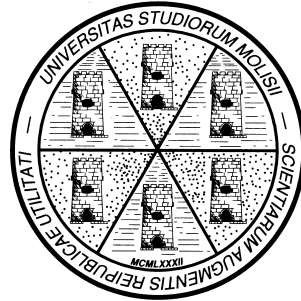


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**Cross-Border M&As in the Financial Sector:
Is Banking Different from Insurance?**

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CROSS-BORDER M&As IN THE FINANCIAL SECTOR: IS BANKING DIFFERENT FROM INSURANCE?*

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Abstract

This paper investigates what factors might help explain the internationalization strategy of banks and insurance companies, by comparing the determinants of cross-border M&As in the two sectors in a unified framework. The empirical analysis shows that between 1990 and 2003 the internationalization of banks and insurance companies followed similar patterns. Distance and economic and cultural integration are important determinants for both the banks' and the insurance companies' expansion abroad. Comparative advantage also has a prominent role, the more so for banks. The evidence is less supportive of the view that cross-border M&As are more frequent between similar countries, as predicted by the new trade theory. Finally, and most interestingly, we find indirect evidence consistent with the hypothesis that implicit barriers to foreign entry are more important in explaining the behavior of banks than that of insurance companies.

JEL-classification: E30, G21, G22, F21, F23

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1 Introduction

The worldwide integration of financial markets has reached a historical peak in recent years, favoring and indeed outpacing the increase in world trade. This evolution is part of the overall process of economic integration, prompted by the removal of institutional barriers (e.g., capital controls) that has led to an increase in portfolio transactions, in greenfield foreign direct investment (FDI) and in cross-border mergers and acquisitions (M&As) in all sectors of economic activity.

Firms have reacted to the intensification of competition in the internal and international markets by increasing their scale of operations. M&As have been particularly frequent in the financial sector, thanks to widespread deregulation that has permitted the integration of financial activities such as banking, asset management and insurance. According to Thomson Financial, the annual average number of M&As involving a financial company in the world increased from 954 between 1990 and 1995, to 1,556 between 1996 and 2000; it went back to 1,436 in the 2001-2003 period (table 1). The decline in recent years, which is linked with the slump in share prices, has been concentrated in the G10 countries¹, in Spain and in Australia (hereafter, this group of 13 countries will be conventionally designated as G10) where the annual average number of deals rose from 728 to 1,005 between the first two periods, and returned to 739 in the last period. In fact, the average in the non-G10 countries increased from 226 between 1990 and 1995 to 551 between 1996 and 2000, and to 697 between 2000 and 2003.

While mergers and acquisitions grew significantly, a sizeable and increasing share was cross-border (table 2). In particular, between 1990 and 1995, 14 per cent of all M&As with disclosed conditions were cross border, increasing to 20 per cent between 1996 and 2000 and to 22 per cent in the following three years. While the pattern was similar towards G10 countries, it was even faster towards non-G10s, where the share of cross-border M&As has been on average three times larger than that in the G10s (32 per cent in terms of number and 42 per cent in terms of value in the entire period under observation).

International mergers and acquisitions are one of the most important means used by financial firms to expand their activities across national borders; however, their incidence in the financial sector has been lower than in the manufacturing sector.² The incidence of cross-border M&As has not been

¹ Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, United Kingdom, United States.

² Focarelli and Pozzolo (2001) show that the share of cross-border over total M&As in the OECD countries varies significantly across sectors of economic activity. In the period 1990-1999, it was 12.9 per cent in the banking industry, 29.5 per cent in the insurance sector, and 35.3 per cent in manufacturing, the most internationalized.

uniform within the financial sector itself. Between 1990 and 2003, cross-border transactions in the insurance industry accounted for 30 per cent of all deals with disclosed conditions, significantly higher than the 14 per cent recorded in the banking sector.

A recent strand of literature has addressed themes related to cross-border flows of products or ownership in the financial services industry, focusing in general on the implications of foreign entry into local banking systems, either from the perspective of risk management by the investing firms or from that of host countries, skeptical about foreign entry (Goldberg, 2004). Much less attention has been paid to the fact that the insurance industry too has been experiencing significant deregulation and internationalization.³

In the following, we adopt an empirical framework similar to that of Berger et al. (2004), who test whether the pattern of financial institutions' cross-border M&As is better explained by the new trade theory, which stresses the role of similarities between countries, or by the Ricardian theory of comparative advantages. Our objective is to determine what factors might help explain the asymmetry in the patterns of internationalization between banking and insurance. Our empirical analysis is therefore conducted in a unified framework, but distinguishing between banks and insurance companies. It considers all countries involved in cross-border M&As in the financial sector between 1990 and 2003, allowing us to control for a wide set of home- and host-country characteristics affecting the pattern of internationalization.⁴

Our results show that the internationalization of banks and insurance companies follows similar patterns. Economic integration between the origin and the destination countries is an important determinant for both the banks' and the insurance companies' internationalization strategy. At the same time, comparative advantages also play a significant role, the more so for banks. Finally, and most interestingly, we find indirect evidence that implicit barriers to foreign entry are more important in explaining the behavior of banks than that of insurance companies.

The rest of the paper is organized as follows. Section 2 briefly surveys the major contributions of the literature on the patterns of internationalization in the banking and insurance sectors. Section 3 presents the empirical model, the econometric set-up and the data used in the empirical analysis. Section 4 presents the results of the empirical analysis. Section 5 concludes.

³ Only recently, Moshirian (1997 and 1999) and Ma and Pope (2003) have examined the determinants of international insurers' participations in foreign markets.

⁴ Cross-border M&As is a flow concept, while the degree of internationalization would be best measured by extant market shares. However, these data are not readily available, and considering the patterns of internationalization over a long time span, as we do, should suffice to convey a reliable description of each country's ability to manage banks and insurance companies.

2 The determinants of financial firms' internationalization

The process of internationalization in the financial industry has been the focus of a significant amount of research, both theoretical and empirical. Two aspects, in particular, have attracted the attention of researchers and policy makers: the overall patterns of internationalization in the financial sector, and the effects of the presence of foreign financial intermediaries for the host country.

Many authors have inquired into the effects of the presence of foreign financial enterprises for the host country. The interest in this line of research is motivated by the concern shown by policy makers when they see part of the financial sector in their country falling under the control of foreign investors. Indeed, much criticism has been directed in the past to the behavior of foreign financial enterprises, typically banks. For example, they have been accused of focusing on larger clients, thus reducing the availability of credit to small and medium enterprises; of leaving countries in financial distress, thus increasing the risk of a crisis; of amplifying the country's sensitivity to the world business cycle, with negative effects on the stability of the economy. Almost all these criticisms have been proven fallacious by empirical research,⁵ but there still remain a number of theoretical problems on how to conduct supervision on multinational financial institutions (Repullo, 2001; Calzolari and Loranth, 2003 and 2005).

A parallel strand of research, mainly empirical, has investigated the patterns of internationalization in the financial sector, focusing on why enterprises in one country choose to expand in another (see, among others, Buch, 2002; Buch and DeLong, 2004; Berger et al., 2004; Focarelli and Pozzolo, 2005). In this respect, many similarities have been found with foreign direct investment (FDI) in the manufacturing sector (Goldberg, 2004), although in the case of financial services, factors such as geographical and cultural proximity are more important than cost advantages in shaping the pattern of cross-border expansion.

As is clear from the foregoing discussion, much of the literature on internationalization in the financial services sector is focused on banking, while only a few papers have analyzed the determinants of cross-border expansion of insurance companies. In the following, we briefly survey the major results of these two strands of literature.

2.1 Banks

The empirical literature on bank internationalization is vast. The most recent contributions have contrasted the two major theories put forward in the past. On the one hand, the 'follow the client'

⁵ For a critical survey, see Goldberg (2004) and Pozzolo (2005).

thesis that banks' cross-border expansion is a by-product of internationalization in manufacturing because banks simply follow their home clients when they operate abroad. On the other hand, a more recent strand of literature emphasizes that in a number of cases the pattern of cross-border expansion is independent of the relationship with home country clients and is shaped instead by the opportunity for profit from financial services in the foreign market.

This debate has not reached a definitive conclusion. Indeed both explanations of the patterns of bank foreign expansion look important, possibly to a different degree depending on the countries considered. Many studies have found that integration between home and host countries – measured by geographical distance, by the volume of bilateral trade flows or bilateral FDI or by linguistic and institutional proximity – is one of the major determinants of the pattern of bank internationalization.⁶ The “follow the client” thesis, therefore, has strong empirical support although it seems more important in the case of expansion towards more developed countries.

With regard to profit opportunities, Focarelli and Pozzolo (2005) find that, within the OECD, banks are more likely to expand to countries where per-capita GDP is lower, the level of education is higher, credit and financial markets are larger and the rate of inflation is lower, all measures that are associated with higher expected economic growth. Magri et al. (2004) show that the relative profitability of the banking activity is a significant variable explaining foreign banks' presence in Italy. In decades past the search for profit opportunities was a more neglected hypothesis. Now it seems to find stronger support, the more so in the case of expansion towards lower and middle income countries with significant potential growth opportunities (for example, the former eastern European countries that joined the European Union recently or are expected to in the coming years).

Further, there is evidence that banks prefer to expand towards countries where the degree of competition with domestic banks is lower, for example because local banks are less efficient (Focarelli and Pozzolo, 2005), and where the institutional framework is more favorable to banking activities, because there is a high-quality legal and institutional set-up and little regulatory restriction on banking (Berger et al., 2003).

Finally, in an attempt to accommodate the empirical results within a sounder theoretical framework, Berger et al. (2004) have adopted a specification to compare the ability of the new trade theory to explain the patterns of financial enterprises' cross-border expansion with that of the more traditional theory of comparative advantages. In synthesis, the first suggests that FDI is more frequent when origin and destination countries are more similar, the second stresses instead the role of

⁶ A non exhaustive list, starting from contributions of the Eighties, includes Goldberg and Saunders (1980 and 1981), Ball and Tschoegl (1982), Nigh, et al. (1986), Goldberg and Johnson (1990), Grosse and Goldberg (1991), Sagari (1992), ter Wengel (1995), Brealey and Kaplanis (1996), Miller and Parkhe (1998), Yamori (1998), Williams (1998), Berger et al. (2003 and 2004), Buch (2000 and 2003), Buch and Delong (2004) and Focarelli and Pozzolo (2005).

differences in factor and skill endowments.⁷ Also in this case, the analysis, conducted pooling together all financial institutions, banks and insurance companies both, does not lead to a definitive conclusion. In fact, the authors find evidence consistent with both theories, suggesting that the patterns of bank cross-border expansion of financial companies is the outcome of multiple forces, possibly counteracting one another.

2.2 Insurance companies

There is a broad consensus among practitioners that high growth potential, especially in emerging economies, is one of the major factors attracting foreign insurers (Swiss Reinsurance Company, 2000), but academic analyses of the pattern of insurance companies' cross-border expansion are much scantier.⁸

In a series of papers, Moshirian has analyzed the pattern of FDI in the insurance industry (Moshirian, 1997 and 1999, and Li and Moshirian, 2004), showing that it is an increasing function of the national income of the country of destination, proxying for the potential demand for insurance services; of the size of the insurance market and of the overall financial development in the country of origin, a likely measure of the efficiency of the investor; and of the difference in wages and in the cost of capital between the origin and the destination countries, proxying for cost advantages. Most interesting, this empirical analysis shows that FDI in insurance is a complement of both trade in insurance services and of FDI in banking.

Ma and Pope (2003) have investigated the determinants of international insurers' activity in the non-life markets analyzing a panel of OECD countries. The results show that foreign insurers are more present in countries with higher GDP and when the integration between origin and destination countries, measured by bilateral manufacturing FDI, is stronger. They further show that foreign presence is higher in countries where competition, measured by market concentration, is stronger and,

⁷ See Markusen and Venables (1998) for a seminal work on the new trade theory of FDI. For a survey, see also Markusen (1995).

⁸ According to a study by Swiss Reinsurance (Sigma Re, 2000), three "push factors" and three "pull factors" can provide an explanation of the expansion of insurance companies towards less developed countries. The push factors are: a) the incentive to follow existing customers operating abroad, related to the surge in trade and foreign direct investment in the manufacturing sector (similar to the "follow the client" hypothesis in the case of foreign bank expansion; b) the higher expected economic growth in less developed countries; c) the possibility to benefit from efficiency gains from diversification and economies of scale. The pull factors are: a) the stronger demand for cover coming from developing countries, and related to strong economic growth and increasing international trade; b) the stronger capital requirements related to the increase in risks and more stringent solvency regulations; c) the requirement for more know-how intensive services.

in the case of less competitive markets, where liberal business-related policies gain stronger political support.⁹

A recent paper by Outreville (2005) uses rank correlation measures to study the foreign presence of the 30 largest transnational insurance corporations, finding that they are more likely to expand toward countries that are geographically closer, with larger market size, more efficient legal environment, more developed telecommunication systems and higher level of education.¹⁰

A parallel strand of literature has analyzed the determinants of the development of the insurance sector, mostly on a comparative basis.¹¹ A recent comprehensive study on a panel of 68 countries over the period 1961-2000 by Beck and Webb (2002) shows that the life insurance market is larger in countries with: higher income, a more developed banking sector, lower inflation and a higher old age dependency ratio.¹² Further, it is found that religious and institutional characteristics also have some explanatory power *via-à-vis* the cross-country differences in the level of development of the life insurance sector. Contrary to expectations, Beck and Webb (2002) have found that the level of schooling and, most surprising, life expectancy does not robustly affect the size of the market for life insurance.

Part of the evidence provided by Beck and Webb (2002) is consistent with the findings of the previous literature, and indeed Browne and Kim (1993), studying 45 under-developed and developed countries, showed that the size of the life insurance market is positively correlated with the level of income and negatively with inflation, while life expectancy at birth is not. Outreville (1996), studying 48 developing countries, also found that the life insurance market is larger in countries where the banking sector is more developed and where life expectancy at birth is higher. The relationship between real interest rates and the development of the life insurance market has also been analyzed by a number of authors, without reaching a consensus. Outreville (1996) found that the real interest rate and the lending rate are not significant determinants of the size of the life insurance market, while Rubayah and Zaidi (2000) showed that the interest rate offered by banks on normal saving is correlated negatively with the demand for life insurance, while lending rates on bank borrowing are not significantly correlated. De Panphillis (1977), using time series data for the US, Browne and Kim (1993), and Beenstock et al. (1986), using data from 10 OECD countries between 1970 and 1981, also

⁹ Ma and Pope (2003) also find that foreign presence is stronger in countries where profitability in the insurance sector is lower. This result is consistent with a higher level of competition, and therefore of accessibility of the foreign market, but the authors are cautious in providing this interpretation of their result.

¹⁰ Some authors have studied the effects of international mergers and acquisitions (M&As) in the banking sector and between banks and insurance companies. Cummins and Weiss (2004) find that cross-border M&As create on average small negative excess returns to the bidder company, and positive excess returns to the target, consistent with the evidence of Amihud et al. (2004) for cross-border M&As in banking. Fields et al. (2005) find that mergers between banks and insurance companies generate positive excess returns to the bidder company.

¹¹ For a survey, see Schlag (2003).

found that the development of the life insurance market is correlated negatively with the size of social security transfers. Finally, a time series study by Schwebler (1984) on German data shows that the size of the life insurance market is positively correlated with the saving rate.

Overall, the evidence on the determinants of the development of the insurance market, mostly in the life business, can supplement the scanty evidence on the determinants of cross-border activities in the insurance sector. Indeed, assuming that insurance companies are profit-maximizing firms, it seems reasonable to expect that, for given levels of competition and accessibility, they will expand towards countries with a higher expected rate of growth of the insurance market.

3 The empirical setup

3.1 The empirical model

As we stated in the introduction, our major objective is to discover the factors that can explain the asymmetry in the patterns of internationalization between banks and insurance companies. In order to do so, we borrow the empirical framework proposed by Berger et al. (2004), who consider as potential explanatory factors both similarities and differences between the home and host countries. This framework builds on two strands of theoretical literature. On the one hand, the traditional Ricardian theory of comparative advantages suggests that the characteristics of some nations should make their financial institutions more competitive than their foreign competitors, and therefore better equipped to expand abroad. On the other hand, the extension of the new trade theory to the analysis of foreign direct investments (Markusen and Venables, 1998) posits that more similar countries have a relatively larger share of bilateral FDI as opposed to trade. This argument should be even more compelling in the case of industries like banking and insurance, which are less likely to be able to export their products, (often non-tradable) and therefore are forced, if they want to exploit their superior skills, to do so through FDI.

The broad empirical predictions of the two theories are the following: a) firms operating in countries with more developed financial, banking and insurance systems should acquire firms in financially less developed countries (Ricardian advantage theory); b) countries with similar national characteristics should be more likely to have cross-border M&As (new trade theory).

We add one more dimension to this picture, namely the institutional framework in the country of destination, in order to test the hypothesis that foreign investors face stronger implicit barriers in acquiring the control of a bank than of an insurance company. We do so by exploring whether cross-border M&As in the insurance sector are more responsive than in the banking sector to the process of

¹² The old age dependency ratio is the share of the population aged 65 and older.

consolidation within a country. This view is consistent with the well established belief among practitioners and policy makers that banking is an industry in which “political economy and policy considerations matter a great deal” (Tschoegl, 2003).

In the empirical modeling, comparative advantages are proxied by an index of financial depth (stock market capitalization over GDP) and by measures of the development of the industry under consideration (banking and insurance). We also consider the values of total and per capita GDP in the origin and destination countries, consistent with the hypothesis that firms operating in larger and richer countries are more likely to have the size required to expand abroad (Focarelli and Pozzolo, 2001) and to be backed by sufficient political endorsement when trying to acquire a financial company in a foreign country or to avoid foreign entry.¹³ The degree of similarity, measured by an index built as in Berger et al. (2004),¹⁴ is calculated with reference to the characteristics of the financial markets and to per capita GDP. Finally, the degree of geographic, economic and cultural integration between the origin and destination countries is measured by the distance, the volume of bilateral trade and a dummy for common language.¹⁵

3.2 The econometric setup

In choosing the econometric setup we follow the empirical literature on FDI (e.g., Blonigen, 1997), setting as dependent variable the number of M&As from country i to country j . Because this variable is constrained to be a positive integer, the model does not satisfy the assumptions required for the application of standard ordinary least squares estimation, nor those of the Tobit, which allows non-integer values. In the econometric literature the modeling of positive integer variables customarily uses the Poisson regression model and, in case of overdispersion, the negative binomial regression model.¹⁶ Having in fact found evidence of overdispersion in the specifications adopted, we use a negative binomial regression model.¹⁷

¹³ The concept of political endorsement is quite difficult to define from a theoretical viewpoint or to measure empirically. It is nonetheless highly relevant, as is proved for example by the harsh debate on the contestability of European corporations in many so-called strategic sectors of economic activity (e.g., the cases ENEL/Gaz de France for energy, *Financial Times*, February 27th, 2006; ABN Amro/Antonveneta for banking, *Financial Times*, April 15th, 2005; Abertis/Autostrade for services, *Financial Times*, May 16th, 2006).

¹⁴ For a generic characteristic x , measured in countries i and j , the index is equal to: $1 - [\text{abs}(x_i - x_j) / \max(x_i, x_j)]$; it has a maximum value of 1 when the two countries are identical with respect to that characteristic and declines toward zero as they become more and more dissimilar.

¹⁵ Other variables (e.g., bilateral FDI in the manufacturing sector and common colonization) turned out to be not robust or not significantly different from zero in the specification search; see also the discussion in section 4.

¹⁶ See Cameron and Trivedi (1986) and, for a textbook description, Wooldridge (2001).

¹⁷ In unreported regressions we obtained similar results by using the Poisson regression model. Further, we checked that the empirical results were robust to a Tobit estimation, where the dependent variable is the ratio between the number of cross-border and total M&As in the destination country.

The dependent variable Y_{ij} , is defined as the number of cross-border M&As between country i of the bidder company and country j of the target company. We therefore estimate the following model:

$$Pr(Y_{ij} = y_{ij}) = \frac{e^{-v_{ij}\mu_{ij}} (v_{ij}\mu_{ij})^{y_{ij}}}{\Gamma(y_{ij} + 1)} \quad y_{ij} = 0, 1, 2, \dots, \quad (1)$$

and:

$$\mu_{ij} = e^{\beta' \mathbf{x}_{ij}} \quad (2)$$

where $\Gamma(y_{ij} + 1)$ is a Gamma distribution with mean 1 and variance α ; \mathbf{x}_{ij} is a matrix that includes vectors of characteristics of the bilateral relationship between country i and country j , of the country of the bidder company, i , or of the country of the target company, j . The product of the number of countries of origin and the number of potential countries of destination of the M&As gives the number of observations used in the estimation.

To test for the differences between the determinants of internationalization of banks and insurance companies, we estimate a unified model introducing dummies to allow for the effects of each variable to differ across the two groups.¹⁸

3.3 Data and summary statistics

Data on M&As

Data on M&As are from the Platinum Worldwide Mergers and Acquisitions Database of the Security Data Corporation (SDC). Each record includes general information about the target and acquiring firms, such as the country of residence and the SIC code of its primary economic activity. Records also include general information about the deal, such as value, effective date of realization and percentage acquired by the bidder, if conditions and terms of the transactions are disclosed. We include in our analysis all the transactions reported in SDC for which information is disclosed and that involve significant acquisition of value (defined in the database as “acquisition of a major interest”) as well as transactions that involve a change in control (defined in the database as “an acquisition that increases the stake of the acquiring institution from less than 50% to 50% or more of the ownership shares of the target institution”).

¹⁸ In practice, we pool the bank merger and insurance merger data and include the vector of right-hand-side arguments twice, once multiplied by a dummy that equals one for banks and once by a dummy that equals one for insurance companies.

We define a deal as cross-border when the nationalities of the target and the acquiring firms are different. This definition does not coincide with that of SDC, which refers to the nationality of the ultimate parent firm of the bidder institution, which we used instead in compiling tables 1 and 2.

We consider deals between 1990 and 2003. To limit the number of countries that in theory could host a target firm, but in practice are not significant hosts and therefore would add noise to our estimates, we restrict our sample in the following way: we define as potential host-countries those where at least 2 deals took place in both the insurance and the banking sectors between 1990 and 2003, ending up with 37 potential host-countries, and as origin-countries those countries where at least one local firm (financial or non-financial) was a bidder in a cross-border deal during the sample period, either in the financial or in the non-financial sector, ending up with 47 origin-countries. In total, we have 1,702 possible potential home- and host-country combinations.

Table 3 reports the breakdown by destination country of deals in all sectors of economic activity. We have 403 cross-border deals in the banking sector and 231 in the insurance sector (table 3, panel A). The ratio of the number of cross-border to domestic deals in the country of destination in the two sectors is respectively 8.0 per cent and 22.6 per cent (table 3, panel B). Interestingly, more than half of the cross-border M&As (349 deals) involved as target a bank or an insurance company located in a G10 country. For these countries, the share of cross-border M&As was 5.6 per cent in the banking sector and 17.6 per cent in insurance (respectively, 18.5 and 38.2 in the other destination countries).

In the banking sector, the destination countries with the smallest shares are Malaysia (2.2 per cent) and the United States (2.3); those with the largest shares are Poland (58.1 per cent) and Peru (50.0). In the insurance sector, the countries with the smallest shares are the United States (8.7 per cent) and Australia (13.0); those with the largest are Hong Kong (78.6 per cent) and Colombia, Lithuania, Poland and Peru (75.0). The unweighted average of the 37 countries' share of cross-border M&As is 26.7 per cent in the banking sector and 40.0 in the insurance sector.

In the banking sector, institutions from the United States were bidder in the largest number of cross-border deals (61), followed by those of the United Kingdom (26). Institutions from Canada, France, Netherlands, Singapore and Spain were bidder between 15 and 22 deals. The most common targets are in the United States (63), the United Kingdom (32), France (26) and Spain (17), but significant shares are also accounted for by countries such as Hong Kong (18), Poland (18) and Indonesia (15). In the insurance sector too the United States is home of institutions that were bidders in the largest number of cross-border deals (40), followed closely by the United Kingdom (36); Bermuda, Canada, France, Germany, Italy, Netherlands and Switzerland registered 10 to 20 deals, all the other countries fewer than 10. Here again most common targets were in the United States (35), the United Kingdom (24), France (14) and Spain (13).

Data on countries

Data on GDP are from the Penn World Tables, version 6.1 (Heston et al. 2002). Data on bank credit and stock market capitalization are from the World Bank database. Data on geographical distance, bilateral trade (the logarithm of the volume of bilateral trade) and common language are from Andrew Rose's web site.¹⁹ Insurance penetration is from Beck and Webb (2002), shareholder protection is from Rossi and Volpin (2004), and industry concentration, measured as the market share of the three largest companies, is from Beck et al. (2000) for banking and from the ISIS database of Bureau van Dijk for insurance.²⁰ All the variables are averages over the whole sample period, when available, or the longest available period; the most important variables all tend to have a high degree of cross-country variability (table 4).

4 Econometric results

4.1 Basic specification

Table 5 presents the results of the estimates of the basic specification of the empirical model described by equations (1) and (2). Panel A reports the marginal elasticities of the total number of bilateral cross-border M&As in the financial sector with respect to a change in each dependent variable; panels B and C those for banks and insurance companies, respectively; panel D the value of the test for the differences between the elasticities reported in panels B and C.²¹ Standard errors are calculated using the delta method. All estimations include fixed effects for the countries of origin and of destination, although the coefficients are not reported.²²

The results reported in panel A of table 5 confirm that financial sector M&As are more common between countries that are geographically closer and have stronger economic and cultural relationships. Cross-border M&As are more likely when the geographical distance between the countries is smaller (with an elasticity of -0.51), trade relationships are stronger (0.61) and when the same language is spoken (0.14). In this respect, similar results are obtained considering banks and

¹⁹ Data are available at <http://faculty.haas.berkeley.edu/arose/RecRes.htm>.

²⁰ Additional controls have been used in the specification search: common colonization and corporate taxation are from Rose's website, population and saving ratios from the Penn World Tables, version 6.1; the old age dependency ratio from the World Bank database; price earning ratios from Datastream; control premia from Morck et al. (2005); regulatory restrictions on domestic banking activities from Barth et al. (2000).

²¹ The marginal elasticities measure the percentage change in the number of cross-border M&As caused by 1 percentage-point change in the level of the dependent variable considered, all else being equal. As is customary in the literature, when the dependent variable only takes values zero and one, the elasticity is calculated with respect to a discrete change.

²² Due to multicollinearity problems, some country dummies were dropped from the estimation. All major results are confirmed also using less robust specifications (unreported) that exclude, respectively, origin country dummies, host country dummies, and both. The full set of results is available from the authors upon request.

insurance companies separately (panels B and C), although the effect of distance is considerably smaller for the insurance companies (-0.28 as opposed to -0.63, significantly different at the 10 per cent level).

The results are consistent with the findings of the previous literature, showing that the acquisition of foreign enterprises is more frequent when operating abroad is less costly, because economic links are already in operation, cultural barriers are less important and distance is smaller. However, these findings do not enable us to discriminate between the traditional Ricardian theory of comparative advantages and the new trade theory.

According to the new trade theory, cross-border M&As should be more likely within countries sharing similar characteristics in terms of financial and economic development. The results, reported in table 5, do not provide much evidence for this thesis. Countries with a similar level of GDP per capita, of stock market capitalization over GDP and of development in the insurance sector do not engage in a larger number of cross-border M&As in the financial sector as an aggregate (panel A), or considering banks (panel B) and insurance companies (panel C) separately. On the contrary, countries with more dissimilar development in the credit sector engage in a significantly higher number of cross-border M&As in the financial sector as an aggregate (with an elasticity of -0.77) as well as in banking alone (-0.24). The overall evidence seems therefore unsupportive of the new trade theory.

The Ricardian theory predicts that the number of operations should reflect the comparative advantages (disadvantages) of the bidders (targets), focusing therefore on the specific characteristics of the origin and destination countries. With respect to the characteristics of the origin countries, we find that the levels of total and per capita GDP have no significant effect on the overall number of cross-border M&As, in financial and in particular for banks. In the case of insurance companies there is some weak evidence that larger countries are more likely to originate cross-border M&As. Consistent with the Ricardian theory of comparative advantages, the development of the stock and credit markets have a positive and significant effect on the number of cross-border M&As, although the negative elasticity of the variable obtained interacting the size of the stock market with that of the credit sector shows that the two effects tend to cancel each other out.²³ In the case of insurance companies, the development of the stock market has a positive effect on the number of cross-border M&As, although it is smaller than in the case of banks; insurance penetration has an insignificant effect.

Turning to the characteristics of destination countries, we find additional evidence consistent with the Ricardian theory of comparative advantages. Countries with lower GDP per capita are more likely to see their financial institutions targets of cross-border M&As (with an elasticity of -0.75), the more so in the case of insurance companies (-1.05) than in that of banks (-0.66), although

the difference is not statistically significant. Moreover, although we find no direct evidence that financial companies, and in particular banks, are more likely to acquire or merge cross-border with companies hosted by countries with a more developed stock market, the positive elasticity of the variable obtained interacting the size of the stock market with that of the credit sector shows that their joint development can indeed have a positive effect in attracting FDI. On the contrary, in the insurance sector we find that countries with a more developed stock market are significantly less likely to have their companies target of cross-border M&As (with an elasticity of -0.28, significantly different from zero at the 10 per cent level). Finally, even after considering the positive effect of the joint development of the stock and credit markets, banks are more likely to expand towards countries where the credit sector is less developed. No such effect is found for insurance companies with respect to the size of the insurance sector.

The number of cross-border M&As is also significantly affected by the number of domestic operations in the country of destination. The effect is positive and significantly different from zero at the 1 per cent level when considering all financial companies together (with an elasticity of 0.54) and also when separately considering banks (0.43) and especially insurance companies (0.94). Moreover, the difference between the effects for banks and insurance companies is significantly different from zero at the 10 per cent level. As the total number of domestic M&As is an indirect measure of the degree of contestability in corporate ownership, these results show that the market for corporate control is more contestable for foreign investors in insurance than in banking. Our evidence is therefore consistent with the hypothesis that a “national champions” policy is more likely to prevail in the credit sector (Vives 2001; Carletti and Hartmann 2002), in that domestic M&As are typically encouraged by local authorities precisely in order to reduce the likelihood of foreign entries.

The estimates from the basic specification identify some preliminary regularities. First, distance and economic and cultural integration all have relevant effects, for both banks and insurance companies. Second, the prediction of the new trade theory that operations are more likely to take place between similar countries finds no support. Third, the predictions of the Ricardian theory of comparative advantages find stronger support, especially for banks. In particular, countries originating a larger number of cross-border M&As in the banking sector have more highly developed credit and stock markets, while in the case of insurance companies insurance penetration has no significant effects. Countries that are targets of a larger number of cross-border M&As have lower per capita and total GDP and smaller credit markets; also in this case, insurance penetration has no significant effects.

Finally, and most interesting, the elasticity of cross-border with respect to domestic M&As is much greater in the case of insurance companies than in that of banks, suggesting that implicit barriers

²³ The overall effect of an increase in the size of the stock market or of the credit market, evaluated at the sample

limiting the access of foreign companies are more relevant for the latter than for the former. In the following we will try to strengthen our case with some additional evidence that corroborates this interpretation.

4.2 Robustness checks

4.2.1 Sample splits and additional controls

To verify the robustness of our results, we have estimated the model in equations (1) and (2) for two different sub-samples: deals in which the destination country is one of the G10s and deals in which both countries are G10s. Following Rossi and Volpin (2004), we have added as an additional control a measure of the difference in the degree of shareholders' protection in the origin and destination countries.

We chose to analyze deals involving the G10s separately for two reasons. First, firm expansion patterns towards less developed countries have been found to respond frequently to different incentives than those between developed countries, and therefore our estimates on the whole sample could conceal important differences between the two groups. Second, and most interesting for the objective of this paper, the share of cross-border in total M&As in the financial sector is relatively smaller when the destination country is a member of the G10s (table 3).²⁴ As these countries are also among the most likely to have the political power needed to enforce implicit impediments to foreign entries, we think that they represent a natural laboratory for investigating whether such barriers have a significant effect in shaping the patterns of cross-border expansions in the financial sector.

As expected, the results of the estimates on the sample of M&As towards G10 countries show some interesting differences with respect to those of the basic specification (table 6, panels A-C). The dummy for countries sharing the same language is no longer significant, and the effect of distance remains significant only in the case of banks. More interestingly, and consistent with the Ricardian theory of comparative advantages, insurance companies are more likely to be involved in cross-border M&As if they come from countries with higher per capita GDP and, in particular, with greater insurance penetration. Finally, banks are more likely to merge or acquire targets in larger G10 countries, those with a higher total GDP. A possible explanation of this result, for which however we have no additional supporting evidence, is that larger countries have a higher number of potential

mean, is in any case positive.

²⁴ Clearly, due to the much larger number of M&As that took place in more developed countries, more than half of the total cross-border deals had as a destination one of the G10s.

targets and therefore a greater likelihood of access of foreign investors.²⁵ Aside from a more speculative interpretation of any single difference between the results obtained in the two samples, the basic message that bilateral linkages and comparative advantages have a stronger role than similarities in explaining the patterns of international expansion in the financial sector is indeed confirmed.

More interestingly, our proposed test for the presence of implicit barriers confirms the hypothesis put forward above. The elasticity of cross-border with respect to total M&As in the destination country is negative in the case of banking (-0.96), although it is only significantly different from zero at the 13 per cent level. On the contrary, the elasticity for insurance companies (0.63) is significantly different from zero (at the 5 per cent level) and it is not significantly different from 1 (at the 10 per cent level). Further, the difference between the two elasticities is significantly different from zero at the 5 per cent level. Banks seem therefore to find it more difficult than insurance companies to expand towards countries that, being politically powerful, are also likely to be more capable of shielding their credit sector from foreign acquisitions.

An alternative interpretation might be that G10 countries have some kind of comparative advantage with respect to foreign competitors, which is not measured by the controls introduced in our specification and is relevant only in the case of banks. However, if this were so, narrowing the sample to the cases in which the bidding bank is also located in a G10 country should make the negative elasticity of cross-border M&As with respect to domestic deals less significant, if not actually positive. To test the relevance of this alternative explanation we have estimated our model on a sample including only G10s as both origin and destination countries. The results, reported in panels C and D of table 6, provide further evidence of the presence of implicit barriers to foreign entry in the banking sector. The elasticity of cross-border to domestic M&As is in this case negative (-1.92) and significantly different from zero at the 5 per cent level for banks, while for insurance companies it is positive (0.57) and significantly different from zero at the 10 per cent level. The two elasticities are significantly different from each other at the 1 per cent level.²⁶ The opposition to foreign investors in

²⁵ Destination countries where the stock market is more developed are also found to have a higher number of cross-border M&As in banking. However, a similar but weaker result was found also for the entire sample, where the interaction variable obtained by multiplying the development of stock and credit markets had a positive and significant marginal effect.

²⁶ We also performed two unreported robustness checks. First, we found that the elasticities to the change of the total number of M&As for banks and insurance companies are positive and similar in size, when considering the sample where the bidder institution is from the non-G10 countries and the target is located in G10 countries. Second, we verified that the results are robust to the exclusion as independent variable of the index of similarity of per capita GDP, which is positive and significant only for banks (table 6, Panel D).

banking seems therefore to be more relevant when the threat of entry comes from countries with a comparable level of development and political power.²⁷

Finally, panels G and H of table 6 present the results of a specification that includes the measure of the difference between the degree of shareholders' protection between the origin and the destination countries, as proposed by Rossi and Volpin (2004).²⁸ Due to lack of data, the inclusion of these additional controls causes a loss of 462 observations. Our results show that both banks and insurance companies are not more likely to expand to countries where the protection of shareholders' rights is relatively stronger, possibly because these variables are highly correlated with other independent variables. As in the other cases, the other estimated elasticities are substantially unchanged.

The results presented in tables 5 and 6 have been confirmed by a number of additional specifications.²⁹ In particular, we have verified that higher control premia in the destination country have no significant effect on the number of bank or insurance M&As. Higher price/earning ratios in the destination country are associated with fewer M&As in the banking sector, plausibly because they imply higher acquiring prices, but this effect is not significant in the case of insurance companies. Finally, greater industry concentration in the destination country causes fewer M&As in the banking sector, while again the effect is not significant in insurance. As more concentrated industries are typically more capable of opposing barriers to entry, this result further corroborates our view that cross-border M&As in banking encounter stronger obstacles than in other sectors of economic activity. In all these cases, the other estimated elasticities are substantially unchanged.

4.2.2 Intensive and extensive margins

For the large majority of country pairs in our sample there were no cross-border M&As in the sample period analyzed either in banking or in insurance. This suggests that the results of our analysis might be driven more by the number of countries having at least one bilateral relationship – which we call the “extensive margin” – than by the relative number of M&As across country pairs – the “intensive margin”. In order to address this issue, we have estimated the model in equations (1) and (2) on the sub-sample of 308 country-pairs having at least one cross-border M&A, including a Heckman correction term accounting for the sample selection bias.³⁰

²⁷ These results also show some differences with respect to those of the previous specifications. However, as before, bilateral linkages and comparative advantages are confirmed to have the most important role in explaining the patterns of internationalization of financial companies, especially in the case of banks.

²⁸ The index is computed as the product of rule of law and anti-director rights, from La Porta et al. (1998), divided by ten, and ranges between zero and six.

²⁹ The results are available from the authors upon request.

³⁰ The results, unreported, are available from the authors upon request.

The results of the probit estimates obtained from the first step of the Heckman procedure showed that the probability that a country pair registering at least one cross-border M&A during the sample period is affected by the same determinants as the overall number of operations. The extensive margin seems therefore to have an important role in shaping the pattern of cross-border M&As in the banking and insurance sectors. Moreover, these results are confirmed also in the case of the sub-sample of operations towards the G10s.

The results of the estimates of the negative binomial specification on the sub-sample of country-pairs with at least one cross-border M&A are also similar to those obtained from the estimation of the model on the whole sample, suggesting that the determinants of the intensive margins also have a significant effect on the overall patterns of internationalization. Two differences are however worth emphasizing. First, the elasticity of cross-border with respect to domestic M&As turns out not to be significantly different from zero for both banks and insurance companies, showing that the differences in such elasticities in the basic specification are driven by the extensive margin, possibly because implicit barriers affect the probability of foreigners entering a country more than the extent of the possible access.³¹

Second, the coefficient of the Mill's ratio, measuring the effect of excluding country pairs with no bilateral M&As, is positive and significantly different from zero for banks; it is not significantly different from zero for insurance companies.³² This suggests that in banking the number of cross-border M&As in a country pair that has at least one M&A is larger than the average number of M&As based on observable characteristics only. In other words, the positive coefficient indicates that those country pairs that have at least one bank M&A are on average more likely to have other operations.

5 Conclusion

Our empirical analysis shows that the internationalization of banks and of insurance companies follows largely similar patterns. Geographical distance and economic and cultural integration all have relevant effects, for both types of financial companies. Comparing the predictions of the new trade theory that M&As should be more likely to take place between countries of similar levels of economic and financial development with that of the traditional Ricardian theory of comparative advantages, the evidence strongly favors the latter, especially for banks. Countries originating a larger number of cross-border M&As in the banking sector have more highly developed credit markets and stock

³¹ In the case of the sub-sample of M&As involving only G10s as destination countries, the extensive margin does remain significant: the marginal elasticity of cross-border with respect to domestic M&As is negative and significantly different from zero for banks, while it is not significant for insurance companies.

³² The result is confirmed in the case of the sub-sample of M&As towards G10s.

markets; those that are targets of larger numbers of operations have lower per capita and total GDP and smaller credit markets. This evidence is weaker in the case of insurance companies.

Most interestingly, our results support the hypothesis that implicit barriers to foreign entry are more important in explaining the behavior of banks than of insurance companies. In particular, the elasticity of cross-border with respect to domestic M&As, which we take as a measure of the accessibility of domestic markets to foreign investors, is greater for insurance companies than for banks, suggesting that implicit barriers limiting the access of foreign companies are more relevant for the latter than for the former. Moreover, even after controlling for country-specific characteristics, accessing a G10 country, which is likely to have stronger political power, is relatively easier for an insurance company than for a bank. The “national champions” hypothesis that national authorities are inclined to promote domestic mergers in order to reduce the likelihood of foreign takeovers, seems therefore more a banking than an insurance matter.

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Table 1**M&As in the financial sector**

Source: Thomson Financial , SDC Platinum

| | Total (1) | Banks (2) | | Insurance Companies (3) | |
|----------------------------|-----------|-----------|-------|-------------------------|-------|
| | (a) | (b) | (b/a) | (c) | (c/a) |
| 1990-1995: yearly averages | | | | | |
| Number | 954 | 561 | 59 | 129 | 14 |
| Number (disclosed) | 505 | 332 | 66 | 58 | 12 |
| Value \$ mln. | 76,824 | 56,711 | 74 | 10,358 | 13 |
| 1996-2000: yearly averages | | | | | |
| Number | 1,556 | 780 | 50 | 215 | 14 |
| Number (disclosed) | 866 | 492 | 57 | 106 | 12 |
| Value \$ mln. | 360,825 | 243,333 | 67 | 65,030 | 18 |
| 2001-2003: yearly averages | | | | | |
| Number | 1,436 | 594 | 41 | 155 | 11 |
| Number (disclosed) | 747 | 338 | 45 | 72 | 10 |
| Value \$ mln. | 178,194 | 110,632 | 62 | 33,552 | 19 |
| 1990-2003: overall values | | | | | |
| Number | 17,813 | 9,046 | 51 | 2,312 | 13 |
| Number (disclosed) | 9,604 | 5,462 | 57 | 1,094 | 11 |
| Value \$ mln. | 2,799,653 | 1,888,828 | 67 | 487,952 | 17 |

Table 2**Cross-Border M&As in the financial sector
(percentages)**

Source: Thomson Financial , SDC Platinum

| | 1990-1995 | 1996-2000 | 2001-2003 | 1990-2003 |
|---------------------|-----------|-----------|-----------|-----------|
| Total | | | | |
| Number | 16.5 | 21.8 | 22.0 | 20.1 |
| Number (disclosed) | 13.7 | 19.7 | 21.9 | 18.3 |
| Value \$ mln. | 11.4 | 18.7 | 23.1 | 18.3 |
| Banks | | | | |
| Number | 12.1 | 16.2 | 19.2 | 15.3 |
| Number (disclosed) | 9.8 | 14.6 | 19.4 | 13.8 |
| Value \$ mln. | 8.3 | 11.0 | 25.1 | 13.0 |
| Insurance Companies | | | | |
| Number | 28.1 | 35.6 | 32.0 | 32.4 |
| Number (disclosed) | 24.1 | 33.2 | 30.7 | 29.8 |
| Value \$ mln. | 25.9 | 31.9 | 23.0 | 29.3 |

Table 3

Cross-border M&A's Distribution by Country

Source: Thomson Financial , SDC Platinum.

| Country | Panel A: Number of cross border M&As | | | | Panel B: % of total M&As | | | |
|------------------------------------|---|------------------------|----------------|-------|-----------------------------|------------------------|----------------|-------|
| | Banks | Insurance Companies | Other firms | Total | Banks | Insurance companies | Other firms | Total |
| Argentina | 11 | 4 | 142 | 157 | 35.5 | 36.4 | 55.9 | 53.0 |
| Australia | 13 | 3 | 317 | 333 | 13.1 | 13.0 | 23.0 | 22.2 |
| Belgium | 9 | 6 | 86 | 101 | 34.6 | 66.7 | 57.3 | 54.6 |
| Brazil | 14 | 5 | 166 | 185 | 35.0 | 71.4 | 47.4 | 46.6 |
| Canada | 8 | 7 | 577 | 592 | 7.3 | 23.3 | 20.5 | 20.0 |
| Chile | 5 | 4 | 88 | 97 | 38.5 | 44.4 | 61.5 | 58.8 |
| Colombia | 6 | 3 | 32 | 41 | 37.5 | 75.0 | 61.5 | 56.9 |
| Denmark | 5 | 2 | 83 | 90 | 38.5 | 22.2 | 49.1 | 47.1 |
| Estonia | 2 | 2 | 20 | 24 | 28.6 | 33.3 | 40.0 | 38.1 |
| Finland | 3 | 1 | 82 | 86 | 20.0 | 14.3 | 29.4 | 28.6 |
| France | 26 | 14 | 416 | 456 | 22.8 | 50.0 | 44.6 | 42.4 |
| Germany | 13 | 6 | 390 | 409 | 29.5 | 31.6 | 63.7 | 60.6 |
| Hong Kong | 18 | 11 | 288 | 317 | 15.5 | 78.6 | 32.5 | 31.2 |
| Indonesia | 15 | 6 | 109 | 130 | 48.4 | 54.5 | 54.2 | 53.5 |
| Ireland | 8 | 2 | 113 | 123 | 53.3 | 25.0 | 60.1 | 58.3 |
| Israel | 2 | 1 | 72 | 75 | 15.4 | 16.7 | 39.3 | 37.1 |
| Italy | 10 | 8 | 194 | 212 | 6.7 | 21.1 | 32.7 | 27.1 |
| Japan | 7 | 11 | 86 | 104 | 5.8 | 28.2 | 6.7 | 7.2 |
| Lithuania | 7 | 3 | 28 | 38 | 87.5 | 75.0 | 58.3 | 63.3 |
| Malaysia | 8 | 5 | 107 | 120 | 2.2 | 17.2 | 6.8 | 6.1 |
| Mexico | 13 | 6 | 89 | 108 | 38.2 | 37.5 | 53.0 | 49.5 |
| Morocco | 1 | 1 | 9 | 11 | 25.0 | 33.3 | 60.0 | 50.0 |
| Netherlands | 7 | 7 | 204 | 218 | 36.8 | 63.6 | 61.8 | 60.6 |
| Norway | 4 | 2 | 129 | 135 | 10.8 | 22.2 | 39.0 | 35.8 |
| Peru | 5 | 3 | 38 | 46 | 50.0 | 75.0 | 57.6 | 57.5 |
| Philippines | 7 | 6 | 68 | 81 | 22.6 | 42.9 | 43.6 | 40.3 |
| Poland | 18 | 6 | 178 | 202 | 58.1 | 75.0 | 46.5 | 47.9 |
| Portugal | 6 | 3 | 44 | 53 | 16.2 | 42.9 | 32.4 | 29.4 |
| Singapore | 8 | 4 | 163 | 175 | 17.0 | 30.8 | 26.2 | 25.6 |
| South Africa | 5 | 3 | 112 | 120 | 11.1 | 13.0 | 20.4 | 19.4 |
| South Korea | 4 | 5 | 75 | 84 | 22.2 | 55.6 | 26.1 | 26.8 |
| Spain | 17 | 13 | 183 | 213 | 27.4 | 44.8 | 35.4 | 35.0 |
| Switzerland | 5 | 2 | 103 | 110 | 15.6 | 50.0 | 66.5 | 57.6 |
| Thailand | 10 | 1 | 103 | 114 | 27.0 | 14.3 | 40.2 | 38.0 |
| United Kingdom | 32 | 24 | 895 | 951 | 9.6 | 17.1 | 18.9 | 18.3 |
| United States | 66 | 35 | 1,494 | 1,595 | 2.3 | 8.7 | 12.2 | 10.2 |
| Venezuela | 5 | 6 | 33 | 44 | 22.7 | 54.5 | 62.3 | 51.2 |
| All countries | | | | | | | | |
| -- weighted average | 403 | 231 | 7,316 | 7,950 | 8.0 | 22.6 | 22.0 | 20.2 |
| -- unweighted average | 11 | 6 | 198 | 215 | 26.7 | 40.0 | 41.8 | 39.6 |
| G10 destination countries | 213 | 136 | 4,945 | 5,294 | 5.3 | 17.6 | 19.2 | 17.3 |
| Other destination countries | 190 | 95 | 2,371 | 2,656 | 18.5 | 38.2 | 32.0 | 30.6 |

Table 4

Country Summary Statistics

Source: Bank Credit/GDP and Stock market capitalization are from the World Bank data base; Insurance penetration is from Beck and Webb (2002). GDP per capita and population (GDP is calculated) are from: Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP), October 2002.

| Country | Bank credit/ GDP | Insurance penetration | Stock market capi- talization/GDP | GDP per capita (\$) | GDP (billion \$) |
|-----------------|---------------------|--------------------------|--------------------------------------|------------------------|---------------------|
| Argentina | 0.202 | 0.021 | 0.421 | 11,171 | 381 |
| Australia | 0.824 | 0.083 | 0.889 | 24,400 | 442 |
| Austria | 1.006 | 0.054 | 0.158 | 22,459 | 177 |
| Belgium | 0.766 | 0.064 | 0.657 | 22,392 | 226 |
| Brazil | 0.283 | 0.022 | 0.317 | 6,941 | 1,104 |
| Canada | 0.653 | 0.064 | 0.947 | 24,953 | 731 |
| Chile | 0.561 | 0.033 | 0.840 | 9,557 | 136 |
| China | 1.130 | 0.017 | 0.311 | 3,303 | 3,960 |
| Colombia | 0.193 | 0.021 | 0.154 | 5,506 | 213 |
| Denmark | 0.805 | 0.064 | 0.537 | 25,335 | 132 |
| Ecuador | 0.330 | 0.006 | 0.070 | 3,705 | 42 |
| Estonia | 0.226 | 0.015 | 0.184 | 8,599 | 13 |
| Finland | 0.554 | 0.078 | 1.346 | 21,647 | 110 |
| France | 0.849 | 0.082 | 0.724 | 21,216 | 1,226 |
| Germany | 1.148 | 0.063 | 0.481 | 21,875 | 1,768 |
| Hong Kong | 1.589 | 0.045 | 3.022 | 25,651 | 159 |
| Indonesia | 0.345 | 0.010 | 0.249 | 3,716 | 714 |
| Ireland | 0.918 | 0.093 | 0.618 | 22,197 | 82 |
| Israel | 0.789 | 0.053 | 0.489 | 16,563 | 91 |
| Italy | 0.677 | 0.047 | 0.438 | 21,202 | 1,213 |
| Japan | 1.120 | 0.113 | 0.669 | 24,272 | 3,039 |
| Korea, Rep. | 0.703 | 0.109 | 0.392 | 14,647 | 658 |
| Kuwait | 0.508 | 0.008 | 0.688 | 23,386 | 51 |
| Latria | 0.156 | 0.017 | 0.057 | 6,902 | 17 |
| Lithuania | 0.120 | 0.009 | 0.111 | 6,952 | 25 |
| Luxembourg | 1.062 | 0.039 | 1.609 | 39,612 | 16 |
| Malaysia | 0.952 | 0.043 | 1.630 | 9,486 | 196 |
| Mexico | 0.182 | 0.015 | 0.250 | 7,921 | 718 |
| Morocco | 0.470 | 0.025 | 0.303 | 3,755 | 99 |
| Netherlands | 1.267 | 0.091 | 1.274 | 22,905 | 353 |
| New Zealand | 1.061 | 0.060 | 0.507 | 18,066 | 67 |
| Norway | 0.658 | 0.042 | 0.370 | 26,261 | 116 |
| Oman | 0.370 | 0.011 | 0.237 | 16,668 | 33 |
| Peru | 0.233 | 0.011 | 0.233 | 4,548 | 108 |
| Philippines | 0.403 | 0.014 | 0.608 | 3,292 | 226 |
| Poland | 0.241 | 0.024 | 0.124 | 8,465 | 325 |
| Portugal | 1.130 | 0.052 | 0.448 | 14,702 | 148 |
| Singapore | 1.044 | 0.054 | 1.520 | 24,939 | 87 |
| South Africa | 0.657 | 0.139 | 1.573 | 7,475 | 296 |
| Spain | 0.905 | 0.051 | 0.654 | 16,803 | 667 |
| Sweden | 0.577 | 0.057 | 1.082 | 22,175 | 193 |
| Switzerland | 1.602 | 0.109 | 2.293 | 25,381 | 175 |
| Thailand | 0.953 | 0.025 | 0.404 | 6,754 | 393 |
| Trinidad & Tob. | 0.297 | 0.053 | 0.533 | 9,775 | 13 |
| United Kingdom | 1.246 | 0.120 | 1.529 | 21,180 | 1,233 |
| United States | 0.582 | 0.088 | 1.341 | 31,179 | 8,290 |
| Venezuela | 0.093 | 0.020 | 0.080 | 6,731 | 148 |
| Mean | 0.690 | 0.050 | 0.710 | 15,886 | 651 |
| Median | 0.658 | 0.047 | 0.507 | 16,668 | 193 |
| Min | 0.093 | 0.006 | 0.057 | 3,292 | 13 |
| Max | 1.602 | 0.139 | 3.022 | 39,612 | 8,290 |

Table 5

The Determinants of Cross-border M&As

Marginal effect calculated from a negative binomial estimation of the empirical model in equations (1) and (2). The dependent variable is the number of cross-border M&As in the financial, banking and insurance sectors between each country pair where at least 2 mergers have taken place in the sample period (1990-2003). Variables are defined in section 3.3 of the main text. For each a generic variable x , measured in countries i and j , the similarity index is calculated as: $1 - [\text{abs}(x_i - x_j) / \max(x_i, x_j)]$. The estimate also includes unreported country dummies. Standard errors are corrected for heteroskedasticity using the White (1980) procedure. The symbol *** indicates a significance level of 1% or less; ** between 1 and 5%; * between 5 and 10%.

| VARIABLES | Full sample | | | | | | | |
|---|--|--------------|-----------------------------------|--------------|-----------------------------------|--------------|-----------------------------|--------------|
| | Panel A: All financial institutions | | Panel B: Banks | | Panel C: Insurance companies | | Panel D: Difference test | |
| | Marginal effect (Std. err.) | Significance | Marginal effect (Std. err.) | Significance | Marginal effect (Std. err.) | Significance | χ^2 | Significance |
| <u>Bilateral characteristics</u> | | | | | | | | |
| Logarithm of bilateral trade | 0.61 *** (0.10) | | 0.61 *** (0.12) | | 0.59 *** (0.11) | | 0.01 | |
| Logarithm of distance | -0.51 *** (0.10) | | -0.63 *** (0.12) | | -0.28 ** (0.14) | | 3.53 * | |
| Common language (dummy) | 0.14 *** (0.03) | | 0.08 *** (0.02) | | 0.05 *** (0.02) | | 0.89 | |
| Similar GDP per capita | 0.32 (0.23) | | 0.18 (0.11) | | 0.25 * (0.14) | | 0.17 | |
| Similar stock market | 0.10 (0.15) | | 0.02 (0.09) | | 0.10 (0.09) | | 0.43 | |
| Similar credit market | -0.77 *** (0.18) | | -0.24 ** (0.11) | | | | | |
| Similar insurance market | 0.34 (0.22) | | | | 0.09 (0.14) | | | |
| <u>Origin country characteristics</u> | | | | | | | | |
| Logarithm of per capita GDP | -0.05 (0.21) | | -0.01 (0.22) | | 0.12 (0.30) | | 0.13 | |
| Logarithm of total GDP | 0.16 (0.11) | | 0.00 (0.10) | | 0.21 * (0.12) | | 1.76 | |
| Stock market capitalization / GDP | 1.78 *** (0.45) | | 1.27 *** (0.27) | | 0.35 *** (0.11) | | 9.96 *** | |
| Credit to private sector / GDP | 1.57 *** (0.43) | | 1.09 *** (0.26) | | | | | |
| Interaction (Credit * Stock market) | -1.28 *** (0.31) | | -1.17 *** (0.19) | | | | | |
| Insurance market penetration | -0.37 * (0.22) | | | | 0.02 (0.11) | | | |
| <u>Destination country characteristics</u> | | | | | | | | |
| No. of M&As | 0.54 *** (0.13) | | 0.43 *** (0.16) | | 0.94 *** (0.21) | | 3.65 * | |
| Logarithm of per capita GDP | -0.75 *** (0.21) | | -0.66 *** (0.23) | | -1.05 *** (0.28) | | 1.23 | |
| Logarithm of total GDP | -0.35 ** (0.14) | | -0.20 (0.17) | | -0.55 *** (0.21) | | 1.75 | |
| Stock market capitalization / GDP | -0.24 (0.22) | | -0.02 (0.17) | | -0.28 * (0.15) | | 1.33 | |
| Credit to private sector / GDP | -1.35 *** (0.34) | | -0.87 *** (0.22) | | | | | |
| Interaction (Credit * Stock market) | 0.50 *** (0.17) | | 0.34 *** (0.11) | | | | | |
| Insurance market penetration | 0.21 (0.24) | | | | 0.03 (0.12) | | | |
| No. of observations | 1.520 | | 1.520 | | | | | |

Table 6

The Determinants of Cross-border M&As (additional specifications)

Marginal effect calculated from a negative binomial estimation of the empirical model in equations (1) and (2). The dependent variable is the number of cross-border M&As in the banking and insurance sectors between each country pair where at least 2 mergers have taken place in the sample period (1990-2003). Variables are defined in section 3.3 of the main text. For each a generic variable x_i measured in countries i and j , the similarity index is calculated as: $1 - \frac{|\text{abs}(x_i - x_j)|}{\max(x_i, x_j)}$. The estimate also includes unreported country dummies. Standard errors are corrected for heteroskedasticity using the White (1980) procedure. The symbol *** indicates a significance level of 1% or less; ** between 1 and 5%; * between 5 and 10%.

| VARIABLES | Sample: M&As towards G10s Bidder from anywhere and target in a G10 country | | | | | | Sample: M&As within G10s Bidder from a G10 country and target in a G10 country | | | | | | Additional control: Shareholders' protection | | | |
|---|---|--------------|-----------------------------------|--------------|-----------------------------|--------------|---|--------------|-----------------------------------|--------------|-----------------------------|--------------|---|--------------|-----------------------------------|--------------|
| | Panel A: Banks | | Panel B: Insurance companies | | Panel C: Difference test | | Panel D: Banks | | Panel E: Insurance companies | | Panel F: Difference test | | Panel G Banks | | Panel H Insurance companies | |
| | Marginal effect (Std. err.) | Significance | Marginal effect (Std. err.) | Significance | χ^2 | Significance | Marginal effect (Std. err.) | Significance | Marginal effect (Std. err.) | Significance | χ^2 | Significance | Marginal effect (Std. err.) | Significance | Marginal effect (Std. err.) | Significance |
| <u>Bilateral characteristics</u> | | | | | | | | | | | | | | | | |
| Logarithm of bilateral trade | 0.35 * | | 0.77 *** | | 1.51 | | 0.59 * | | 1.52 *** | | 3.04 * | | 0.56 *** | | 0.39 *** | |
| | (0.20) | | (0.27) | | | | (0.34) | | (0.41) | | | | (0.14) | | (0.15) | |
| Logarithm of distance | -0.66 *** | | 0.21 | | 7.67 *** | | 0.03 | | 1.20 *** | | 4.06 ** | | -0.63 *** | | -0.38 ** | |
| | (0.22) | | (0.23) | | | | (0.39) | | (0.43) | | | | (0.14) | | (0.17) | |
| Common language (dummy) | 0.04 | | 0.02 | | 0.33 | | 0.04 | | 0.03 | | 0.00 | | 0.08 *** | | 0.08 *** | |
| | (0.03) | | (0.02) | | | | (0.04) | | (0.04) | | | | (0.02) | | (0.02) | |
| Similar GDP per capita | 0.54 | | 0.07 | | 0.91 | | 2.40 ** | | -0.91 | | 4.71 ** | | 0.45 *** | | 0.19 | |
| | (0.33) | | (0.36) | | | | (1.04) | | (1.11) | | | | (0.15) | | (0.15) | |
| Similar stock market | -0.03 | | 0.26 * | | 2.51 | | -0.01 | | 0.18 | | 0.61 | | 0.12 | | 0.14 | |
| | (0.12) | | (0.14) | | | | (0.16) | | (0.19) | | | | (0.10) | | (0.11) | |
| Similar credit market | -0.25 | | | | | | 0.10 | | | | | | -0.32 ** | | | |
| | (0.23) | | | | | | (0.29) | | | | | | (0.13) | | | |
| Similar insurance market | | | -0.28 | | | | | | -0.49 | | | | | | 0.21 * | |
| | | | (0.22) | | | | | | (0.36) | | | | | | (0.13) | |
| Difference in shareholders' protection | | | | | | | | | | | | | -0.05 | | 0.06 | |
| | | | | | | | | | | | | | (0.09) | | (0.09) | |
| <u>Origin country characteristics</u> | | | | | | | | | | | | | | | | |
| Logarithm of per capita GDP | 0.42 | | 2.25 *** | | 5.36 ** | | 0.63 | | 3.13 * | | 1.02 | | -0.20 | | 0.25 | |
| | (0.46) | | (0.64) | | | | (1.59) | | (1.90) | | | | (0.24) | | (0.36) | |
| Logarithm of total GDP | 0.29 | | -0.21 | | 2.43 | | 0.03 | | -1.34 *** | | 6.46 ** | | 0.04 | | 0.37 *** | |
| | (0.19) | | (0.26) | | | | (0.32) | | (0.43) | | | | (0.12) | | (0.12) | |
| Stock market capitalization / GDP | 2.64 *** | | -0.07 | | 17.08 *** | | 5.35 *** | | -0.82 * | | 24.92 *** | | 1.34 *** | | 0.50 *** | |
| | (0.64) | | (0.14) | | | | (1.16) | | (0.42) | | | | (0.27) | | (0.12) | |
| Credit to private sector / GDP | 2.42 *** | | | | | | 4.25 *** | | | | | | 1.12 *** | | | |
| | (0.70) | | | | | | (1.15) | | | | | | (0.27) | | | |
| Interaction (Credit * Stock market) | -2.16 *** | | | | | | -4.05 *** | | | | | | -1.34 *** | | | |
| | (0.49) | | | | | | (0.90) | | | | | | (0.22) | | | |
| Insurance market penetration | | | 0.89 *** | | | | | | 2.35 *** | | | | | | -0.02 | |
| | | | (0.27) | | | | | | (0.66) | | | | | | (0.13) | |
| <u>Destination country characteristics</u> | | | | | | | | | | | | | | | | |
| No. of M&As | -0.96 | | 0.63 ** | | 97 ** | | -1.92 ** | | 0.57 * | | 7.26 *** | | 0.35 * | | 0.66 *** | |
| | (0.66) | | (0.30) | | | | (0.88) | | (0.29) | | | | (0.18) | | (0.20) | |
| Logarithm of per capita GDP | -8.24 *** | | -1.00 | | 4.95 ** | | -10.35 *** | | -1.20 | | 5.11 ** | | -0.86 *** | | -1.00 *** | |
| | (2.50) | | (2.10) | | | | (3.57) | | (1.90) | | | | (0.25) | | (0.32) | |
| Logarithm of total GDP | 2.04 ** | | -0.56 | | 5.41 ** | | 3.00 ** | | -1.40 ** | | 9.44 *** | | -0.06 | | -0.15 | |
| | (0.95) | | (0.61) | | | | (1.28) | | (0.63) | | | | (0.20) | | (0.23) | |
| Stock market capitalization / GDP | 2.03 *** | | 0.01 | | 5.21 ** | | 3.07 *** | | -0.15 | | 7.73 *** | | 0.12 | | -0.14 | |
| | (0.78) | | (0.42) | | | | (1.09) | | (0.38) | | | | (0.21) | | (0.15) | |
| Credit to private sector / GDP | -3.28 *** | | | | | | -3.81 *** | | | | | | -1.13 *** | | | |
| | (0.89) | | | | | | (1.39) | | | | | | (0.30) | | | |
| Interaction (Credit * Stock market) | 0.57 ** | | | | | | 0.01 | | | | | | 0.50 *** | | | |
| | (0.25) | | | | | | (0.46) | | | | | | (0.16) | | | |
| Insurance market penetration | | | -0.06 | | | | | | 0.07 | | | | | | -0.11 | |
| | | | (0.32) | | | | | | (0.39) | | | | | | (0.13) | |
| No. of observations | 492 | | 492 | | | | 144 | | 144 | | | | 1,058 | | 1,058 | |

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