615] (0.000)	-0.0017115* [0.0003872] (0.000)	-0.0007668** [0.0003597] (0.033)	-0.0009507** [0.0003862] (0.014)	-0.000686 [0.0004205] (0.103)	-0.0010258** [0.0004533] (0.024)	0.0001008 [0.0004162] (0.809)	-0.0002093 [0.0004509] (0.642)
Source of capital for M&A financing	Cash only (dummy)	0.2410404* [0.0269232] (0.000)	0.2459727* [0.0291034] (0.000)			0.2575401* [0.0314516] (0.000)	0.2486491* [0.0341692] (0.000)		
	Share only (dummy)			-0.7435874* [0.0362225] (0.000)	-0.8010541* [0.0411183] (0.000)			-0.7622429* [0.041206] (0.000)	-0.8066129* [0.0468413] (0.000)
Leveraged buyout	Leveraged buyout (dummy)	-0.8830011* [0.2643171] (0.001)	-0.7768537* [0.2757604] (0.005)	-0.973193* [0.2674669] (0.000)	-0.8753944* [0.278917] (0.002)	-0.9675129* [0.3345863] (0.004)	-0.831861** [0.3486226] (0.017)	-1.11346* [0.3437539] (0.001)	-0.9759796* [0.3576926] (0.006)
Acquirer's size	Acquirer total assets ($m)	1.19e-06* [1.51e-07] (0.000)		1.18e-06* [1.52e-07] (0.000)		8.72e-07* [1.44e-07] (0.000)		8.65e-07 [1.45e-07] (0.000)	
	Acquirer long-term debt ($m)		5.19e-06* [9.82e-07] (0.000)		5.20e-06* [9.85e-07] (0.000)		4.60e-06* [1.18e-06] (0.000)		4.63e-06* [1.18e-06] (0.000)
Acquirer's business efficiency	Acquirer gross profit ($m)/ acquirer total assets					-0.0012852 [0.0018425] (0.485)	-0.0004893 [0.0014602] (0.738)	-0.0014838 [0.0022696] (0.513)	-0.0007129 [0.0017192] (0.678)
Acquirer's fixed assets	Acquirer fixed assets ($m)/ acquirer total assets ($m)	-0.0027783 [0.0069407] (0.689)	-0.0074916 [0.0118556] (0.527)	-0.0056733 [0.0112622] (0.614)	-0.115949 [0.0158122] (0.463)				
Investment treaties	Number of bilateral investment treaties of the host country	0.0087131* [0.0003831] (0.000)	0.0093101* [0.0004187] (0.000)	0.0079185* [0.0003889] (0.000)	0.0085528* [0.0004249] (0.000)	0.0102949* [0.0004484] (0.000)	0.0109839* [0.0004996] (0.000)	0.0093503* [0.0004565] (0.000)	0.0100965* [0.0005083] (0.000)
	Observations	11,625	9,670	11,625	9,670	8,896	7,369	8,896	7,369
	Qui Square	823.71	713.09	1,208.79	1,067.53	737.65	637.64	1,049.09	917.98

Source: Own elaboration using Stata.

Note: The values in brackets are the standard errors and in curved parenthesis are the p-values. *p-value<0.01; **p-value<0.05; ***p-value<0.1.

3.4. Data challenges and limitations

Even if after considering other alternatives the *Dealogic* database was undoubtedly the one found to be the most comprehensive and reliable for the objectives of this research, some limitations that impact on the analysis persist, and these should be acknowledged.

First of all, to establish whether a company (in this case, an acquirer) is a SOE or a POE, the variable "Acquirer Public Status" extracted from *Dealogic* had to be studied. According to *Dealogic*'s M&A Analytics User Guide[25], Acquirer's Public Status is defined as Acquirer's Ownership Status. SOEs are those companies for which the acquirer's public status is "Government"[26], and POEs are the other companies. The issue here is that, to be classified government-owned, *Dealogic* imposes 100% ownership. This means that *Dealogic* considers a very restrictive definition of SOEs, much more restrictive than definitions used in previous work by the OECD (OECD, 2013), by UNCTAD (UNCTAD, 2014) and by other authors (Sauvant and Strauss, 2012). All this prior literature accepts partial state ownership. This restrictive definition of SOEs will lead to an underestimation of the number and value of deals made by SOEs that ought to be borne in mind. Although we would have preferred to have also information about companies that have partial state ownership, this was not possible with this database. Still, the number of observations this research encompasses (206,140) gives us a great deal of confidence on the robustness of the results, even if they will manifestly underestimate the relevance of SOEs in overall M&A activity.

Two other limitations are also noteworthy. One, the fact that, as in all databases, the number of observations is asymmetric across variables. Notably, there are few observations for some financial variables. Notwithstanding, we used variables that had a number of observations that made us comfortable about the results.

[25] Further details about the *Dealogic* database can be obtained in www.dealogic.com.

[26] The variable "Acquirer Public Status" extracted from the *Dealogic* database assumes seven categories of acquirers: "Consortium", "Government (Not listed)", "Joint Venture", "Private (Not listed)", "Public (listed)", "Wholly-owned Subsidiary" and "Not applicable". M&A deals for which "Acquirer Public Status" is "Government (Not listed)" were classified as SOEs' investments and all other M&As were classified as POEs' investments.

Lastly, it is also important to note that there are other factors (in addition to those considered in our empirical study) that could possibly justify whether or not there is a home bias in M&A deals. Some of these factors are indicated in the next section.

In all, the *Dealogic* database suffers from limitations that are akin to all other databases; however, to the best of our knowledge, also validated by the OECD, *Dealogic* represented the most rigorous, complete and comprehensive database permitting to unveil the key aspects of the theme under scrutiny.

4. Conclusions and avenues for future research

The ultimate goal of this dissertation was to investigate whether there is a home bias in M&As, i.e. whether firms have greater predisposition to undertake domestic than cross-border M&A deals. Additionally, two other research questions were also formulated: "Is the home bias more predominant in M&As made by SOEs or in M&As made by POEs?" and "How does home bias in M&As differ between acquirers originating in developed economies and those from emerging and developing economies?".

Firstly, we addressed some of the most important concepts of this dissertation and presented the main theories on internationalization through IM&As – industrial organizational literature and international business theories (Uppsala model, eclectic paradigm, oligopolistic interaction theory, resource-based view and motivations for FDI). Subsequently, a literature review on home bias in M&As (mostly empirical) was developed, distinguishing SOEs from POEs and firms originating in developing economies from those located in emerging and developing economies. Based on the literature, on balance, it was expected that (i) there was a home bias in M&As (hypothesis 1); (ii) SOEs tended to have greater home bias in their M&A activity than POEs (hypothesis 2); and (iii) firms originating in developed economies tended to have a greater home bias in their M&A activity than those originating in emerging and developing economies (hypothesis 3).

Aiming to answer the formulated research questions (test the hypotheses stated above), we developed a quantitative approach, i.e. starting by performing an exploratory statistical analysis of the general patterns on M&A activity and subsequently performing binomial probability tests and developing an econometric study. The results are clear: according to our results, there is a home bias in M&As (it is a fact for every year under review and for the period between 1996 and 2013 as a whole). Moreover, contrary to what we were expecting, we found a strong evidence that i) SOEs' acquirers are more likely to undertake cross-border M&As than POEs' acquirers, i.e. SOEs tend to have a lower home bias in their M&A activity than POEs; and ii) firms located in emerging and developing economies are less likely to conduct cross-border M&As, i.e. they exhibit a greater home bias in their M&A activity than firms located in developed economies.

In addition to the findings stated above, we also found other interesting results such as: i) the acquired stake tends to be lower in cross-border M&As (as far as we are aware, there is no relevant literature addressing this issue so it constitutes an important finding); ii) M&A deals fully funded by cash are more likely to be cross-border deals and M&As fully funded by shares are more likely to be domestic deals; iii) leveraged buyout M&As are less likely to be cross-border deals; iv) larger firms tend to have a lower home bias in their M&A activity; v) firms located in countries with more BITs are more likely to be targeted in IM&A deals than firms located in countries with less BITs; and vi) firms located in tax haven economies are more likely to be targeted in IM&A deals than firms located in non-tax haven economies.

While this study is an important step towards answering the proposed research questions (as indicated throughout this dissertation, as far as we are aware, this kind of research focused specifically on home bias in M&As has never been done), there are plenty of aspects and opportunities to be addressed by future research. Firstly, it would be a major contribution to overcome some of the limitations of the dataset. One of the aspects that may be debatable is the use of a narrow, restrictive concept of SOEs (motivated by *Dealogic*'s definition), that considers only entities owned 100% by the government. That should be improved, and a broader definition should be adopted. Ideally, an excellent initiative that would add considerable value would be to include in a new dataset (complemented with data from diverse sources) data about SOEs that are partially government-owned. This would be an extremely labor-intensive challenge, but would undoubtedly permit a better coverage of the theme under analysis, and an exploration of eventual differences between "wholly-owned" and "partially owned" government-owned SOEs.

Lastly, it is also important to note that there are other factors (in addition to those considered in our empirical study) that could possibly justify whether or not there is a home bias in M&A deals. These factors were not taking into consideration in the analysis as they are not covered by *Dealogic*. The following stand out: geographical and asymmetric information aspects, acquirer's export experience; acquirer's age; legal environment; financial development in the host country; and investment promotion activities.

5. References

Acock, A. C. (2012), *A Gentle Introduction to Stata, Revised Third Edition*, Texas: Stata Press

Amighini, A. A., Rabellotti, R. and Sanfilippo, M. (2013), "Do Chinese state-owned and private enterprises differ in their internationalization strategies?", *China Economic Review*, 27, pp. 312-325

Barney, J. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, 17 (1), pp. 99-120

Berrill, J. and Kearney, C. (2010), "Firm-level internationalization and the home bias puzzle", *Journal of Economics and Business*, 62 (4), pp. 235-256

Brakman, S., Garretsen, H., Van Marrewijk, C. and Van Witteloostuijn, A. (2013), "Cross-border merger & acquisition activity and revealed comparative advantage in manufacturing industries", *Journal of Economics and Management Strategy*, 22 (1), pp. 28-57

Buckley, P. J. and Casson, M. C. (1976), *The Future of the Multinational Enterprise*, Homes and Meier: London

Caves, R. E. (1974), "Multinational firms, competition and productivity in host-country markets", *Economica*, 41 (162), pp. 176-193

Chen, C. and Findlay, C. (2003), "A review of cross-border mergers and acquisitions in APEC", *Asian-Pacific Economic Literature*, 17 (2), pp. 14-38

Chen, Y.-R., Huang, Y.-L. and Chen, C.-N. (2009), "Financing constraints, ownership control, and cross-border M&As: Evidence from nine East Asian economies", *Corporate Governance*, 17 (6), pp. 665-680

Cooper, I., Sercu, P. and Vanpée, R. (2012), "The equity home bias puzzle: A survey", *Foundations and Trends in Finance*, 7 (4), pp. 289-418

Coval, J. D. and Moskowitz, T. J. (1999), "Home bias at home: Local equity preference in domestic portfolios", *Journal of Finance*, 54 (6), pp. 2045-2073

Cui, L. and Jiang, F. (2012), "State ownership effect of firms' FDI ownership decisions under institutional pressure: A study of Chinese outward-investing firms", *Journal of International Business Studies*, 43 (3), pp. 264-284

De Santis, G. and Gerard, B. (1997), "International asset pricing and portfolio diversification with time-varying risk", *Journal of Finance*, 52 (5), pp. 1881-1912

di Giovanni, J. (2005), "What drives capital flows? The case of cross-border M&A activity and financial deepening", *Journal of International Economics*, 65 (1), pp. 127-149

Duanmu, J.-L. (2012), "Firm heterogeneity and location choice of Chinese multinational enterprises", *Journal of World Business*, 47, pp. 64-72

Dunning, J. H. (1977), *The International Allocation of Economic Activity*, pp. 395-418, B. Ohlin, P. Hesselborn & M. Wijkman Eds., London: Holmes & Meier

Dunning, J. H. and Lundan, S. M. (2008), *Multinational Enterprises and the Global Economy*, 2nd ed., Cheltenham: Edward Elgar

Eldor, R., Pines, D. and Schwartz, A. (1988), "Home asset preference and productivity shocks", *Journal of International Economics*, 25 (1-2), pp. 165-176

Flowers, E. B. (1976), "Oligopolistic reactions in European and Canadian direct investment in the United States", *Journal of International Business Studies*, 7, pp. 43-53

Globerman, S. and Shapiro, D. (2002), "Global foreign direct investment flows: The role of governance infrastructure", *World Development*, 30 (11), pp. 1899-1911

Government of Macao Special Administrative Region Statistics and Census Service (2013), http://www.dsec.gov.mo/getAttachment/1310df1c-dce8-4ff6-ba83-4a56ad187ca2/E_MN_PUB_2013_Y.aspx, accessed on September 2nd, 2015

Graham, E. M. (1975), *Oligopolistic Imitation and European Direct Investment in the United States*, D.B.A Dissertation, Harvard University

Green, M. B. (1990), *Mergers and Acquisitions. Geographical and Spatial Perspectives*, Routledge, London

Greene, W. H. (1997), *Econometric Analysis*, 3rd ed., Prentice-Hall, Upper Saddle River, New Jersey

Harding, T. and Javorcik, B. S. (2011), "Roll out the red carpet and they will come: Investment promotion and FDI inflows", *Economic Journal*, 121 (557), pp. 1445-1476

Hymer, S. (1976) (1960 dissertation), *The International Operations of Nation Firms: A Study of Foreign Direct Investment*, Cambridge, MLT Press

IMF (2014), *World Economic Outlook Database (April 2014)*, http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx, accessed on January 17th, 2015

IMF (2015), "Uneven grow: short- and long-term factors", *World Economic Outlook*, http://www.imf.org/external/pubs/ft/weo/2015/01/pdf/text.pdf, accessed on June 30th, 2015

Johanson, J. and Vahlne, J.-E. (1977), "The internationalization process of the firm – a model of knowledge development and increasing foreign market commitments", *Journal of International Business Studies*, 8 (spring/ summer), pp. 23-32

Johanson, J. and Wiedersheim-Paul, F. (1975), "The internationalization of the firm – four Swedish cases", *Journal of Management Studies*, October, pp. 305-322

Judge, G. G., Griffiths, W. E., Hill, R. C., Lutkepohl, H. and Lee, T.-C. (1985), *The Theory and Practice of Econometrics*, 2nd ed., John Wiley and Sons, New York

Keller, G. (2005), *Statistics for Management and Eco*nomics, 7ª ed., Duxbury, Belmont, CA.

Kling, G. and Weitzel, U. (2011), "The internationalization of Chinese companies: Firm characteristics, industry effects and corporate governance", *Research in International Business and Finance*, 25 (3), pp. 357-372

Knickerbocker, F. (1973), *Oligopolistic Reaction and Multinational Enterprise*, Cambridge, MA: Harvard University Press

Kowalski, P., Büge, M., Sztagerowska, M. and Egeland, M. (2012), "State-owned enterprises: Trade effects and policy implications", *OECD Trade Policy Paper No. 147*, Paris: Organisation for Economic Co-operation and Development

Lehto, E. (2006), "Motives to restructure industries: Finnish evidence of cross-border and domestic mergers and acquisitions", *Papers in Regional Science*, 85 (1), pp. 1-21

Luo, Y. and Tung, R. L. (2007), "International expansion of emerging market enterprises: A springboard perspective", *Journal of International Business Studies*, 38 (4), pp. 481-498

Maddala, G. S. (1983), *Limited-Dependent and Qualitative Variables in Econometrics*, Cambridge University Press, Cambridge

Moskalev, S. A. (2010), "Foreign ownership restrictions and cross-border markets for corporate control", *Journal of Multinational Financial Management*, 20 (1), pp. 48-70

Nielsen, L. (2011), "Classification of countries based on their level of development: How it is done and how it could be done", *IMF Working Paper*

Nutt, P. C. (2000), "Decision-making success in public, private and third sector organizations: Finding sector dependent best practices", *Journal of Management Studies*, 37 (1), pp. 76-108

OECD (2000), *Towards Global Tax Co-operation, Report to the 2000 Ministerial Council Meeting and Recommendation by the Committee on Fiscal Affairs*, http://www.oecd.org/ctp/harmful/2090192.pdf, accessed on August 23rd, 2015

OECD (2008), *OECD Benchmark Definition of Foreign Direct Investment*, Fourth edition

OECD (2013), *International Investments by SOEs: Economic Trends and the Policy Landscape*, DAF/INV/WD(2013)14, Paris: Organisation for Economic Co-operation and Development.

OECD (2014), *FDI in Figures (April 2004)* http://www.oecd.org/investment/FDI-in-Figures-April-2014.pdf, accessed on August 11th, 2015.

Penrose, E. T. (1959), *The Theory of the Growth of the Firm*, New York: John Wiley

Rossi, S. and Volpin, P. F. (2004), "Cross-country determinants of mergers and acquisitions", *Journal of Financial Economics*, 74 (2), pp. 277-304

Saunders, R.S. (1982), "The determinants of inter-industry variation of foreign ownership in Canadian manufacturing", *Canadian Journal of Economics*, 15 (1), pp. 77-84

Sauvant, K. P. and Chen, V. Z. (2014), "China's regulatory framework for outward foreign direct investment", *China Economic Journal*, 7 (1), pp. 141-163

Sauvant, K. and Strauss, J. (2012), *State-Controlled Entities Control Nearly US$2 Trillion in Foreign Assets*, Columbia FDI Perspective, no. 64, New York: Vale Columbia Center on Sustainable International Investment

Sutherland, D. and Ning, L. (2011), "Exploring 'onward journey' ODI strategies in China's private sector business, *Journal of Chinese Economic and Business Studies*, 9 (1), pp. 43-65

UNCTAD (2009), *World Investment Report 2009*, Geneva: United Nations Conference on Trade and Development

UNCTAD (2014), *World Investment Report 2014*, Geneva: United Nations Conference on Trade and Development

UNCTAD (2014a), *FDI Statistics*, http://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics.aspx, accessed on August 11th, 2015

UNCTAD (2015), *International Investment Agreements Navigator*, http://investmentpolicyhub.unctad.org/IIA, accessed on July 19th, 2015

UNSTATS (2015), *Standard Country or Area Codes for Statistical Use*, http://unstats.un.org/unsd/methods/m49/m49.htm, accessed on September 6th, 2015

UNSTATS (2015a), *Human Development Reports*, http://hdr.undp.org/en/rethinking-work-for-human-development, accessed on August 31st, 2015.

Wang, C., Hong, J., Kafouros, M. and Boateng, A. (2012), "What drives outward FDI of Chinese firms? Testing the explanatory power of three theoretical frameworks", *International Business Review*, 21 (3), pp. 425-438

Wei, Y., Zheng, N., Liu, X. and Lu, J. (2014), "Expanding to outward foreign direct investment or not? A multi-dimensional analysis of entry mode transformation of Chinese private exporting firms", *International Business Review*, 23 (2), pp. 356-370

6. Appendices

Appendix 1 – Countries' classification (developed economies vs. emerging and developing economies)

As *Dealogic* does not provide any information on countries' classification – as developed economies vs. emerging and developing economies (a key variable in this dissertation) – we had to take into account other sources.

Firstly, we decided to consider the IMF's classification[27]. The latest World Economic Outlook report (IMF, 2015) makes use of data from 189 economies, including Hong Kong (a Special Administrative Regions in China) and Taiwan (it is neither a Special Administrative Region nor a United Nation Member State). The IMF (IMF, 2015) classifies 37 of the 189 as developed economies and the remaining 152 as emerging/ developing economies.

Secondly, we used this approach to classify all acquirer's countries in *Dealogic* database. In *Dealogic*, the variable that allows knowing the acquirer's country is "Acquirer Nationality". This variable comprises 182 economies, however 19 were reclassified into their respective sovereign state as they are non-sovereign territories according to the United Nations[28]. These 19 economies are: Cook Islands and Tokelau (New Zealand); Greenland and Faroe Islands (Denmark); Guadeloupe and New Caledonia (France); Turks and Caicos Islands, Anguilla, Isle of Man, Guernsey, Gibraltar, Jersey, Cayman Islands, Virgin Islands (British) and Bermuda (United Kingdom); Aruba and Netherland Antilles (Netherlands); Virgin Islands (U.S.) and Puerto Rico (United States).

Following that, we noticed that in *Dealogic* database we had 4 countries not considered by the IMF (Andorra, Cuba, Liechtenstein and Monaco), so another source was used to categorize them. Andorra, Cuba and Liechtenstein were classified taking into account the 2013 Human Development Index (HDI) provided by the United Nations (UNSTATS, 2015a); and Monaco was classified considering its HDI in 2009 calculated

[27] As stated in section 2.1., the IMF identifies explicitly which economies are developed vs. emerging and developing.
[28] http://www.un.org/en/members/, accessed on September 6th, 2015.

by a United Nations' project[29] as United Nations does not calculate it. Moreover, some M&A deals in *Dealogic* have "Serbia and Montenegro" and "Palestinian territory" as "Acquirer Nationality". Both Serbia and Montenegro are emerging/ developing countries according to the IMF (IMF, 2015), so "Serbia and Montenegro" was classified as such as well. Palestinian territory[30] was classified taking into account the 2013 HDI calculated by the United Nations (UNSTATS, 2015a).

Finally, we categorize Hong Kong, Macao and Taiwan. Hong Kong and Taiwan were classified (as developed economies) using the IMF approach (IMF, 2015); and Macao was classified (as developed economy as well) taking into consideration the value of the HDI in 2011[31] calculated by the government of Macao (Government of Macao Special Administrative Region Statistics and Census Service, 2013)[32].

As these three economies are categorized as developed economies (according to the sources mentioned above) and, on the other hand, the United Nations considers them as part of an emerging/ developing economy (China), we decided to conduct estimations for both cases, i.e. considering them as developed economies (see table 8 in section 3.3.3.) and as emerging and developing economies (see table 9 in section 3.3.3.). In section 3.2.1. (General patterns on M&A activity – descriptive analysis), we adopted the first approach, i.e. we considered Hong Kong, Taiwan and Macao as developed economies.

In appendix 2, we present the list of economies considered by the IMF and its classification and, in appendix 3, the list of economies considered by *Dealogic* and its classification taking into account all aspects mentioned in this appendix.

[29] http://www.self.gutenberg.org/articles/Industrialized_nations#cite_note-UN_Escap-14, accessed on September 2nd, 2015.
[30] Palestine is not a United Nations Member State as it is a region that comprises primarily Israel, the West Bank, the Gaza Strip and small parts of Jordan.
[31] There was no later update.
[32] http://www.dsec.gov.mo/getAttachment/1310df1c-dce8-4ff6-ba83-4a56ad187ca2/E_MN_PUB_2013_Y.aspx, accessed on September 2nd, 2015.

Appendix 2 – List of economies considered by the IMF and its classification (IMF, 2015)

Developed economies					
1	Australia	14	Iceland	27	Portugal
2	Austria	15	Ireland	28	San Marino
3	Belgium	16	Israel	29	Singapore
4	Canada	17	Italy	30	Slovak Republic
5	Cyprus	18	Japan	31	Slovenia
6	Czech Republic	19	Korea	32	Spain
7	Denmark	20	Latvia	33	Sweden
8	Estonia	21	Lithuania	34	Switzerland
9	Finland	22	Luxembourg	35	Taiwan Province of China
10	France	23	Malta	36	United Kingdom
11	Germany	24	Netherlands	37	United States
12	Greece	25	New Zealand		
13	Hong Kong SAR	26	Norway		

Source: Own elaboration based on IMF (2015).

Emerging and developing economies					
1	Afghanistan	52	Ghana	103	Panama
2	Albania	53	Grenada	104	Papua New Guinea
3	Algeria	54	Guatemala	105	Paraguay
4	Angola	55	Guinea	106	Peru
5	Antigua and Barbuda	56	Guinea-Bissau	107	Philippines
6	Argentina	57	Guyana	108	Poland
7	Armenia	58	Haiti	109	Qatar
8	Azerbaijan	59	Honduras	110	Romania
9	The Bahamas	60	Hungary	111	Russia
10	Bahrain	61	India	112	Rwanda
11	Bangladesh	62	Indonesia	113	Samoa
12	Barbados	63	Islamic Republic of Iran	114	São Tomé and Príncipe
13	Belarus	64	Iraq	115	Saudi Arabia
14	Belize	65	Jamaica	116	Senegal
15	Benin	66	Jordan	117	Serbia
16	Bhutan	67	Kazakhstan	118	Seychelles
17	Bolivia	68	Kenya	119	Sierra Leone
18	Bosnia and Herzegovina	69	Kiribati	120	Solomon Islands
19	Botswana	70	Kosovo	121	South Africa
20	Brazil	71	Kuwait	122	South Sudan
21	Brunei Darussalam	72	Kyrgyz Republic	123	Sri Lanka
22	Bulgaria	73	Lao P.D.R.	124	St. Kitts and Nevis

Emerging and developing economies					
23	Burkina Faso	74	Lebanon	125	St. Lucia
24	Burundi	75	Lesotho	126	St. Vincent and the Grenadines
25	Cabo Verde	76	Liberia	127	Sudan
26	Cambodia	77	Libya	128	Suriname
27	Cameroon	78	FYR Macedonia	129	Swaziland
28	Central African Republic	79	Madagascar	130	Syria
29	Chad	80	Malawi	131	Tajikistan
30	Chile	81	Malaysia	132	Tanzania
31	China	82	Maldives	133	Thailand
32	Colombia	83	Mali	134	Timor-Leste
33	Comoros	84	Marshall Islands	135	Togo
34	Democratic Republic of the Congo	85	Mauritania	136	Tonga
35	Republic of Congo	86	Mauritius	137	Trinidad and Tobago
36	Costa Rica	87	Mexico	138	Tunisia
37	Côte d'Ivoire	88	Micronesia	139	Turkey
38	Croatia	89	Moldova	140	Turkmenistan
39	Djibouti	90	Mongolia	141	Tuvalu
40	Dominica	91	Montenegro	142	Uganda
41	Dominican Republic	92	Morocco	143	Ukraine
42	Ecuador	93	Mozambique	144	United Arab Emirates
43	Egypt	94	Myanmar	145	Uruguay
44	El Salvador	95	Namibia	146	Uzbekistan
45	Equatorial Guinea	96	Nepal	147	Vanuatu
46	Eritrea	97	Nicaragua	148	Venezuela
47	Ethiopia	98	Niger	149	Vietnam
48	Fiji	99	Nigeria	150	Yemen
49	Gabon	100	Oman	151	Zambia
50	The Gambia	101	Pakistan	152	Zimbabwe
51	Georgia	102	Palau		

Source: Own elaboration based on IMF (2015).

Appendix 3 – List of economies considered tax havens

Tax Havens					
1	Andorra	15	Grenada	29	Panama
2	Anguilla	16	Guernsey	30	Samoa
3	Antigua and Barbuda	17	Isle of Man	31	San Marino
4	Aruba	18	Jersey	32	Seychelles
5	Bahamas	19	Liberia	33	St. Lucia
6	Bahrain	20	Liechtenstein	34	St. Kitts & Nevis

Tax Havens					
7	Bermuda	21	Malta	35	St. Vincent and the Grenadines
8	Belize	22	Marshall Islands	36	Turks & Caicos Islands
9	Virgin Islands (British)	23	Mauritius	37	Virgin Islands (U.S.)
10	Cayman Islands	24	Monaco	38	Vanuatu
11	Cook Islands	25	Montserrat	39	Barbados
12	Cyprus	26	Nauru	40	Maldives
13	Dominica	27	Netherlands Antilles	41	Tonga
14	Gibraltar	28	Niue		

Source: Own elaboration based on OECD (2000).

Appendix 4 – Number of Bilateral Investment Treaties (BITs) by economy

Number of BITs					
Afghanistan	3	Ghana	26	Northern Mariana Islands	0
Albania	43	Gibraltar	0	Norway	15
Algeria	47	Greece	43	Occupied Palestinian territory	3
Andorra	0	Greenland	0	Oman	35
Angola	8	Grenada	2	Pakistan	46
Anguilla	0	Guadeloupe	0	Palau	0
Antigua and Barbuda	2	Guam	0	Panama	24
Argentina	58	Guatemala	20	Papua New Guinea	6
Armenia	42	Guinea	20	Paraguay	24
Aruba	0	Guinea-Bissau	2	Peru	29
Australia	21	Guyana	8	Philippines	37
Austria	62	Haiti	7	Pitcairn	0
Azerbaijan	47	Holy See	0	Poland	62
Bahamas	1	Honduras	11	Portugal	55
Bahrain	29	Hong Kong, China SAR	17	Puerto Rico	0
Bangladesh	29	Hungary	58	Qatar	51
Barbados	10	Iceland	9	Réunion	0
Belarus	60	India	84	Romania	82
Belgium	93	Indonesia	64	Russian Federation	73
Belize	7	Iran, Islamic Republic of	61	Rwanda	7
Benin	16	Iraq	7	Saint Helena	0
Bermuda	0	Ireland	0	Saint Kitts and Nevis	0
Bhutan	0	Isle of Man	0	Saint Lucia	2
Bolivia, Plurinational State of	16	Israel	38	Saint Pierre and Miquelon	0

Number of BITs					
Bosnia and Herzegovina	39	Italy	91	Saint Vincent and the Grenadines	2
Botswana	9	Jamaica	17	Samoa	0
Brazil	14	Japan	26	San Marino	9
British Virgin Islands	0	Jordan	54	Sao Tome and Principe	1
Brunei Darussalam	8	Kazakhstan	47	Saudi Arabia	24
Bulgaria	68	Kenya	14	Senegal	27
Burkina Faso	16	Kiribati	0	Serbia	52
Burundi	7	Korea, Dem. People's Rep. of	24	Seychelles	4
Cambodia	21	Korea, Republic of	90	Sierra Leone	3
Cameroon	17	Kuwait	75	Singapore	44
Canada	40	Kyrgyzstan	30	Slovakia	55
Cape Verde	8	Lao People's Democratic Republic	24	Slovenia	37
Cayman Islands	0	Latvia	44	Solomon Islands	0
Central African Republic	4	Lebanon	50	Somalia	2
Chad	14	Lesotho	3	South Africa	40
Channel Islands	0	Liberia	4	South Sudan	0
Chile	50	Libya	36	Spain	82
China	130	Liechtenstein	0	Sri Lanka	28
Christmas Island	0	Lithuania	54	Sudan	28
Cocos (Keeling) Islands	0	Luxembourg	93	Suriname	3
Colombia	14	Macao, China SAR	2	Swaziland	6
Comoros	6	Macedonia, The former Yugoslav Republic of	39	Sweden	69
Congo	14	Madagascar	9	Switzerland	118
Congo, Democratic Republic of the	16	Malawi	6	Syrian Arab Republic	42
Cook Islands	0	Malaysia	69	Taiwan Province of China	23
Costa Rica	21	Maldives	0	Tajikistan	34
Côte d'Ivoire	12	Mali	18	Tanzania, United Republic of	19
Croatia	57	Malta	22	Thailand	39
Cuba	59	Marshall Islands	1	Timor-Leste	3
Curaçao	0	Martinique	0	Togo	4
Cyprus	28	Mauritania	20	Tokelau	0
Czech Republic	79	Mauritius	41	Tonga	1
Denmark	55	Mayotte	0	Trinidad and Tobago	13
Djibouti	9	Mexico	29	Tunisia	54
Dominica	2	Micronesia, Federated States of	0	Turkey	89
Dominican Republic	14	Moldova, Republic of	41	Turkmenistan	25
Ecuador	18	Monaco	0	Turks and Caicos Islands	0
Egypt	102	Mongolia	43	Tuvalu	0

Number of BITs					
El Salvador	22	Montenegro	20	Uganda	15
Equatorial Guinea	9	Montserrat	0	Ukraine	74
Eritrea	4	Morocco	63	United Arab Emirates	46
Estonia	27	Mozambique	25	United Kingdom	104
Ethiopia	29	Myanmar	8	United States of America	46
Faeroe Islands	0	Namibia	14	United States Virgin Islands	0
Falkland Islands (Malvinas)	0	Nauru	0	Uruguay	31
Fiji	0	Nepal	6	Uzbekistan	50
Finland	72	Netherlands	96	Vanuatu	2
France	104	New Caledonia	0	Venezuela, Bolivarian Republic of	28
French Guiana	0	New Zealand	4	Viet Nam	60
French Polynesia	0	Nicaragua	17	Wallis and Futuna Islands	0
Gabon	14	Niger	5	Yemen	37
Gambia	16	Nigeria	25	Zambia	11
Georgia	32	Niue	0	Zimbabwe	30
Germany	134	Norfolk Island	0		

Source: Own elaboration based on UNCTAD (2015).

Appendix 5 – List of acquirer's countries and its classification – *Dealogic* database

Developed economies					
1	Australia	15	Ireland	29	Slovenia
2	Austria	16	Israel	30	South Korea
3	Belgium	17	Italy	31	Spain
4	Canada	18	Japan	32	Sweden
5	Cyprus	19	Latvia	33	Switzerland
6	Czech Republic	20	Lithuania	34	Taiwan
7	Denmark	21	Luxembourg	35	United Kingdom
8	Estonia	22	Malta	36	United States
9	Finland	23	Netherlands	37	Andorra
10	France	24	New Zealand	38	Cuba
11	Germany	25	Norway	39	Liechtenstein
12	Greece	26	Portugal	40	Macao
13	Hong Kong	27	Singapore	41	Monaco
14	Iceland	28	Slovak Republic		

Source: Own elaboration (see appendix 1).
Note: In the econometric study we make two approaches: considering Hong Kong, Macao and Taiwan as developed economies and as emerging and developing economies.

Emerging and developing economies					
1	Albania	42	Guatemala	83	Paraguay
2	Algeria	43	Guyana	84	Peru
3	Angola	44	Haiti	85	Philippines
4	Antigua and Barbuda	45	Honduras	86	Poland
5	Argentina	46	Hungary	87	Qatar
6	Armenia	47	India	88	Romania
7	Azerbaijan	48	Indonesia	89	Russian Federation
8	Bahamas	49	Iran	90	Rwanda
9	Bahrain	50	Iraq	91	Saint Lucia
10	Bangladesh	51	Jamaica	92	Saint Vincent and the Grenadin
11	Barbados	52	Jordan	93	Samoa
12	Belarus	53	Kazakhstan	94	Saudi Arabia
13	Belize	54	Kenya	95	Senegal
14	Benin	55	Kuwait	96	Serbia
15	Bolivia	56	Kyrgyzstan	97	Serbia and Montenegro
16	Bosnia and Herzegovina	57	Lebanon	98	Seychelles
17	Botswana	58	Liberia	99	Sierra Leone
18	Brazil	59	Libya	100	South Africa
19	Brunei Darussalam	60	Macedonia	101	Sri Lanka
20	Bulgaria	61	Madagascar	102	Sudan
21	Cambodia	62	Malawi	103	Swaziland
22	Cameroon	63	Malaysia	104	Syria
23	Chile	64	Mali	105	Tajikistan
24	China	65	Mauritania	106	Tanzania
25	Colombia	66	Mauritius	107	Thailand
26	Congo	67	Mexico	108	Togo
27	Congo, Democratic Republic of	68	Moldova	109	Trinidad and Tobago
28	Costa Rica	69	Mongolia	110	Tunisia
29	Cote D'Ivoire (Ivory Coast)	70	Montenegro	111	Turkey
30	Croatia	71	Morocco	112	Uganda
31	Dominican Republic	72	Mozambique	113	Ukraine
32	Ecuador	73	Myanmar	114	United Arab Emirates
33	Egypt	74	Namibia	115	Uruguay
34	El Salvador	75	Nepal	116	Uzbekistan
35	Equatorial Guinea	76	Nicaragua	117	Venezuela
36	Eritrea	77	Niger	118	Vietnam
37	Ethiopia	78	Nigeria	119	Yemen
38	Fiji	79	Oman	120	Zambia
39	Gabon	80	Pakistan	121	Zimbabwe
40	Georgia	81	Panama	122	Palestinian Territories
41	Ghana	82	Papua New Guinea		

Source: Own elaboration (see appendix 1).

Appendix 6 – Correlation matrix of the independent variables

	Deal value ($m)	Acquired stake (%)	Acquirer total assets ($m)	Acquirer long-term debt ($m)	Acquirer gross profit ($m)/ acquirer total assets ($m)	Acquirer fixed assets ($m)/ acquirer total assets ($m)	Cash only (dummy)	Share only (dummy)	Leveraged buyout (dummy)	Number of bilateral investment treaties by target country	SOE	Developed economy (dummy)	Target tax haven (dummy)
Deal value ($m)	1												
Acquired stake (%)	0.097	1											
Acquirer total assets ($m)	0.078	-0.1505	1										
Acquirer long-term debt ($m)	0.0595	-0.133	0.744	1									
Acquirer gross profit ($m)/ acquirer total assets ($m)	-0.0024	-0.0184	-0.0056	-0.0029	1								
Acquirer fixed assets ($m)/ acquirer total assets ($m)	-0.0028	-0.0223	-0.0059	-0.003	0.9302	1							
Cash only (dummy)	-0.0851	-0.2887	0.0993	0.0968	-0.0111	-0.0061	1						
Share only (dummy)	0.0905	0.2217	-0.0611	-0.0595	-0.009	-0.0103	-0.6159	1					
Leveraged buyout (dummy)	-0.0072	0.0156	0.0026	-0.0044	-0.0013	-0.0013	0.0045	-0.0216	1				
Number of bilateral investment treaties by target country	0.0519	0.1036	0.0482	0.0557	-0.0103	-0.012	0.0172	-0.1309	-0.0231	1			
SOE	0.0017	-0.0104	-0.0095	-0.0034	-0.0004	-0.0005	-0.0032	-0.016	-0.0043	0.0093	1		
Developed economy (dummy)	-0.0208	-0.0589	-0.0434	-0.0504	-0.0044	-0.0041	-0.0526	0.0155	-0.0196	0.081	-0.0094	1	
Target tax haven (dummy)	-0.0038	0.0048	0.0158	0.001	-0.0005	-0.0006	0.0021	-0.0026	-0.0024	-0.0461	-0.0022	0.0196	1

Source: Own elaboration using Stata.