

## What makes stock exchanges succeed? Evidence from cross-listing decisions<sup>☆</sup>

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### Abstract

Despite the increasing integration of capital markets, geography has not yet become irrelevant to finance. Between 1986 and 1997, European public companies have increasingly listed abroad, especially in the U.S. We relate the cross-listing decisions to the characteristics of the destination exchanges (and countries) relative to those of the home exchange (and country). European companies appear more likely to cross-list in more liquid and larger markets, and in markets where several companies from their industry are already cross-listed. They are also more likely to cross-list in countries with better investor protection, and more efficient courts and bureaucracy, but not with more stringent accounting standards. © 2001 Elsevier Science B.V. All rights reserved.

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## **1. Introduction**

In the last two decades technological progress and liberalization of capital flows have lowered the barriers that insulated domestic stock markets from each other. Firms can access foreign capital markets more easily. And they increasingly seek such access, to cater to the growth in the scale and reach their operations. But it is far from obvious that accessing foreign capital markets should require them to seek stock listings abroad. As capital markets become more integrated, companies should be able to tap foreign capital directly from their home market. Investors should be able to participate in initial public offerings abroad and trade shares cross-border, and brokers to operate directly in foreign stock markets via remote membership.

In other words, one may expect that as capital market integration proceeds, geography becomes increasingly irrelevant to finance. Surprisingly, however, this does not appear to be the case. The number of European companies seeking a foreign listing has increased between the mid-1980s and the late 1990s. As we document in Section 2 of this paper, some exchanges – chiefly those in the U.S. – have attracted a larger number of these cross-listings than others, becoming more international in character. Most European exchanges, instead, have tended to move in the opposite direction. In addition, there is evidence that it is the most dynamic European firms that are cross-listing in the U.S.

This leads to the question: what makes some stock markets more attractive than others from the viewpoint of companies? In Section 3 of this paper we address this question by asking which characteristics of exchanges are most closely correlated with the cross-listing decision for a sample of European companies. We find that companies are more likely to cross-list in more liquid and larger markets, and in markets where several companies from their industry are already cross-listed. In contrast, the decision to cross-list is not correlated with the difference in analyst coverage between exchanges.

The decision to cross-list on a given exchange may also be related to characteristics of the country where that exchange is located (rather than to those of the exchange itself). Indeed, the European companies in our sample appear more likely to cross-list in countries with better investor protection and more efficient courts and bureaucracy, and with language and institutions similar to their home country. But their cross-listing decisions are negatively correlated with differences between the accounting standards of the destination and home country – possibly an indication that the cost of adapting to more stringent accounting standards exceeds the benefit stemming from the added transparency vis-à-vis investors.

## 2. Cross-border listings in Europe and the United States

We track the change in the international openness of stock exchanges and in their competitiveness by two variables. The ratio of foreign listings to the total listings of each market captures its ability to attract companies from abroad. The fraction of domestic companies cross-listed abroad indicates instead the exchange's inability to fulfill all the needs of domestic companies.

Fig. 1 shows the ratio of the number of foreign to total listings for 10 European exchanges (Amsterdam, Brussels, Frankfurt, London, Madrid, Milan, Paris, Stockholm, Vienna and Switzerland<sup>1</sup>) and three U.S. exchanges (NYSE, Nasdaq and Amex). This measure of 'outward orientation' varies enormously across exchanges, from around 50 percent in Amsterdam, Brussels, Frankfurt and Switzerland to almost zero in Milan and Madrid. London, Paris and Vienna fall in an intermediate range, around 20 percent. U.S. exchanges are relatively insular, at least in the 1980s. Therefore, on this score, most European exchanges seem more outward oriented than U.S. exchanges, especially at the beginning of the sample period. One possible explanation is that European economies are smaller and more open and mutually integrated than the U.S. At the same time, the remaining barriers to cross-border transactions within Europe may have prompted companies to seek a listing abroad as a means of reaching foreign investors. However, this begs the question of why Madrid, Milan and Stockholm are not more international marketplaces.

Over time, however, the picture is changing significantly. Nasdaq and the NYSE are becoming increasingly international, whereas the opposite is happening in Amsterdam, Frankfurt, London, and Vienna. The ratio is rising slightly or is roughly stable for other European exchanges.<sup>2</sup> The increasing outward orientation of the U.S. markets may be related to a combination of factors. First, the number of large, internationally minded companies seeking capital and visibility on foreign financial markets increased, partly because of privatizations. Such companies required a deep and liquid market such as the U.S. to accommodate their funding needs and acquisition strategies. Second, in response to this business opportunity, U.S. exchanges and regulators made a concerted effort to reduce regulatory costs and facilitate

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<sup>1</sup> In 1995 the stock exchanges of Basel, Geneva and Zurich merged into the Swiss Exchange. For the pre-merger period we collected data for Zurich and Basel (complete data for Geneva being unavailable) and treated them as a single exchange. We exclude the companies previously listed in Geneva (but not in Basel or Zurich) from the sample of companies cross-listed on the Swiss Exchange in 1996.

<sup>2</sup> As far as Brussels is concerned, the indicator of Fig. 1 may convey the impression that this exchange has become more international. In fact, the number of foreign listings in Brussels has decreased. Our indicator increases because the number of domestic listing has decreased even more rapidly.

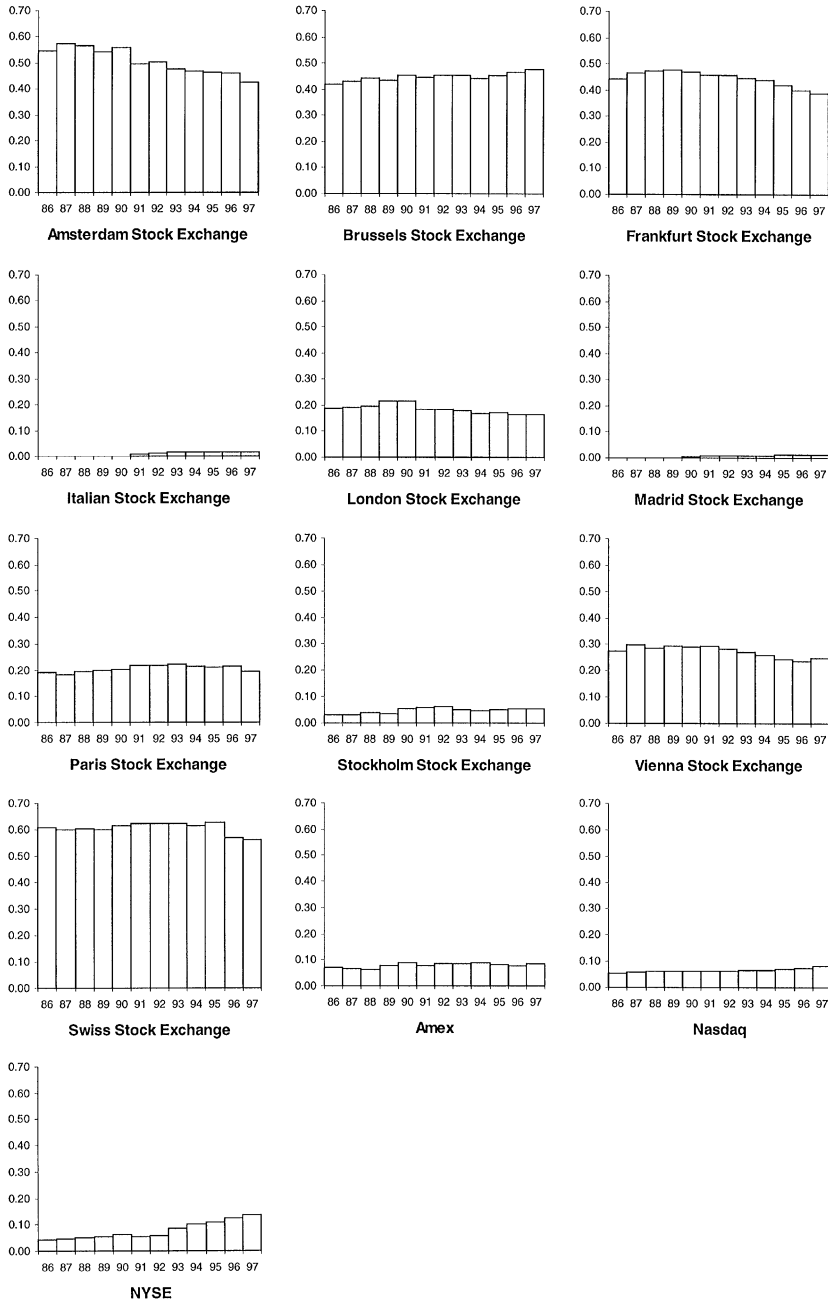


Fig. 1. Proportion of foreign companies (No. of foreign companies listed on domestic exchange/ total no. of companies listed on domestic exchange).

foreign listings.<sup>3</sup> European exchanges, instead, appear unable to capture as many new listings from abroad, especially from non-European countries. From 1986 to 1997, the number of U.S. companies listed in Europe decreased by one third. Over the same interval, the number of listings in Europe by non-U.S. and non-European companies rose by a modest 5 percent, while the corresponding increase on U.S. exchanges was 131 percent (see Pagano et al., 2000, Table 2).

Fig. 2 displays the tendency of domestic companies to seek a foreign trading forum, measured by the proportion of the domestic public companies that have listed abroad. We call this the ‘diaspora’ index. The set of exchanges is the same as in Fig. 1. Historically, Dutch and German companies were most likely to seek a listing abroad (their diaspora index is between 10 and 20 percent). Over time, the diaspora index has increased substantially for most European countries (except Switzerland and Frankfurt), while it has decreased for the U.S. Moreover, most of the additional foreign listings by European companies have been captured by U.S. exchanges rather than by other European exchanges. Pagano et al. (2000, Table 2) report that in 1986–1997 the foreign listings by European companies on European and U.S. exchanges increased by 16 and 291 percent, respectively.

These numbers do not tell the whole story, however. The European companies that cross-list in the U.S. and in Europe are qualitatively different, as shown by Pagano et al. (2000). Those that cross-list in the U.S. are relatively high-growth, high-tech, R&D-intensive and strongly export-oriented. European exchanges have instead been chosen more often by companies with a stronger record of past profitability, though this may reflect the tighter listing requirements (regarding a track record of accounting profits) compared to Nasdaq. The performance of the two groups of companies after the cross-listing is also quite different. European companies that cross-list in the U.S. experience a permanent increase in total assets, while those that cross-list within Europe end up with a permanent reduction of total assets relative to the control sample. These results parallel the Blass and Yafeh (2000) finding that Israeli and Dutch firms which choose Nasdaq for their initial public offering (IPO) are overwhelmingly high-tech oriented, and feature higher

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<sup>3</sup> Decker (1994) reports that in the early 1990s the Security Exchange Commission (SEC) became far more cooperative towards non-U.S. companies trying to register in the U.S.: ‘They [the SEC] do not want foreign companies avoiding the U.S. markets because the regulatory process is too complicated and burdensome to deal with’ (pp. S22–23). This change in attitude was at least partly prompted by stock exchange officials who regarded the listing of foreign companies as an attractive business opportunity, as exemplified by Cochrane (1994): ‘How will companies like Nestlé or Siemens, as well as the newly privatizing companies in the industrializing world, come to the American capital markets if we don’t resolve the existing regulatory barriers? ... Foreign listings represent an opportunity that the NYSE doesn’t want to miss, both as a business and as an institution important to maintaining the international preeminence of the U.S. securities market’ (p. S59, p. S61).

growth and stronger export orientation than those which go public on their domestic exchange.

The contrast between the firms that cross-list in the U.S. and within Europe is also reminiscent of that between European and U.S. companies' domestic IPOs, documented by Pagano et al. (1998), Planell (1995), Rydqvist and Högholm (1995) and Mikkelsen et al. (1997). These studies, respectively, conducted on Italian, Spanish, Swedish and U.S. panel data, investigate how the characteristics and behavior of companies listing for the first time (on their domestic market) differ from those that decide to stay private. In Italy, Spain and Sweden, domestic IPOs do not appear to finance subsequent investment and growth while in the U.S. they presage phenomenal growth. Moreover, European IPOs are on average much older than their U.S. counterparts.

These studies on domestic IPOs therefore suggest that, at least until the late 1990s, in European countries the stock market has mainly catered to large, mature companies with little need to finance investment, while the opposite has been true of the United States. This seems to apply equally to cross-listing decisions: when it comes to cross-listing, the most dynamic and outward-oriented European companies self-select onto U.S. exchanges.

The open issue is why these companies regard U.S. exchanges as more attractive than European exchanges. This is the issue that the rest of this paper tries to address.

### **3. Exchange and country characteristics and cross-listing decisions**

The benefits and the costs of a foreign listing are likely to depend on the characteristics of the exchange where the company cross-lists and on the institutional features of the country where the exchange is located. In this section we investigate how the actual cross-listing choices of companies correlate with specific features of exchanges (trading costs, capitalization, analysts' coverage, presence of other foreign companies) and jurisdictions (investor protection, enforceability of contracts, bureaucratic delays, accounting standards, commonality of language and legal system). For each company that cross-lists, we compute the difference between the characteristics of its destination market and its home market, and then average these differential characteristics across companies. The sample includes all the first cross-listings effected in 1986–1997 by European companies<sup>4</sup> present in the Global Vantage database. We consider cross-listings into one of 10 European exchanges and three U.S. exchanges.<sup>5</sup>

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<sup>4</sup> More precisely, these are companies listed domestically in the main segment of the following 10 exchanges: Amsterdam, Brussels, Frankfurt, London, Madrid, Milan, Paris, Stockholm, Vienna, Zurich/Basel/Geneva. The sample includes both non-financial and financial companies, but excludes investment funds.

<sup>5</sup> The 10 European exchanges are those listed in the previous footnote. The three U.S. exchanges are Amex, Nasdaq and NYSE. For all three U.S. exchanges, we consider level II and level III American Depository Receipts (ADRs).

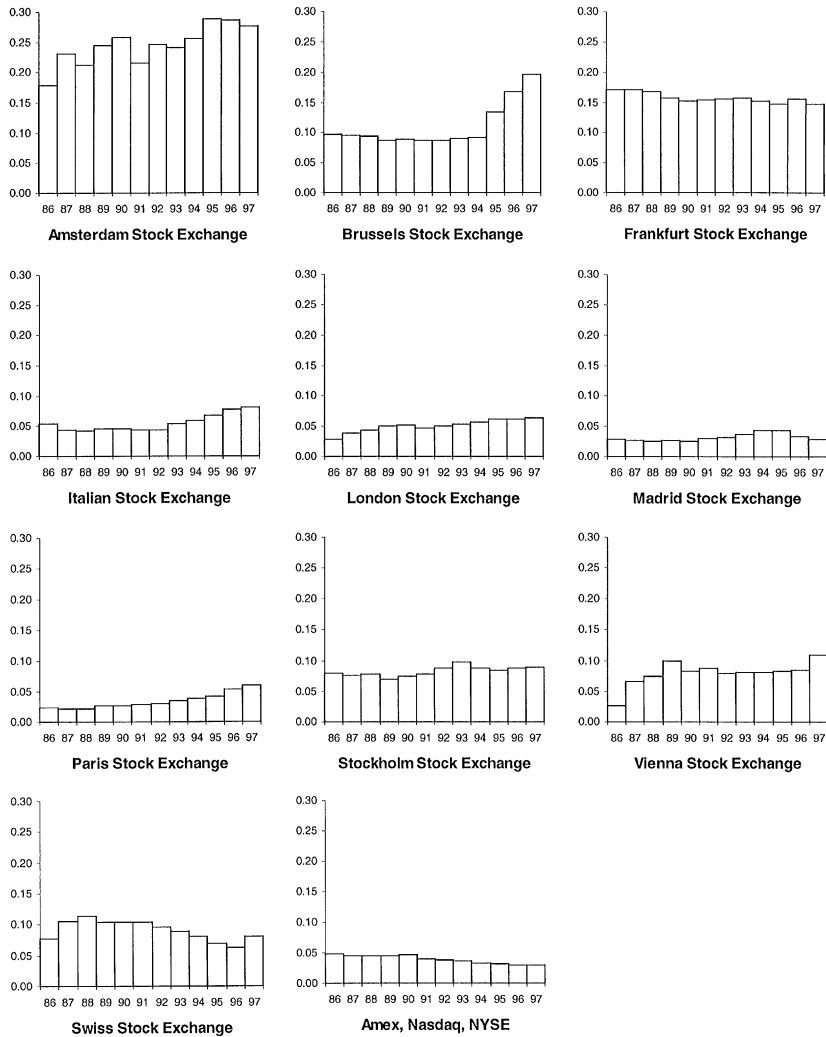


Fig. 2. Diaspora indices. (No. of domestic companies listed abroad/no. of domestic companies listed on domestic exchange).

### 3.1. Exchange characteristics

#### 3.1.1. Liquidity

The production of liquidity services is often regarded as the key function of a stock exchange. Greater liquidity can translate into a lower cost of capital for the company concerned, insofar as it is valued by investors and factored into

market prices (Amihud and Mendelson, 1986; Brennan and Subrahmanyam, 1996). One would therefore expect cross-listing choices to be driven by the quest for higher liquidity: companies from relatively illiquid exchanges should be especially likely to cross-list on more liquid exchanges. We compute the difference between the trading costs of the destination and home exchanges in our sample of cross-listings. The first row of Table 2 shows that on average trading costs are 11.67 basis points lower on the destination exchange than on the originating exchange. When market impact is excluded from our measure of trading costs, the difference becomes 15.89 basis points. In both cases, the improvement in liquidity is both statistically and economically significant: the reduction amounts to over 40 percent of the average trading costs in all the exchanges of our sample, which is 35 basis points with market impact and 24 basis points without. The destination exchange is also more liquid than the average of all the exchanges in our sample: its trading costs are 4.29 basis points lower including market impact and 7.44 without it, as shown in the second column of Table 1.

### 3.1.2. *Stock market size*

Companies may also be attracted by larger stock markets, insofar as they provide access to a larger pool of potential investors. Moreover, being listed on a large stock market may confer greater visibility and reputation upon a company. Bancel and Mittoo (2001), in a survey of 305 European companies listed on foreign stock exchanges, report that the most important perceived benefit of a foreign listing is the increased visibility and prestige (57 percent of the respondents). Indeed, size appears to matter. The second row of Table 1 shows that on average companies cross-list in markets significantly larger than their home exchanges (the difference in stock market capitalization being US\$ 684.17 billion) than the average exchange in our sample (U.S. \$ 744.06 billion). The destination exchange is 4.47 times larger than the home exchange.

### 3.1.3. *Analysts' coverage*

One possible benefit of a cross listing is exposing the company to the attention of additional financial analysts, and thereby to a wider investor base.<sup>6</sup> But the figures in row 3 of Table 1 shows that this is not the case. In the destination market, the average number of earnings forecasts per firm is 0.57 lower than in the home exchange and does not differ significantly from the mean of all 13 exchanges (4.55 forecasts per company).

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<sup>6</sup> Baker et al. (1999) find that firms cross-listing on the NYSE gain greater visibility than companies cross-listing on the LSE. They measure visibility by the analyst following of the company.

Table 1

Characteristics of destination and home exchange for European cross-listing companies, 1986–1997<sup>a</sup>. Trading costs is measured by the sum of commission, fees and (where stated) market impact, averaged over global trades of 135 institutional investors in the 3rd quarter of 1998, in basis points (source: Elkins/McSherry Co., Inc.). Capitalization is each exchange's total capitalization measured in billions of US dollars, as of 1992 (source: International Federation of Stock Exchanges (FIBV)). Analyst coverage is the number of one-year-ahead earnings-per-share forecasts for firms listed in a given exchange (source: I/B/E/S International Inc.) divided by the total number of domestic listings in that exchange (source: FIBV). Foreign listings is the number of foreign companies already listed on an exchange. Peer presence is measured first as the number of foreign companies listed on an exchange with a particular one-digit SIC code, and then as the fraction of all the cross-listings effected in all the 13 markets of the sample within a particular one-digit SIC code. For analyst coverage, foreign listings and peer presence, we use yearly data from 1986 to 1997.

Exchange characteristic	Mean difference between destination and origin exchange	Mean of difference between destination exchange and average of all exchanges	No. of observations
1. Trading costs:			
Including market impact	– 11.67***	– 4.29***	157
Excluding market impact	– 15.89***	– 7.44***	157
2. Capitalization	684.17***	744.06***	159
3. Analyst coverage	– 0.57**	– 0.20	159
4. Foreign listings	8.38***	15.28***	159
5. Peer presence:			
No. of cross-listed companies in same industry	2.35***	2.97***	159
Percent of all cross-listings in same industry	7.76***	8.10***	159

\*\*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.

### 3.1.4. 'Be with your peers'

Cross-listing behavior may be affected by informational cascades: if a company's managers observe many companies listing on a particular stock exchange, they may infer that there is much to be gained from imitating them. If the companies already listed on that exchange also belong to the same industry, there may be an added reason to imitate them. Failing to do so might put the company at a competitive disadvantage in the industry – a point made by Stoughton et al. (1999) with reference to domestic listings. The figures in rows 4 and 5 of Table 1 are consistent with these arguments. On average, on the destination exchange there are eight more cross-listed companies than in the home market, and 2.4 more if the calculation is referred to companies in the same 1-digit industry. The proportion of cross-listed firms in the total number of cross-listings belonging to the same industry is 7.76 percentage points higher in the destination exchange than at home, and 8.10 percentage points higher than the average over all exchanges.

Table 2

Characteristics of destination and home country for European cross-listing companies, 1986–1997<sup>a</sup>. Accounting standards is the index of financial reporting practices for industrial companies by country and year, taken from Table 11-1A, p. 510 of CIFAR (1995), Vol. 1. In years not analyzed by CIFAR the previous figure was filled forward. Investor protection is the Antidirector Rights Index from LaPorta et al. (1998) ranging from a score of zero (worst) to five (best). Enforceability of contracts is a survey-based yearly index published by BERI, ranging from zero (worst) to four (best), drawn from Svensson (1998). Bureaucratic speed is the yearly Bureaucratic Delays Index by BERI, also ranging from zero (worst) to four (best)

Country characteristic	Mean difference between country of destination and origin	Mean of difference between destination country and average of all countries	No. of observations
1. Accounting standards	– 2.46***	1.47***	159
2. Investor protection	0.26*	0.74***	159
3. Enforceability of contracts	0.13***	0.23***	159
4. Bureaucratic speed	0.16***	0.20***	159

\*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels respectively.

### 3.2. Country characteristics

#### 3.2.1. Accounting standards

Listing in a country with better accounting standards allows the company to precommit to greater transparency and thereby reduce the monitoring costs of its shareholders and their required rate of return. But this benefit does not come for free: switching to a different accounting system can have substantial costs. Biddle and Saudagaran (1989) and Saudagaran and Biddle (1992) find that stringent disclosure requirements deter the listing of foreign companies, and the companies surveyed by Bancel and Mittoo (2000) place them among the chief disadvantage for a cross-listing. The data in Table 2 say that destination countries have on average lower accounting standards than origin countries, although better than average. This result is driven mainly by the cross-listings of British companies, which are a large portion of our sample: since Britain has excellent accounting standards, for them listing elsewhere means choosing markets with lower accounting standards.

#### 3.2.2. Legal variables

The degree of shareholder protection against the misbehavior of companies' directors is largely determined by the law of the country of incorporation and by the way its courts interpret and enforce it. However, a cross-listing in a country with tougher standards of investor protection may affect some aspects of

corporate governance, and thereby provide a way to overcome some agency problems between managers (or controlling shareholders) and non-controlling shareholders. Subjecting to a better jurisdiction should imply better reputation in the capital market, more abundant outside equity finance and possibly lower cost of capital. Moreover, if a cross-listing is a preliminary step in a strategy of expansions and acquisitions abroad, a company is likely to prefer a country where contracts are easily enforced and the bureaucracy is efficient. This is consistent with our results in Table 2: companies tend to cross-list in markets with better investor protection, enforceability of contracts and faster bureaucracy than both the originating country and the average country.

### 3.2.3. *Cultural homogeneity*

Companies may tend to cross-list in countries that are culturally similar to their home country in terms of language and institutions, because this reduces costs of communication with foreign investors and legal/accounting costs. We define three ‘culturally homogeneous’ groups: one including Austria, Germany, the Netherlands, and Switzerland; another including Belgium, France, Italy, and Spain; and a third including Great Britain and the United States (Sweden is not assigned to any group). For each cross listing, we construct an indicator that equals one if the destination and origin countries belong to the same group and zero otherwise. The average value of this indicator is found to be 0.57, implying that 57 percent of cross-listings are within the same cultural group. This is to be compared with the scenario where companies assign no weight to cultural similarity in their cross-listing decision: in this scenario the average value of our indicator would be 0.24.<sup>7</sup> The difference is positive, implying that companies are seen to cross-list within the same cultural group with a frequency 33 percentage points higher than they should if they cross-listed randomly. The difference is statistically different from zero at the 1 percent significance level.

## 4. Conclusions

Despite the increasing integration of capital markets, geography has not yet become irrelevant to finance. Between the mid-1980s and the late 1990s, European public companies have increasingly listed in other countries, especially in the U.S. In previous research we have related these cross-listing decisions to companies’ characteristics and behavior. In the present paper, instead, we relate

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<sup>7</sup> To find this hypothetical value, we calculate for each country the probability of listing within the same cultural group assuming companies to be equally likely to cross-list on any exchange. We then compute the weighted average of these probabilities, using the respective country’s proportion of total cross listings as weights.

the cross-listing decisions to the characteristics of the destination exchanges (and countries) relative to those of the home exchange (and country).

We find that European companies are more likely to cross-list in more liquid and larger markets, and in markets where several companies from their industry are already cross-listed. They are also more likely to cross-list in countries with better investor protection, and more efficient courts and bureaucracy, but not with more stringent accounting standards.

At least two tasks are left to future research. First, we do not know how the market characteristics of individual companies – for instance, their liquidity and analyst coverage – change around the cross-listing date. The individual experiences of the cross-listing companies may not reflect the market-wide differences documented in this paper (for instance, cross-listing companies may experience greater analyst coverage, even though this is generally lower on the destination exchange). Second, a complete analysis of cross-listing decisions should take into account simultaneously both the characteristics of companies and those of exchanges. One way to do this is to repeat the exercise performed in Section 3 of this paper for subsets of companies with different characteristics, for instance high-growth versus low-growth, or high-tech versus low-tech firms.

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