

FOREIGN AFFILIATES OF THE LARGEST INSURANCE GROUPS: LOCATION-SPECIFIC ADVANTAGES

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ABSTRACT

This article has two objectives. The first is the documentation of the relative importance of the largest insurance or reinsurance companies in the world and changes that may have occurred in the past 15 years. The second objective is to identify some of the factors that may explain the increased internationalization and most-favored locations of the world's largest insurance groups in transition and developing economies. The results of this study have important implications. First, they indicate that as expected, location-specific factors such as the size of a market, human capital, and good governance do provide an explication of the internationalization of insurance groups. Second, they also show that other factors, such as cultural distance, regulatory barriers, and competitiveness have a significant impact on the choice of countries.

INTRODUCTION

Recent years have seen a rapid growth in global trade, foreign direct investment (FDI), and portfolio investment in the services sector. All services industries that, until recently, were largely national are becoming transnational. All countries are affected by the rise of services FDI and the broad-based growth of transnational corporations (TNCs) and European (EU) TNCs are taking the lead (United Nations Conference on Trade and Development [UNCTAD], 2004).¹ The insurance industry has also succumbed to the general trend toward global markets and risks (SwissRe, 2000).

Fifteen years ago. A United Nations study² revealed that the United States was the single most important home country for service TNCs. In the second half of the 1990s,

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¹ We use the term *transnational* in preference to *multinational* because our measures are based on the number of countries (home and host) in which companies operate. The term *multinational* implies some degree of globalization of activities in some key locations.

² United Nations Centre on Transnational Corporations (UNCTC) (1989).

EU source TNCs, having acquired experience within Europe, expanded into over countries in pursuit of the more ambitious goal of having a global presence.

The U.S. TNCs still have a strong presence in many services, but they are less dominant than 15 years ago, and in some industries they no longer occupy leading positions. In insurance, the home country composition of the largest TNCs has changed dramatically. European TNCs have taken over the lead from U.S. and Japanese firms. The rise to prominence of European TNCs has occurred in parallel with their increasing participation in cross-border mergers and acquisitions (M&As) and global insurance groups have been a major force in the consolidation process (Bank for International Settlements [BIS], 2001; SwissRe, 2001, 2006).

International diversification is a growth strategy that has a major impact on firm performance. This relationship has been studied extensively in the international strategy literature (Capar and Kotabe, 2003). International diversification offers prospective market opportunities. Firms with strong competencies that are developed at home can utilize these in international markets (Bartlett and Ghoshal, 1989) to generate growth. But it has also been suggested that international diversification is preferred into markets that are physically and culturally close and that other factors such as logistics, trade barriers are likely to increase the cost of operations rather than providing economies of scale (Katrishen and Scordis, 1998).

In response to foreign market opportunities made available by deregulation and globalization, many insurance firms have increased their FDI and acquired other insurers in part because of the belief that only very large insurers will have the cost advantages necessary to remain competitive in emerging global markets. For a variety of reasons, transition and developing economies tend to attract foreign insurers and the subject is today often debated in the business press to give examples of insurance groups opening representative offices in markets that are showing positive signs of future growth.³

Ma and Pope (2003) revealed that the removing of trade barriers has significantly improved the desirability of high-income, competitive markets host countries for international insurers. Moshirian (1999) found that premium growth, strategic diversification, and the national income of the host countries was the main motivation of insurers to seek transnational activities.

The purpose of this article is to examine not why insurers are increasing their international diversification but rather where they are expanding their operations. Data are collected from annual reports for the year 2003 only and the analysis is therefore a snapshot of the international diversification of the largest insurers. Time series data are not available to examine why insurers have expanded their operations over time in particular countries.

To our knowledge, this topic has never been investigated for firms in the insurance sector. Thus, this article has two objectives. The first is the documentation of the relative importance of the largest insurance or reinsurance companies in the world. The second objective is to identify the most-favored locations for these insurers and determine

³ *Best's Review*, August 2006, "The new frontier: Global trade integration opens new territory for multinational insurers."

some of the factors that may explain the choice of these locations as observed today.

In the first section the data used for the largest insurance companies in the world is described. In the second section, we examine the transnational power of these companies. In the third section we examine the determinants of foreign expansion into other markets and in the final section we provide an analysis of the internationalization of these companies based on location-specific advantages.

THE WORLD LARGEST INSURANCE AND REINSURANCE COMPANIES⁴

In 1989, according to the data on revenues published by the review *Fortune* in July 1990, the largest U.S. insurance company (Prudential of America) did not rank among the top 50 of the world's biggest corporations. In 2003, according to the same source, the world's largest financial services company from Germany (Allianz) ranked 12th, and seven insurance companies from the Triad (United States, EU, and Japan) were listed in the top 50 corporations in the world in terms of revenues.⁵

Obtaining comparable data for all companies around the world is a difficult task because of different reporting procedures. The list of the largest insurance and reinsurance companies in the world has been compiled using company websites and the information published in the business literature.⁶ Recently SwissRe (2006) published a list of global life insurance groups, which were involved in the consolidation process through M&As from 1998 to 2004. Our list includes all types of insurance groups based on insurance income, whether primary (life and nonlife) or reinsurance, and excluding fees for assets management and other financial services. Most of these insurance groups, as shown in the section "The International Presence of the Largest Insurance TNCs," are multi line businesses and it seems reasonable to assume that the management decision to invest abroad similarly impacts life and nonlife businesses. There is no rationale to split the sample of global companies according to their activities, although reinsurance companies will be excluded from the sample in the empirical analysis because the pattern of internationalization of these firms may follow different motivations from the managers.

The listing of the 45 largest companies (Table A1) provides information on global insurance income, total assets, and total number of employees worldwide for the year 2003. The list includes 15 companies from the United States, 18 companies from the EU, seven companies from Japan, four companies from Switzerland, and one company from the Republic of Korea. This list is compared with the list of the world's largest insurance companies in 1986 published by United Nations Centre on Transnational Corporations (UNCTC) (1989) (Table A2).

⁴ In this article, large is defined in relation to insurance income (excluding investment related income). There is a significant correlation between income and assets (0.83) and between income and employment (0.81).

⁵ *Fortune*, 26 July 2004, pp. F1–F10.

⁶ The list has been compiled using company names published in Fortune 500, Business Week Global 1000 and with the help of the French Federation of Insurers which provided its own list. Because reporting procedures are not similar across countries and net premiums written or earned are not available in several countries, the concept of gross premiums has been used as far as possible.

If only the top 20 companies are considered, in 1986 there were eight companies from the United States, six from Japan, and six companies from European countries, compared with 2003 with only three companies from the United States, five company from Japan, and 12 companies from European countries. The relative decline in the leadership of financial firms from Japan and the United States has been well documented in the literature, in banking (Rhoades, 1983; Goldberg and Hanweck, 1991; Edwards and Mishkin, 1995), insurance (Puleo and Butler, 1997), and reinsurance (Outreville, 1998).

The size and concentration patterns of the largest 30 companies is examined and compared between 1986 and 2003 using the information available (Table 1).⁷ The most widely used indexes are the k -firms concentration ratio and the Herfindahl-Hirschman index (H = the sum of the shares of all n firms weighted by themselves). This later measure makes it possible to calculate a "number equivalent" of companies ($N^* = 1/H$) where N^* is the potential number of companies of the same size which could exist for a given degree of concentration.

Another static measure is Kwoka's (1977) Dominance index, which emphasizes the gap between successive firms when they are ranked by size. The values of this measure range from 1 to 0, with the former value indicating a monopolistic market. Conversely, the closer to zero the measure is, the lower is the power of any single company.

Casual observation reveals that the market shares of the largest companies have remained stable over time. The value of the Herfindahl index is almost the same and the dominance index has slightly increased between 1986 and 2003, confirming a larger spread among the top 10 companies and others than before.

Table 1 also reports some measures of performance. The ratio of assets over income generated has doubled from 1986 to 2003, and today this ratio is significantly higher for the five largest companies (this was not the case in 1986). The ratio of income over employment (the dollar amount of premiums generated on average by one staff) has more than doubled during the same period, but this figure is largely affected by inflation and exchange rates fluctuations. In constant U.S. dollars, the amount of premiums written has been multiplied by 1.4 on average but only by 1.25 for the five largest companies.

THE INTERNATIONAL PRESENCE OF THE LARGEST INSURANCE TNCs

How transnational are TNCs? The degree of international involvement of a firm can be analyzed from a number of perspectives: their operations, their stakeholders, and the spatial organization of management. Given the range of perspectives and dimensions that can be considered for each, the degree of transnationality of a TNC cannot be fully captured by a single synthetic measure (UNCTAD, 2004, p. 37). UNCTAD's Transnationality Index (TNI) was introduced in 1995 as an answer to the academic debate on the ways to measure transnationality.⁸

⁷ Data for 1980 are incomplete in the UNCTC (1989) study and only part of the analysis is reported.

⁸ See, for example, Ramaswamy, Kroeck, and Renforth (1996) and Sullivan (1996).

TABLE 1

Measures of Size and Concentration of the 30 Largest Insurance Companies, 2003, 1986, 1980

Measure	2003	1986	1980
Total Insurance Income			
Percentage share of the first 5	33.8	34.6	33.6
Percentage share of the first 10	60.5	58.1	57.1
Herfindahl index	0.0446	0.0427	0.0451
Number equivalent	22	23	22
Dominance index	0.00089	0.00043	0.00048
Relative Size of Insurance Business			
Assets/income (total 30)	7.32	3.67	
Assets/income (first 10)	7.8	3.52	
Assets/income (first 5)	9.8	3.86	
Income/employment (total 30)	715.6	295.7	
Income/employment (first 10)	738.1	340.8	
Income/employment (first 5)	789.4	371.2	

In this article, the TNI that is calculated is a composite of two ratios—foreign income over total income and foreign employment over total employment.⁹ The conceptual framework underlying this index helps to assess the degree to which the activities and interests of companies are embedded in their home country activities or in economies abroad. A high value of this index may raise questions about a home country's locational advantages (eg., a small market) or indicate strong international competitiveness on the part of the home country firms. A drawback of this index is that it does not take into account the size of the home country and does not distinguish between companies whose activities are concentrated in a few foreign countries, and companies whose activities are spread across numerous host countries.

One aspect of transnationality from the operations perspective not included in the TNI is the intensity of foreign operations according to the number of foreign affiliates. The "internationalization index" is the ratio of the number of foreign to the total number of affiliates (UNCTAD, 2004). However, the index cannot be calculated as the total number of affiliates is not readily available in all annual reports.

Another aspect of transnationality from the operations perspective is the extent of geographic spread of a company's operations and interests—whether spread over several countries or concentrated in a few. This concept of transnationality reflects the strategic stance of a company but also its ability to develop and spread knowledge and innovation. This measure may indicate high levels of ownership advantages as well as high knowledge of market conditions in some countries rather than others. The indicator used for this concept is the number of foreign countries (or network spread index) in which the TNC has at least one affiliate (UNCTAD, 2004). The breakdown

⁹ A transnationality index can be compiled by choosing a single key variable (like assets) or by combining several variables. Since information on foreign assets is almost never available, the second approach is used in this article.

by home and host countries also shows the favorite regions and location of foreign affiliates of the TNCs.

This measure, however, does not take into account the magnitude of a company's activity in a given host country. A correlation analysis of these different transnationality measures usually gives a low value (UNCTAD, 2004). This underlines the fact that companies can transnationalize their activities without having to spread their foreign assets.

The list of the largest insurance TNCs differs from the previous list since it focuses on foreign activities of these groups. Among the original list of 45 companies, several are mainly operating on their domestic market and are not concerned by the choice of a foreign location to establish branches or affiliates. Table 2 presents the list of the 30 largest insurance TNCs based on the amount of foreign business, foreign employment, the TNI index, and the number of host countries. It should be noted that the number of global insurance groups with sizeable foreign business is far smaller than the group of the world's largest transnational banks as reported for example in *Bankers' Almanac*.¹⁰

In the ranking by total insurance business written abroad, European insurance companies from five different countries dominate the top five. If we rank the TNCs by their TNI index, then the top company is a Swiss reinsurer and the small countries (Switzerland, Sweden, and the Netherlands) are present in the top 5. Looking at the number of host countries (or economies) also confirms the importance of a brand name (AIG, Allianz, ING are in the top three).¹¹ The top 15 TNCs includes three companies specialized in reinsurance business. All other groups, except one, are highly diversified as hypothesized in the previous section (Table A3).

The network spread index is based on the number of host countries. It is more likely than a TNC reaches significant market shares in a few foreign countries than it expands in many countries and therefore the network spread value may be lower (although it cannot be directly compared) than to the TNI value. The average value is 37 for the world's 25 largest nonfinancial TNCs reported in UNCTAD (2004), 33 for the world's largest financial groups as reported in UNCTAD (2005), and only 30 for the world's largest 25 insurance groups (Table 3).

By comparison, the average TNI is 59 for nonfinancial firms compared to 54 for insurance groups. This value is not available for financial firms. It is important to note that the internationalization of the 10 largest insurance companies, measured in terms of TNI or network spread is significantly higher than the same measure for the top 25.

Geographic and cultural distances have received a great deal of attention in the international business literature and have been identified as a key factor in explaining foreign market attractiveness (Kogut and Singh, 1998).¹² Johansson and Vahlne (1977,

¹⁰ In their recent paper on banks, Focarelli and Pozzolo (2005) are using a unique database of 260 large banks from OECD countries.

¹¹ Internationalization is affected by the size and volume of resources of the organization (Javalgi, Griffith, and White, 2003).

¹² Cultural distance is different from geographical distance. Empirical evidence suggests the importance of geography in determining international economic interactions and in shaping the structure of production across space (Overman, Redding, and Venables, 2001).

TABLE 2

The World's 30 Largest Insurance TNCs, 2003 (Ranked by Foreign Insurance Income) (Million of Dollars and Number of Employees)

Rank	TNC	Home Country	Insurance Income		Employment		TNI (%)	Number of Host Countries
			Foreign	Total	Foreign	Total		
1	Allianz	Germany	75,230	107,180	90,350	173,750	61.1	62
2	AXA	France	65,120	84,800	85,490	117,113	74.9	46
3	ING	Netherlands	47,990	57,350	80,407	114,344	77.0	58
4	Zurich Financial Services	Switzerland	44,520	48,920	n.a.	58,667	91.0	46
5	Ass. Generali	Italy	38,155	62,500	49,671	60,638	71.5	42
6	AIG	United States	32,718	70,319	n.a.	86,000	46.5	92
7	Munich Re	Germany	27,900	50,900	11,060	41,430	40.7	36
8	Aviva	United Kingdom	26,180	53,480	23,555	56,000	43.8	32
9	Swiss Re	Switzerland	25,540	26,940	n.a.	7,949	94.8	28
10	Winterthur	Switzerland	19,680	27,060	13,865	20,281	66.7	16
11	Aegon	Netherlands	19,650	24,530	21,674	27,708	79.2	12
12	Prudential a	United Kingdom	12,980	24,480	9,540	21,000	49.2	18
13	Fortis	Belgium/Netherlands	12,940	26,230	15,268	25,785	54.2	48
14	Hannover Re	Germany	12,000	14,290	1,183	1,972	72.0	22
15	Royal and Sun Alliance	United Kingdom	10,600	19,800	18,935	31,980	56.4	30
16	Swiss Life	Switzerland	8,944	15,160	n.a.	10,015	59.0	6
17	Skandia	Sweden	8,650	10,035	4,245	5,936	78.8	20
18	Prudential Financial	United States	5,655	13,233	n.a.	39,400	42.7	18
19	Berkshire Hathaway	United States	5,484	22,454	n.a.	25,395	24.4	21
20	GE-Employers Re	United States	4,071	9,729	n.a.	3,300	41.8	22
21	Standard Life	United Kingdom	4,058	16,910	3,244	14,586	23.1	8
22	Ergo	Germany	3,800	20,330	7,263	31,470	20.9	21
23	Liberty Mutual	United States	3,671	18,319	6,000	38,000	18.0	11
24	Groupama	France	2,780	13,010	2,683	10,806	23.1	11
25	Mapfre	Spain	2,010	9,475	8,541	18,605	33.5	36
26	Chubb	United States	1,975	11,338	n.a.	12,300	17.4	16
27	Metlife	United States	1,950	23,170	49,030	84,810	33.1	11
28	Millea Holdings	Japan	1,302	23,736	4,400	32,900	9.4	48
29	Legal and General	United Kingdom	1,196	9,965	603	8,547	9.5	4
30	CNP Assurances	France	1,005	24,520	1,010	3,580	16.2	5

Note: The transnationality index is calculated as the average of two ratios: foreign income to total income and foreign employment to total employment. When employment is not available only one ratio has been calculated. The number of potential countries is equal to the number of countries where at least one foreign company has a branch/Office = 128. Japanese companies are missing from this list for lack of information on foreign activities. Life companies usually report only four to six host countries. n.a. = not available. All companies were contacted by e-mail but only a few answered to the request for information.

a For Prudential, foreign figures means other than U.K. and European business.

Source: Based on company's websites.

1990) argued that TNCs expand first in geographically proximate markets and as experiential learning is built up, firms venture into more distant markets. Companies from the United States have a dominant presence in Latin America and the Caribbean (LAC) as well as Spain (Mapfre), which has a network of branches or offices in almost all LAC countries for obvious ethnic and cultural ties reasons. European companies have expanded mainly in Europe and in Asia. From a company point of view, AXA

Ghemawat (2001) suggested that four dimensions of distance, namely, cultural, administrative, geographic, and economic, influence companies considering global expansion.

TABLE 3
Internationalization of the Largest Insurance TNCs

Measure	TNI	Network Spread
Largest insurance TNCs		
Average value of the first 10	66.8	45.8
Average value of the first 25	53.8	30.5
Largest nonfinancial TNCs		
Average value of the first 10	58.0	49.8
Average value of the first 25	59.1	36.9
Source: UNCTAD (2004)		
Largest financial groups		
Average value of the first 10	n.a.	43.6
Average value of the first 25	n.a.	32.7

Source: UNCTAD (2005).

TABLE 4
Geographical Repartition of the Insurance TNCs (Based on the Number of Companies for Which Geographical Breakdown Is Available)

Home Country	Host Region					
	Europe	GEE	Africa	LAC	Asia & Pacific	West Asia
United States (5)	24.8	10.3	4.1	25.6	28.3	6.9
United Kingdom (4)	37.7	6.5	1.3	7.8	40.2	6.5
France (3)	43.4	1.5	5.9	17.1	28.4	3.7
Germany (3)	34.1	20.6	12.1	9.5	21.1	2.6
Netherlands (3)	38.1	15.5	10.4	7.8	24.9	3.2
Switzerland (3)	36.8	12.3	8.7	5.5	31.8	4.8
Spain (1)	25.0	5.5	2.8	55.6	8.3	2.8
Italy (1)	35.9	17.9	2.6	23.1	12.8	7.7

Note: LAC, = Latin America and the Caribbean; CEE, = Central and Eastern Europe. West Asia is the new terminology for Middle East. In parentheses is the number of companies in the calculated average value.

(France) and Fortis (Belgium), again for cultural reasons, are dominant in Africa. It is interesting to note that Allianz (Germany), which acquired the French company AGF, is represented in more French-speaking countries of Africa than any other company. The involvement of German companies in Central and Eastern Europe (CEE) is noteworthy.¹³

Due to greater regulatory and market transparency, driven partly by WTO membership, developing countries from Eastern and South-Eastern Asia have become con-

¹³ Eight of these countries joined the EU in 2004.

siderably more important as host countries for insurance TNCs than countries from any other developing region. This is in line with the overall trends in FDI in the developing world (UNCTAD, 2004).

While China and India grabbed most of the industry's interests over the past years, transition economies such as the Russian Federation, Ukraine, and the potential new EU members (Romania and Bulgaria) have been raising interest from Western companies. In the following sections, we examine the most-favored locations in transition and developing economies.

DETERMINANTS OF INTERNATIONAL PRESENCE

The development of the theory of the multinational enterprise has followed two main approaches: location theory, which deals with the reasons underlying the choice of host country for FDI, and industrial organization theory, which is concerned with competition and performance of foreign and domestic firms. In the latter case, firms possess firm-specific advantages, which can be exploited profitably across national borders. In the context of market-seeking investment, internalization advantages and country-specific advantages are both important to the explanation of FDI and the establishment of foreign subsidiaries (Rugman and Verbeke, 2004).

The concept of eclectic or OLI paradigm explained by Dunning (1977) and updated in later work (Dunning, 1988, 1995) was put forward to identify and evaluate the significance of factors explaining the activities of TNCs outside their national boundaries.¹⁴

The OLI paradigm asserts that international activities are dependent on the value of and interaction between three main variables, which are not necessarily independent of each other:

1. *Ownership-specific advantages (O)*, such as technological, managerial, and marketing advantages of TNCs vis-à-vis indigenous firms in the host country. The ability to create a successful brand name and image by offering services from multiple locations is central to the competitive advantage of TNCs. Insurance relies on information and technical knowledge and, the ability to spread risks confer a sizeable advantage to some companies.

2. *Location-specific advantages of host countries (L)*, such as (1) the geographic and cultural distance (cultural differences) and the direct or indirect impact on information costs, (2) the level of infrastructure (education, legal), (3) shifts in regulatory opportunities like the reduction (or elimination) of barriers to trade in insurance services that have been a major factor in the expansion of insurance TNCs abroad, and (4) the potential size and profitability of the market.

3. *Market internalization (I)*, such as the exploitation of resources to participate in global activities or the need for sharing risks (reinsurance).

FDI theories suggest that investing firms will prefer those countries that provide greater location-specific advantages although both the firm and location-specific

¹⁴ The argument is that the classical Heckscher-Ohlin-Samuelson theory of trade fails to take into account positive transaction costs, which may explain the internationalization of production.

advantages separately and jointly influence the firm for the choice of the target country (Agarwal and Ramaswami, 1992).

There is a substantial body of literature on the motivations driving banking FDI, although much of this does not specifically address FDI in developing economies.¹⁵ Much of the empirical literature on the determinants of foreign expansion of financial services into other markets is based on the banking sector in OECD countries and examines the relationship between firm characteristics and the degree of expansion into foreign markets. Institutional characteristics of the destination country also play a crucial role in the pattern of internationalization. Several studies, most prominently perhaps by Focarelli and Pozzolo (2001, 2005), have used microeconomic methods to explore which banks expand abroad and have found that the size of banks, their efficiency, and restrictions on banking at home are generally decisive factors.

Growth and Profit Opportunity

The banking literature generally supports the hypothesis that a significant determinant of a bank's choice of FDI location is driven by per capita income and economic growth (Brealey and Kaplanis, 1996; Yamori, 1998; Buch, 2000; Focarelli and Pozzolo, 2005).

Human Capital

Human capital (or high levels of education) has not received any particular attention in the determinants driving banking FDI with the exception of Focarelli and Pozzolo (2005). Following the results of the recent empirical literature on the determinants of growth, they assume that countries with highly skilled workers are more likely to attract FDI in banking and financial services.

Information Costs

Countries where entry would entail the least information costs are those most likely to be chosen as host countries. Information costs are most usually proxied by geographic and cultural distance (Ball and Tschoegl, 1982; Grosse and Goldberg, 1991; Buch, 2000). When examining the role of cultural distance, the hypothesis is that as the cultural difference between a firm's home country and a host market increase, the underlying ability of the firm to operate effectively in the host market decreases. All studies report a negative correlation between geographic distance and the degree of bank FDI.

Regulatory Environment and Barriers to Trade

The banking literature shows that the regulatory environment more generally affects bank FDI choice (Goldberg and Grosse, 1994; Barth, Caprio, and Levine, 2001; Focarelli and Pozzolo, 2005). Beyond the simple decision of whether foreign entry is allowed or not, foreign banks are more likely to establish subsidiaries or affiliates in locations with fewer restrictions on their activities. Government effectiveness is included in the

¹⁵ Clarke et al. (2001) provide a useful summary of some of the main determinants of bank FDI in emerging markets. See also a more recent article by Wezel (2004).

study by Cole, Lee, and McCullough (2005) to determine the potential relation to the regulatory environment.

Research into the measurement of services trade barriers is fairly recent. In banking, Claessens and Glaesner (1998) calculate "degree of openness" indices for financial services in eight Asian economies. McGuire and Schuele (2001) construct trade restrictiveness indices for banking services. Both studies report a significant correlation between GATS measures of commitments and actual practices of countries.

The Importance of Good Governance

In recent years there has been a surge of interest in the consequences of governance and misgovernance for development and how a country risk could have an impact on global investment strategies by TNCs.¹⁶ Corruption is commonly defined as the abuse of public office for private gain.¹⁷ Governance is a much broader notion, which is defined as the traditions, and institutions that determine how authority is exercised in a particular country. This includes (1) the process by which governments are selected, held accountable, monitored, and replaced; (2) the capacity of governments to manage resources efficiently and formulate, implement, and enforce sound policies and regulations; and (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them (Kaufmann, Kraay, and Zoido-Lobaton, 2000).

A wide variety of cross-country indicators are produced by a range of organizations (government agencies, commercial-risk-rating agencies, international organizations, think tanks, and other nongovernmental organizations) and cover various dimensions of governance. Macroeconomic factors played a crucial role in the past in attracting FDI, but the dynamics of FDI require an analysis beyond such macroeconomic variables and a simple review of the recent data suggests a much higher correlation between FDI and governance (both from the public and private sector) than between FDI and macroeconomic variables.

Much recent studies of governance and corruption, based on simple empirical observations, using available worldwide indices have shown that, on average, per capita income and the quality of governance are also strongly positively correlated across countries.¹⁸ Simple deduction reasoning would imply that good governance is also a relevant factor explaining the most favored locations by TNCs to set up foreign affiliates.

The importance of good governance in the financial sector (both public and corporate) has been highlighted by crisis in Asia, Russia, and some Latin American countries. Despite this, there has been little effort devoted to evaluating its empirical impact on the choice of locations by financial firms, and to our knowledge this variable is

¹⁶ Knack and Keefer (1997) found that the institutional environment for economies activity generally determines the ability of emerging economies to catch up to industrial country standards.

¹⁷ See Habib and Zurawicki (2004) for a survey of the literature.

¹⁸ Recent work has been carried out by Galan and Gonzales-Benito (2001), Habib and Zurawicki (2002), Javalgi, Griffith, and White (2003), La Porta et al. (1999, 2000), D. Kaufmann and Kraay (2002), D. Kaufmann (2003), Rodrick, Subramanian, and Trebbi (2002), among others.

ignored in the banking and insurance literature with the exception of Yamori (1998) who found a positive effect of a country risk index for Japanese banking FDI and Wezel (2003) who found a similar relationship in the German case. In a recent article, Outreville (2005) also found a positive relationship between financial development and political risks in developing economies.

Insurance Activities

In recent years there has been a strong increase in the demand for insurance in emerging markets. The average annual growth rate has been twice as high as in industrialized countries in both life and nonlife business (SwissRe, 2000). The work by Outreville (1990, 1996) and Browne and Kim (1993) and Browne, Chung, and Frees (2000) is notable for identifying the links between insurance demand and market development.¹⁹ Faced with limited local opportunities and encouraged by trends in financial deregulation and globalization, North American and European insurers have been looking to stake out new territories. These new opportunities based on expectations—market size potential, rapidly expanding economy—came also with many challenges—technical risk, cultural environment, country risk assessment—and were supported by recent developments in information technology. It seems easy to identify emerging countries where the insurance sector is likely to develop; however, it is not possible to derive from these studies the ranking of the most-preferred locations for insurance FDI.

A number of studies have investigated issues related to the determinants of FDI in various countries and industries, but only recently Moshirian (1999) and Ma and Pope (2003) have examined the determinants of international insurers' participation in foreign markets. Moshirian concluded that insurance premiums and the national income of host countries contribute to the expansion of insurance TNCs. Ma and Pope found that countries with higher GDP tend to attract more international insurers participation.²⁰ A more recent article by Cole, Lee, and McCullough (2005) provides a comprehensive approach to the decision process of U.S. reinsurers to assume from foreign insurers based on the OLI paradigm. The results of the study provide support to firm-specific factors and location-specific advantages.

A SIMPLIFIED MODEL OF LOCATION-SPECIFIC ADVANTAGES

The purpose of the analysis is to examine the factors that influence the choice to establish a foreign affiliate in a particular country. The ranking of transition and developing economies in terms of the frequency of host country for insurance TNCs (LI = location intensity) is used as a dependent variable in an econometric validation that takes into account location-specific variables defined in the previous section.

Data Identification

LI is defined as the number of insurance TNCs having at least one affiliate in the country, divided the total number of TNCs in the sample. There have been only a few empirical studies about the determinants of the number of a home country banks' branches and offices abroad (Goldberg and Johnson, 1990; Brealey and Kaplanis, 1996;

¹⁹ For a survey, see Hussels, Ward, and Zurbruegg (2005).

²⁰ These studies are limited to insurance markets of the industrialized countries of the OECD.

Miller and Parkhe, 1998). To our knowledge, Focarelli and Pozzolo (2005) are the only researchers to study foreign banks looking at the number of foreign affiliates from an OECD country of origin in any other OECD host country. There has been no attempt to examine the most preferred locations in transition and developing economies.

Data have been collected through annual reports and websites of the largest insurance TNCs (Table 2) excluding reinsurance groups, which may have a different pattern of FDI and companies having five or fewer host countries for their affiliates. The most frequent host country by these largest insurance TNCs is the United States where all companies (excluding U.S. companies) have at least one affiliate, followed by the United Kingdom, Germany, and China (Table A4). Tax-haven countries are excluded from the sample to avoid biases due to the nature of FDIs in these economies.

Considering the statistical heteroskedasticity biases created by the inclusion of developed countries,²¹ data are limited to nine transition economies (including five new EU members since 2004) and 45 developing economies for which at least two insurance TNCs have an office (branch and/or affiliate) (Table A5). The most popular locations in developing economies are China and Hong Kong (China), followed by Brazil, Mexico, Argentina, India, and Singapore, in that order. The breakdown by region is as follows: Latin and Central America (15 countries), Asia (14), Africa (9), and Middle-East (West Asia) (7).

The size of the host economy as measured by its GDP or population influence FDI decision. Log of GDP per capita and log of population are our measures of country development and size. Although the high growth rates that developing countries and economies in transition have enjoyed in the past 10 years may be a relevant factor explaining over time the choice of a location by a firm, it is a dynamic process, which may not be directly comparable to the snapshot figure of LI in 2003.

Labor is another factor important to foreign investors. Thus, a high level of human capital would positively attract foreign firms. The human resources base is generally measured by educational enrolments and literacy rates. The Human Capital Index (HCI) used in this study is a weighted average of the literacy rate and enrollment ratios (secondary school and tertiary education) calculated in UNCTAD (2005).

Lack of corruption or governance is defined in various ways and is expected to positively influence the choice of a location by foreign investors. Since all of the variables used to measure governance are highly correlated, only one variable at a time will be used in the model.

The ranking of developing countries in terms of the frequency of host country for insurance TNCs is compared with several indicators of governance and economic and political stability. Again, OECD countries are excluded to avoid biases due to

²¹ When using a variety of techniques in statistics, such as ordinary least squares (OLS), a number of assumptions are typically made. One of these is that the error term has a constant variance. This will be true if the observations of the error term are assumed to be drawn from identical distributions. Heteroskedasticity is a violation of this assumption. Size and growth are not affected but human capital and governance estimates exhibit mean and variance values outside the range of the same values for developing economies.

the perceived relationship between rich countries and good governance.²² Spearman rank correlation values are calculated between the ranking of the most frequent host countries and the ranking of the following governance indices for the same period 2002–2003:

The Euromoney Global Political Risk Map gives a measure of country financial risk on the basis of political risk, economic performance, debt indicators, credit rating, and access to finance and capital markets.²³

The Economist Intelligence Unit (EIU) country risk index is calculated using two distinct perspectives: (1) broad risk, which is political and economic, and (2) specific risk, which is currency, banking sector risk, and sovereign risk.²⁴

The Corruption Perception Index (CPI), compiled at the University of Passau (Germany), is based on the aggregation of multiple surveys.²⁵

Government Effectiveness, published by the World Bank Institute, combines perception of the quality of public service provision, the quality of bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies. It is one of the six indices published by WBI on governance.²⁶

To verify the effect of size, Spearman rank correlations are also calculated with GDP per capita, the size of the population (POP), the penetration rank (premiums/GDP), and the density rank (premiums/population). Results of Spearman rank correlations (Table 5) show that the highest correlation is with the size of the country as measured by GDP. Other size measures are also significantly correlated. As expected, the HCI is significantly correlated and gives support to the hypothesis of location-specific advantages of some host countries. Governance measures such as country risk and government effectiveness are also significantly correlated.

The findings are consistent with the arguments presented in the literature and suggest that location-specific factors including good governance are important determinants in the choice of a location.

²² The causality link between income and governance is far from being explained: (1) better governance exerts a powerful effect on per capita income, (2) higher incomes lead to improvements in governance, and (3) there are other factors to be considered. In a recent article Kaufmann and Kraay (2002) discussed the surprising finding of negative feedback from incomes to governance attributed, at least partly, to a consequence of state capture by largest institutions (private or public).

²³ The methodology is available at www.euromoney.com

²⁴ See www.eiuresources.com

²⁵ Information on data and methodology is available at www.transparency.org

²⁶ Available at www.worldbank.org/wbi/governance. This variable has been selected to differentiate government governance from political, financial, or corruption risk. It is also considered by some authors as a dummy variable to determine the potential regulatory environment.

TABLE 5
Spearman Rank Order Correlation Coefficient

Explanatory Variables for Governance	<i>Rs</i>	<i>t</i>
Euromoney risk 2002	0.476	3.55
Government effectiveness	0.465	3.44
Corruption perception index	0.345	2.41
EIU country risk	0.331	2.38
Explanatory variables for size		
GDP 2002	0.742	7.50
Population size	0.377	2.76
Penetration rank	0.316	2.26
Density rank	0.353	2.56
Human Capital Index (2001)	0.453	3.45

Data Limitation

First, data on the activities of the largest insurance groups are collected for a single year and past annual reports of companies, if available, do not necessarily report the locations of foreign affiliates. Therefore, it is not possible to examine the evolution of the number of locations over time for the sample of companies used in this study. The analysis is limited to a cross-section of the largest insurance TNCs for which we can determine 54 most-favored locations in transition and developing economies.

Several other variables do affect the choice of a location by an insurance group. However, the small size of the sample reduces the ability to introduce too many variables at the same time in the model, and furthermore, data availability is limited for some countries. Ma and Pope (2003) mention that reducing trade barriers over time would significantly improve the desirability of some markets. Testing shifts in the regulatory environment would require a panel set of data over several years, which is not available, and furthermore, data on the level of regulatory restrictions on domestic insurance markets in developing countries is not readily available.²⁷ Since historical data are not available, an index of regulatory trade barriers constructed by the Fraser Institute and only available for 48 countries (Table A5) will be used in this study.²⁸

Cultural and geographic distances affect the choice of a location and are normally negatively correlated. It is not possible in this study to calculate geographical distance but cultural proximity could be tested by using average values based Hofstede's (1983) cultural dimensions and Schwartz's (1999) cultural value differences.²⁹ Such

²⁷ In Africa in 1989, in 39 countries for which data are available, 20 markets were closed to foreign investment, 11 countries had entry restrictions and eight markets were completely open. In 2000, only five markets were closed, eight had entry restrictions, and 26 countries were open to foreign investment.

²⁸ The Economic Freedom of the World Annual report and data set are available at www.freetheworld.com

²⁹ Hofstede (1983) defines four dimensions: (1) degree of inequality, (2) uncertainty avoidance, (3) individualism versus collectivism, and (4) masculinity versus femininity. Schwartz (1999)

data are available in Smith, Peterson, and Schwartz (2002) for only a subsample of 30 countries (Table A5). His study addresses differences between national cultures, and cultural distance is calculated as a mean value of country-level dimensions of cultural awareness, beliefs, and behaviors. This variable measuring cultural, distance is added to the model.

The competitiveness of the host country's insurance environment may also be important factors affecting the choice of a location. Outreville (1996) considers the impact of both the type of market structure and the presence of domestic insurers on the functioning of the insurance market. The previous model is modified to verify the impact of the presence of state-owned (government-owned) companies and the impact of the market share of foreign insurers but for only a subset of 27 countries (Table A5).

Empirical Analysis

The following model includes the core set of location-specific variables defined in the previous section:

$$\text{Model (1)} \quad \text{LI} = f(\text{size of the market, growth, human capital, governance}). \quad (1)$$

The estimation procedure is an ordered probit analysis, which is a generalization of the linear regression model to cases where the dependent variable is ordered. The dependent variable is also bounded between 0 and 100 by construction. The results are summarized in Table 6 for the full sample (54 transition and developing economies) and a subsample of 45 developing economies. They suggest that the decision to select a location is impacted by the size of a country measured by its population and its economic development measured by its GDP per capita. As suggested by Rossi and Volpin (2004), GDP growth is used as a control factor but similarly to their results shows a small and nonsignificant value.

Human capital as seen by the positive and significant sign of the variable is also a major determinant. This result is in line with other studies on the determinants of the demand for insurance (Outreville, 1996; Beck Webb, 2003).

The CPI is also positive and significant as expected. The World Bank indicator of good governance has the expected positive sign but is less significant. The two other variables related to the country and political risks provide inferior statistical validation of the model.

Parameter instability is a common form of misspecification especially when examining two samples. Using the method of calculating a Chow test³⁰ only the human capital variable is not a stable coefficient in the two samples. The level of higher education is significantly higher in transitions economies compared to developing economies. Therefore, this variable is excluded in the following models dealing with much smaller samples.

considers seven country-level values that are grouped in three dimensions: (1) embeddedness versus autonomy, (2) hierarchy versus egalitarianism, and (3) mastery versus harmony.

³⁰ The Chow test requires that the variance is the same in all groups. This is not validated for the two samples.

TABLE 6

Model 1 With Two Samples (Ordered Probit Estimation)

	Coefficient	z-Statistic	Coefficient	z-Statistic
Transition and developing economies (sample size = 54)				
Log (GDP per Capita)	0.771	3.02	0.838	3.34
Log (Population)	0.814	5.72	0.773	5.61
GDP growth (1992–2003)	0.061	0.75	0.049	0.56
Human capital (HCI)	1.772	1.89	1.559	1.62
Corruption (CPI)	0.228	1.55		
Good governance			0.386	1.06
	Coefficient	z-Statistic	Coefficient	z-Statistic
Only developing economies (sample size = 45)				
Log (GDP per capita)	0.603	2.25	0.693	2.63
Log (Population)	0.883	5.39	0.814	5.23
GDP growth (1992–2003)	−0.101	−0.94	−0.112	−0.94
Human capital (HCI)	2.488	2.11	2.354	1.99
Corruption (CPI)	0.329	2.03		
Good governance			0.562	1.47

Notes: Convergence was achieved after six iterations. Akaike and Schwarz criteria are similar in both estimations. The some criteria are used to compare alternative variables in the model. Euromoney risk and EUI country risk provide inferior results.

To test for regulatory barriers, the model is modified as follows:

Model (2) $LI = f(\text{size of the market, growth, governance, regulatory barriers})$. (2)

Results of the estimation for a subset of 48 countries are presented in Table 7. The higher is the index for regulatory barriers, the higher is trade efficiency or lower are the trade restrictions in the country. Due to the high correlation between governance (measured by government effectiveness) and trade efficiency, these variables are not significantly impacting on the choice of a location whereas the corruption index remains significant. If only trade efficiency alone is left in the equation, it becomes significant as it picks up at the same time for trade efficiency and good governance.

TABLE 7

Model 2 With a Trade Variable (Ordered Probit Estimation)

	Coefficient	z-Statistic	Coefficient	z-Statistic
Log (GDP per Capita)	1.146	4.29	1.257	4.97
Log (Population)	1.012	6.21	0.965	6.11
GDP growth	−0.016	−0.2	0.004	0.05
Corruption (CPI)	0.256	1.32		
Trade efficiency	0.082	0.37	0.245	1.33

Note: Convergence was achieved after seven iterations.

TABLE 8

Model 3 With a Distance Variable (Ordered Probit Estimation)

	Coefficient	z-Statistic	Coefficient	z-Statistic
Log (GDP per capita)	0.955	3.07	0.854	2.47
Log (Population)	1.001	4.88	0.938	4.69
Corruption (CPI)	0.322	1.91		
Good governance			0.815	1.78
Cultural distance	-1.414	-1.43	-1.487	-1.49

Note: Convergence was achieved after seven iterations.

As mentioned earlier, cultural distance affects the choice of a location. The mean value of country-level dimensions of cultural awareness, beliefs, and behaviors is added to the previous model as a measure for cultural distance.

$$\text{Model (3)} \quad \text{LI} = f(\text{size of the market, governance, cultural distance}). \quad (3)$$

Results of the estimation for a subset of 30 countries are presented in Table 8 and confirm the significant negative impact of cultural distance in the choice of a location.

The competitiveness of the host country's insurance environment may also be an important factor affecting the choice of a location. The previous model is modified to verify the impact of the presence of state-owned companies and the impact of the market share of foreign insurers.

Large state-owned companies may have a deterrent effect on the presence of foreign insurers; however, in anticipation of liberalization measures, this situation may be attractive to foreign insurers. The sign of this variable is therefore unknown. The presence of foreign insurers may encourage new companies to enter the market and this variable would therefore be already highly correlated with other location-specific variables creating multi collinearity problems in the estimation. Furthermore, the larger the number of foreign affiliates in a country, the larger is the expected market share of foreign insurers.

The equation is therefore overestimated and the previous model is modified only to verify the impact of the presence of state-owned companies and the impact of the market share of foreign insurers. Due to the limited availability of information, the sample is reduced to 27 countries and does not include the cultural distance variable. To take into account overestimation, the model has been estimated using ordered probit analysis, and generalized least Squareds. Because foreign companies are more likely to have established in the past affiliates in countries where there is government effectiveness, only corruption is considered as a governance variable.

$$\text{Model (4)} \quad \text{LI} = f(\text{size of the market, governance, market structure}). \quad (4)$$

The results presented in Table 9 indicate that the presence of foreign insurers, measured by their market share (MS), has a positive and significant impact on the choice

TABLE 9
Model 4 With Market Structure Variables

	Ordered Probit		GLS	
	Coefficient	z-Statistic	Coefficient	t-Statistic
Constant term			-134.68	-4.62
Log (GDP per capita)	1.598	3.21	12.132	3.99
Log (Population)	1.799	4.95	15.392	9.11
Corruption (CPI)	0.227	1.27	2.559	2.3
MS foreign cies	0.031	2.61	0.262	3.11
MS state cie	-0.005	-0.44	-0.069	-0.72
R-squared = 0.724				
SE = 9.69				

of a host country. The importance of a state company (also measured by its MS) is close to zero and not significant as expected.

CONCLUSION

The opening up of the insurance markets in developing countries to foreign competition has long been a contentious issue. Numerous arguments, including the unfavorable balance-of-payment effect and the need to protect infant industries, have been advanced to justify measures to limit foreign investments. Today, most policymakers have concluded that liberalizing financial intermediation would strengthen financial markets and would be more conducive to sustainable economic growth.³¹

The results of this study have important implications. First, the results indicate that location-specific advantages such as size, education, regulatory barriers, competitiveness, and cultural distance do provide an explication of the internationalization of insurance firms in some locations. Second, they show that, as hypothesized, good governance, measured by corruption and government effectiveness has a strong impact on the choice of countries by insurance firms. Due to the lack of data availability for several countries, other factors such as the legal and accounting environment have been excluded.

An alternative approach at the company level, instead of the country level, would provide more information on the process of internationalization over time. Such an analysis, outside the scope of this research, would also allow for examining how market opportunities do occur and how changes in the regulatory or legal environment affect the decision of a company.

Provided that liberalization is promoted against the backdrop of a solid set of prudent supervision—the recent shift toward solvency-based supervision in many emerging markets is in this line of approach—consumer protection, competition, as well as proper disclosure of information, the opening up of the insurance markets should bring long-term benefits to the countries. The privatization of the social security

³¹ See a survey paper by Skipper (1997) on these issues.

system and excellent growth perspectives will open new opportunities for foreign insurers.

TABLE A1

The World's Largest Insurance Companies, 2003: Ranked by World Insurance Income (Million of Dollars and Number of Employees)

Rank	Company	Home Country	Insurance Income	Total Assets	Employees
1	Allianz	Germany	107,180	1,178,750 ^b	173,750 ^b
2	AXA	France	84,800	566,000	117,113
3	AIG	United States	70,320	678,350	86,000
4	Ass. Generali	Italy	62,500	289,700	60,638
5	ING	Netherlands	57,350	981,200 ^b	114,344 ^b
6	Aviva (CGNU)	United Kingdom	53,480	370,650	60,740
7	Zenkyoren (Agricultural Coop)	Japan	53,050	398,720	6,433
8	Munich Re	Germany	50,900	263,830	41,430
9	Zurich Financial Services	Switzerland	48,920	317,900	58,667
10	State Farm	United States	48,900	139,410	76,000
11	Nissay (Nippon Life)	Japan	48,260	424,700	72,784
12	Dai-Ichi Mutual	Japan	31,360	277,440	55,134
13	Meiji-Yasuda Life	Japan	31,100	239,600	49,412
14	Winterthur	Switzerland	30,230	129,910	20,281
15	Swiss Re	Switzerland	26,940	137,140	7,949
16	Fortis	Belgium/ Netherlands	26,230	133,520	25,785
17	Sumitomo Life	Japan	25,830	200,610	53,000
18	Allstate	United States	25,187	134,200	39,630
19	Aegon	Netherlands	24,530	295,500	27,708
20	CNP Assurances	France	24,520	210,800	3,580
21	Prudential	United Kingdom	24,480	287,250	21,930
22	Millea Holdings (Tokio Marine)	Japan	23,736	104,137	32,900
23	Metlife	United States	23,170	326,840	84,810
24	Berkshire Hathaway	United States	22,454	180,559	25,395
25	Ergo	Germany	20,330	141,000	31,470
26	Royal & Sun Alliance	United Kingdom	19,800	94,500	31,980
27	Liberty Mutual	United States	16,949	64,422	38,000
28	Standard Life	United Kingdom	16,910	156,910	14,586
29	Cigna	United States	15,440 ^a	90,953	32,700 ^c
30	Swiss Life	Switzerland	15,160	131,305	10,015
31	Travelers Corporation	United States	14,976	64,872	21,300
32	Hartford Financial Services	United States	14,910	225,853	30,000

(continued)

TABLE A1
(Continued)

Rank	Company	Home Country	Insurance Income	Total Assets	Employees
33	Aetna	United States	14,900 ^a	40,950	27,600 ^c
34	Hannover Re	Germany	14,290	41,550	1,972
35	Samsung Life	Korea (Rep. Of)	13,765	70,000	6,300
36	Massachusetts Mutual Life	United States	13,508	96,779	18,500
37	Predica (Crédit Agricole)	France	13,500	125,550	284 ^d
38	Prudential Financial	United States	13,233	321,274	39,400 ^c
39	Groupama	France	13,010	78,270	10,806
40	Mitsui-Sumitomo	Japan	12,140	69,245	13,675
41	CNA Financial (Loews)	United States	11,716	68,503	11,000
42	Chubb	United States	11,338	38,360	12,300
43	Northwestern Life	United States	10,300	113,822	7,900
44	Skandia	Sweden	10,035	47,340	5,936
45	Legal and General	United Kingdom	9,965	223,137	8547

Source: Based on company's websites, Figures are in US converted as of December. 31, 2003 except for Japanese firms (March 31, 2004).

^a Health insurance business

^b Figures are for global activities.

^c Information is provided for 2002.

^d Sales through 7,260 bank agencies and 35,000 bank representatives.

Note: Insurance income is gross premiums written (when available) because net premiums are not reported in most European and Japanese companies. On April 28, 2004, Manulife (Canada) acquired John Hancock Financial (USA). Consolidated insurance income for 2003 would amount to \$12,256. On April 1, 2004, St Paul Travelers was formed by the combination of Travelers Corporation and the St. Paul Companies. Consolidated insurance income for 2003 would amount to more than \$22,000 and the company would have been ranked in the top 25. Two Japanese companies may be missing in the list for lack of recent information (Mitsui Mutual Life, which became a stock company in early 2004, and Asahi Mutual Life, which postponed plans to be fully integrated into Millea Holdings). China Life is missing in this list for lack of information on the exact insurance income. TIAA-CREF is excluded from the list.

TABLE A2

The World's Largest Insurance Companies, 1986: Ranked by World Insurance Income (Million of Dollars and Number of Employees)

Rank	Company	Home Country	Total Revenue	Total Assets	Employment
1	Prudential of America	United States	23,602	103,317	62,400
2	Nippon Life	Japan	21,777	70,171	90,496
3	Metropolitan Life	United States	18,855	81,581	35,900

(continued)

TABLE A2
(Continued)

Rank	Company	Home Country	Total Revenue	Total Assets	Employment
4	Cigna	United States	17,064	50,016	50,100
5	Zenkyoren	Japan	14,004	62,443	7,900
6	Aetna Life	United States	13,637	42,957	25,700
7	Dai-Ichi Mutual	Japan	12,791	46,483	68,082
8	Sumitomo Life	Japan	11,211	38,910	71,821
9	American International Group	United States	9,704	21,023	28,000
10	Allianz	Germany	8,850	n.a.	28,300
11	Equitable Life	United States	8,234	48,578	25,000
12	Meiji Mutual Life	Japan	7,461	25,424	46,532
13	Trans-America Corporation	United States	7,120	16,182	14,800
14	Zurich Insurance Group	Switzerland	6,704	17,156	23,800
15	Prudential Corporation	United Kingdom	6,516	38,023	29,900
16	Assicurazioni Generali	Italy	6,435	16,688	18,500
17	Nationale Nederlanden	Netherlands	6,423	31,877	22,500
18	Travelers Life	United States	6,396	27,210	40,900
19	Union des Assurances de Paris	France	6,371	15,673	16,700
20	Asahi Mutual Life	Japan	6,229	22,775	41,570
21	Royal Insurance	United Kingdom	6,146	17,253	22,000
22	Continental Corporation	United States	6,002	13,623	17,000
23	Lincoln National	United States	5,999	16,244	14,000
24	New York Life	United States	5,890	29,794	18,300
25	John Hancock Mutual Life	United States	5,580	27,213	18,300
26	TIAA/CREF	United States	5,433	27,887	2,800
27	Mitsui Mutual Life	Japan	4,942	17,072	31,024
28	Winterthur Group	Switzerland	4,545	15,337	13,200
29	Assurances Générales de France	France	4,533	11,979	12,200
30	Principal Mutual Life	United States	4,504	16,994	9,700

Source: UNCTC(1989, pp. 184-186).

TABLE A3

Distribution of Revenues for the 15 Largest Insurance Groups (Total Revenues Exclude Investment Income and Fees for Banking Activities)

Group Name	% Reinsurance	% Nonlife (P/L)	% Life	% Financial Services
Insurance				
Allianz	5.2%	43.4%	42.3%	9.1%
Axa	5.0%	25.0%	65.0%	5.0%
ING		66.4%	12.7%	20.9%
Zurich FS		57.0%	24.3%	18.7%
Ass General!		34.5%	65.5%	
AIG		55.8%	38.5%	
Aviva		28.6%	67.5%	3.9%
Winterthur		48.4%	51.6%	

(continued)

TABLE A3
(Continued)

Group Name	% Reinsurance	% Nonlife (P/L)	% Life	% Financial Services
Aegon ^a		73.5%	26.5%	
Fortis		38.6%	58.9%	2.5%
Prudential			76.8%	23.2%
Royal & Sun Alliance		81.8%	18.2%	
Reinsurance				
Munich Re	50.0%	36.0%	13.6%	0.4%
Swiss Re	90.0%			10.0%
Hannover Re	100.0%			

^aDoes not include reinsurance activities of Transamerica Re.**TABLE A4**

The Most-Favored Locations by the Largest Insurance Groups, 2003

Rank	All Economies	Location Intensity
1	United States	100.0%
2	United Kingdom	93.7%
3	Germany	84.2%
4	China	76.2%
5	Hong Kong (China)	71.4%
6	France	68.4%
7	Ireland	66.6%
	Switzerland	66.6%
9	Spain	65.0%
	Italy	65.0%
11	Netherlands	63.2%
12	Brazil	61.9%
	Canada	61.9%
	Mexico	61.9%
15	Belgium	60.0%
16	Argentina	57.1%
	Portugal	57.1%
18	Japan	55.0%
19	Luxembourg	52.4%
	Poland	52.4%
21	India	47.6%
	Singapore	47.6%

TABLE A5

List of Countries Ranked by Number of Foreign Affiliates (Availability of Data in Each Model)

Country	Location Intensity	Model 1	Model 2	Model 3	Model 4
China	76.2	X	X	X	X
Hong Kong (China)	71.4	X	X	X	X
Brazil	61.9	X	X	X	X
Mexico	61.9	X	X	X	X
Argentina	57.1	X	X	X	X
Poland	52.4	X	X	X	X
India	47.6	X	X	X	X
Singapore	47.6	X	X	X	X
Indonesia	42.8	X	X	X	X
Chile	42.8	X	X	X	X
Colombia	42.8	X	X	X	X
Philippines	42.8	X	X	X	X
Taiwan (Prov of China)	42.8	X	X		X
Thailand	42.8	X	X	X	X
Czech Republic	38.1	X	X	X	X
Hungary	38.1	X	X	X	X
Venezuela	38.1	X	X		X
Malaysia	33.3	X	X	X	X
Korea (Rep. of)	33.3	X	X	X	
Russia	28.5	X	X		
Slovakia	28.5	X	X	X	X
Turkey	28.5	X	X	X	X
United Arab Emirates	28.5	X	X		X
Romania	23.8	X	X	X	
South Africa	23.8	X	X	X	X
Uruguay	19	X			
Bahrain	19	X	X		
Lebanon	19	X		X	X
Peru	19	X	X		
Vietnam	19	X	X		X
Bulgaria	14.2	X	X	X	
Estonia	14.2	X	X		
Côte d'Ivoire	14.2	X			
Ecuador	14.2	X	X		
Egypt	14.2	X	X		X
Guatemala	14.2	X	X		
Morocco	14.2	X	X		X
Pakistan	14.2	X	X	X	
Panama	14.2	X	X		
Saudi Arabia	14.2	X			X
Tunisia	14.2	X	X		
Ukraine	9.5	X	X	X	
El Salvador	9.5	X	X		
Honduras	9.5	X	X		
Iran	9.5	X		X	

(continued)

TABLE A5
(Continued)

Country	Location Intensity	Model 1	Model 2	Model 3	Model 4
Nigeria	9.5	X	X	X	
Oman	9.5	X			
Zimbabwe	9.5	X	X	X	
Bangladesh	4.8	X	X		
Cameroun	4.8	X	X		
Dominican Rep.	4.8	X	X		
Jamaica	4.8	X	X	X	
Kenya	4.8	X	X	X	
Sri Lanka	4.8	X	X		

TABLE A6
Summary Statistics

	Corruption	Distance	GDP/ Capita	GDP Growth	Governance	Human Capital	Population	Trade Efficiency
Developing economies								
Mean	3.7	3.17	4337	3.61	-0.035	0.42	94	6.6
Median	3.3	3.18	2302	3.6	-0.02	0.41	25	6.7
Maximum	9.4	3.59	22618	9	2.26	0.86	1285	9.4
Minimum	1.3	2.79	191	0.4	-1.14	0.11	0.7	3.2
Std. Dev.	1.74	0.21	5656	1.72	0.73	0.18	242.3	1.4
Skewness	1.28	0.2	2.18	0.55	0.9	0.31	4.2	0.2
Kurtosis	4.58	2.33	6.98	3.72	3.65	2.52	19.5	3.1
No. of observations	45	23	45	45	45	45	45	39
Transition economies								
Mean	3.9	3.01	5824	1.77	0.25	0.76	29	6.9
Median	3.8	2.95	5687	2.65	0.51	0.78	10	6.8
Maximum	5.9	3.26	13831	4.8	0.82	0.86	143	8.5
Minimum	2.3	2.84	975	-4.6	-0.74	0.59	1.3	5.6
Std.Dev.	1.18	0.16	3885	2.9	0.58	0.09	43.2	1.1
Skewness	0.36	0.43	0.72	-1	-0.53	-0.66	2.1	0.1
Kurtosis	2.05	1.65	2.77	3018	1.69	2.38	6.2	1.5
No. of observations	9	7	9	9	9	9	9	9

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