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## The market reaction to cross-listings: Does the destination market matter?

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## ABSTRACT

This paper examines (i) whether market reactions to cross-listings differ across destination markets and (ii) to what extent the following explanations for value creation around cross-listings can account for differences in market reactions across cross-listings on various destination markets: overcoming market segmentation, increased market liquidity, improved information disclosure, and better investor protection (“bonding”). We analyze 526 cross-listings from 44 different countries on eight major stock exchanges and document significant announcement returns of 1.3% on average for cross-listings on US exchanges, 1.1% on London Stock Exchange, 0.6% on exchanges in continental Europe, and 0.5% (not significant) on Tokyo Stock Exchange. We find evidence consistent with improved disclosure and bonding creating value for cross-listings on US exchanges, while overcoming segmentation and bonding are associated with higher announcement returns on the London Stock Exchange. The evidence is mixed for continental European exchanges and for Tokyo. Our results highlight the role of the destination market in value creation around cross-listings.

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## 1. Introduction

Cross-listings on US exchanges are associated with significantly positive stock market reactions (Foerster and Karolyi, 1999; Miller, 1999; Doukas and Switzer, 2000). Recent research examines (and generally finds support of) four possible explanations for the valuation gains to overseas listings: overcoming market segmentation, increased market liquidity, improved information disclosure, and better investor protection (“bonding”).<sup>1</sup>

However, the recent literature largely ignores cross-listings on non-US exchanges. Neglecting these cross-listings is likely to lead to an incomplete understanding of the impact of cross-listings on firm value and of the sources of valuation changes around cross-listings. In this paper, we investigate whether the valuation gains to overseas listing on US and non-US stock exchanges depend on the characteristics of the destination market.

We investigate the stock price reaction to 526 cross-listings from 44 different countries on eight major stock exchanges in the US, the UK, continental Europe, and Japan in the period 1982–2002. The key contribution of our paper is that we are able

to test the power of each of the four explanations for the valuation benefits of cross-listings for the different destination markets.

Our paper is related to the study of Sarkissian and Schill (2009). They investigate the long-term valuation effects of a large sample of cross-listings on different markets. They examine whether the valuation effects of cross-listings are permanent and find little evidence that they are. We add to their study in several ways. First, we examine the short-term stock price reaction at the time of announcement of the cross-listing instead of the abnormal firm performance during a 20-year period around the cross-listing. Although identifying reliable announcements dates is an important concern in our approach, looking at these much longer windows leads to observed valuation gains that may not be directly attributable to the cross-listing, since the long-term performance of companies depends on many different factors. Second, Sarkissian and Schill (2009) include country characteristics in regressions of long-run abnormal firm performance, but they do not compare the average valuation effects of cross-listings on individual destination markets as we do in our paper. Third, we allow the coefficients on country and firm characteristics to be different for different destination markets. This approach enables us to uncover which characteristics can explain differences in abnormal returns for which destination markets. Fourth, we include a substantially larger number of firm characteristics in our analysis.

We find a statistically significant abnormal return around the announcement date of 0.98% on average for the overall sample.

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In line with expectations, cross-listings on US exchanges are associated with the highest valuation gains. US exchanges are generally considered to have the largest shareholder base, the deepest and most liquid markets, the most stringent disclosure requirements, and the strongest investor protection of financial markets worldwide. In particular, the abnormal return of cross-listings on Nasdaq or NYSE is 1.29% on average. Cross-listings in London, continental Europe, and Tokyo yield an average abnormal return of 1.09%, 0.58%, and 0.45%, respectively. The abnormal return for cross-listings in Tokyo is not statistically significant.

Firms from emerging markets reap significantly larger benefits from cross-listing than firms from developed markets. Firms from emerging markets show an announcement return of 2.32%, while firms from developed economies show a return of 0.68% (difference significant at the 1% level). However, this simple classification does not allow for a distinction between various sources of value creation in cross-listings. Emerging markets are characterized by the combination of investment barriers, low market liquidity, low accounting standards, and weak investor protection. Therefore, we use a host of different market and firm characteristics to measure the importance of alternative explanations for value creation in cross-listings.

Our evidence is broadly consistent with disclosure and investor protection playing a role in the value creation of cross-listings on US markets. Market segmentation and investor protection are significantly related to abnormal returns for firms cross-listing in London. Measures of the four explanations of value creation suggested by the literature have little power in explaining cross-listing returns for Europe and Tokyo. These results raise the question which underlying forces drive differences in value creation on these exchanges. We invite future theoretical and empirical work to address this issue.

## 2. Explanations for valuation gains around cross-listings

Foerster and Karolyi (1999), Miller (1999), Doukas and Switzer (2000), and Salva (2003) present evidence of positive valuation gains for firms that cross-list on Anglo-Saxon stock exchanges. These results contrast with earlier studies that report an insignificant stock price reaction in the listing month for US firms listing their shares in London, Tokyo, Toronto, or continental Europe (Lee, 1991; Varela and Lee, 1993; Lau et al., 1994). In this paper, we compare cross-listings on non-US exchanges with those on US exchanges to examine the role of the destination market and firm characteristics in value creation around cross-listings. This section provides a short overview of the four different explanations for the valuation gains to cross-listings put forward by recent theoretical and empirical research.

### 2.1. Market segmentation

The traditional argument for why cross-listing augments firm value is that it overcomes international investment barriers and thus leads to a reduction in the cost of capital, as the risk premium resulting from the investment barriers dissipates (Errunza and Losq, 1985). According to the market segmentation hypothesis, the valuation gain around the cross-listing thus depends on the degree to which the home country is integrated in the world market. Miller (1999) finds that cross-listings on US markets are associated with significantly higher announcement returns for firms from emerging countries than for firms from developed markets. Lins et al. (2005) emphasize the importance of access to external capital markets, especially for emerging markets firms. Karolyi (2004) finds that the expansion of ADR programs originating from 12 emerging markets is associated with greater integration with world markets.

### 2.2. Market liquidity

Cross-listings on deeper and more liquid equity markets could lead to an increase in the liquidity of the stock and a decrease in the cost of capital. Foerster and Karolyi (1998) show that cross-listings of Canadian firms in the US are associated with an increase in trading volume and a decrease in effective spreads. Smith and Sofianos (1996) document a substantial increase in the combined value of trading for a sample of foreign listings on NYSE. Silva and Chávez (2008) find that Latin American firms with an ADR do not always exhibit a liquidity advantage in the local market. Halling et al. (2008) document that for cross-listings on US exchanges, the fraction of trading that occurs on the destination market is greater for firms from countries that are geographically close to the US and for firms from less developed countries.

### 2.3. Information disclosure

Cross-listing on a foreign market can affect a firm's information environment. Saudagaran and Biddle (1992, 1995) argue that strict listing and accounting regulations deter cross-listings. However, Cantale (1996), Fuerst (1998), and Moel (2001) show that firms can use a cross-listing on markets with stringent disclosure requirements to signal their quality to outside investors. Some exchanges have more stringent disclosure requirements than others, but cross-listings do not affect the information environment of firms through compulsory disclosure alone. Baker et al. (2002), Lang et al. (2003a,b), show that cross-listings are associated with increased media attention, greater analyst coverage, better analysts' forecast accuracy, and higher quality of accounting information.

### 2.4. Investor protection

Coffee (1999), Stulz (1999), and Black (2001) argue that firms can "bond" themselves by cross-listing on a stock exchange with higher standards of investor protection in order to protect minority shareholders. Doidge et al. (2004) model the cross-listing decision as a trade-off between private benefits of control and taking advantage of growth opportunities by using bonding to reduce the cost of capital. They show that companies with a cross-listing in the US have a higher valuation than non-cross-listed corporations, especially when they have high growth opportunities. Reese and Weisbach (2002) and Lins et al. (2005) show that cross-listings by firms from countries with weaker investor protection lead to greater subsequent equity issues and a relaxation of capital constraints. Doidge (2004) finds that the voting premiums of firms with dual-class shares are considerably lower for cross-listed firms. Chung (2006) argues that investor protection also affects the liquidity of ADRs. Licht (2003), Siegel (2005), and Burns et al. (2007) challenge the legal bonding hypothesis for cross-listings in the US.

Bonding may also play a role for non-US exchanges, although to a lesser extent. Troeger (2007) argues that even informed investors do not assess individual rules and standards but only consider the general reputation of regulatory packages in their pricing. Hence, issuers can potentially capture a bonding premium when they list in any destination market with stricter legal investor protection than their home country.

## 3. Data and methodology

### 3.1. Sample description

We identify all cross-listings on eight major stock exchanges during the period 1982–2002. To be included in the sample, a company must have an identifiable listing date for a cross-listing

on NYSE, Nasdaq, Amsterdam Stock Exchange, Brussels Stock Exchange, Paris Stock Exchange, London Stock Exchange, Frankfurt Stock Exchange, or Tokyo Stock Exchange.<sup>2</sup> (The stock exchanges of Amsterdam, Brussels, and Paris merged to form Euronext in 2000.)

Our initial sample consists of 1441 cross-listings identified from data compiled by the Bank of New York (for NYSE/Nasdaq), from stock exchange websites, and from lists obtained from stock exchanges' research and information departments. The sample includes the cross-listing of common shares, GDRs, and ADRs. To avoid survivorship bias, we also include firms that were cross-listed on one of the eight exchanges at some point during the sample period but that are no longer listed today. We exclude 224 investment funds and stocks that did not list on official stock markets (members of the World Federation of Stock Exchanges).

We measure stock price reactions around the announcement date instead of the listing date. Foerster and Karolyi (1999) and Sarkissian and Schill (2009) point at potential problems in the identification of announcement dates. However, Miller (1999) and Doidge (2004) emphasize that in efficient markets, investors' expectations regarding the change in the valuation of the firm as a result of the cross-listing are incorporated into stock prices immediately. Consequently, studying stock price changes around announcement dates enhances the assessment of the market's reaction to cross-listings. Research on stocks that move from the OTC or Nasdaq to NYSE also underlines the importance of using announcement rather than listing dates, see Sanger and McConnell (1986) and Kadlec and McConnell (1994).

Announcement dates are identified by a search of all company news using Lexis/Nexis, Bloomberg, and Reuters, for up to three years before the listing date. As identifying exact announcement dates is crucial for our analysis, we conduct an extensive search for the first announcement of the cross-listing and discard firms for which there are any doubts about this date. We note that these news sources also contain translations of company news from non-English language sources in many countries. We remove 349 cross-listings from the sample for which we could not find an announcement date. Stock prices are collected from Datastream. We require stock return data for 250 trading days before the earliest public announcement by the firm of its plan to cross-list its stock. This requirement excludes another 342 cross-listings from our sample. Our final sample therefore consists of 526 cross-listings by 461 different firms. Table 1 presents the composition of the sample.

### 3.2. Empirical tests

We use a standard event study procedure to assess stock price changes around the earliest public announcement of the foreign firm's intention to cross-list. We estimate the market model to calculate daily abnormal returns. We use an estimation period of 250 trading days before the event window. We obtain similar results when we use a 250 trading day post-event estimation period, when we use shorter pre- or post-event estimation periods, when we use both a 120-day pre- and post-event estimation windows while allowing for betas to change, and when we use a two-factor market model with the home market as well as the world market factor. Abnormal returns are com-

puted during the event period from one trading day before to one trading day after the event date. Parametric tests of statistical significance are based on standardized abnormal returns, see Brown and Warner (1985).<sup>3</sup> We also use the non-parametric Wilcoxon test.

We use the cumulative abnormal return around the announcement date of cross-listings as dependent variable in cross-sectional regressions to investigate the validity of alternative explanations for value creation. In particular, we want to examine whether various rationales for value creation are more successful in explaining differences in event returns across cross-listings on some destination markets than on others. Our basic regression specification is as follows:

$$CAR_j = \sum_{k=US,UK,EU,TK} \alpha_k + \sum_{k=US,UK,EU,TK} \beta_k (D_k \times C_j) + \varepsilon_j \quad (1)$$

where  $CAR_j$  is the cumulative abnormal return of firm  $j$  over the interval  $(-1, +1)$ ,  $\alpha_k$  ( $k \in \{US, UK, EU, TK\}$ ) is a destination market specific intercept,  $D_k$  ( $k \in \{US, UK, EU, TK\}$ ) is a dummy variable that indicates cross-listings in the US, London, continental Europe, and Tokyo, respectively, and  $C_j$  is the country or firm characteristic that captures the potential importance of alternative rationales for value creation around cross-listings.

Our hypothesis is that the extent to which different country and firm characteristics help to explain differences in cumulative abnormal returns depends on the destination market. For example, legal bonding may be effective for cross-listings in the US, but less so in Tokyo. In that case, variables that measure how important bonding is for a specific firm (such as the investor protection standards in the home market or the percentage of closely-held shares) should show a significant  $\beta_{US}$ , but not  $\beta_{TK}$ .<sup>4</sup>

### 3.3. Description of variables

Table A1 in the Appendix A presents definitions of the country and firm characteristics used in regression (1). Using country characteristics to explain differences in valuation gains is intuitively appealing, as the theoretical arguments are primarily based on the characteristics of the home and destination market of the cross-listed firm. Moreover, Doidge et al. (2007) assert that country characteristics are more important in explaining cross-sectional variation in the governance and transparency of firms than firm characteristics. A caveat of this approach is that country-specific measures of the variables of interest are often crude and may not perfectly capture the hypotheses we try to assess. They are also generally measured at a particular point in time, and are thus not necessarily representative for our entire sample period. Finally, many of these variables are highly correlated, which makes it more

<sup>2</sup> Our sample of cross-listings in London consists of both Main Market and AIM listings. The AIM market has less stringent disclosure requirements than the Main Market. Unreported results show that there is little evidence of systematic differences in the event returns of the seven AIM listings in our sample versus the other London listings.

<sup>3</sup> To assess statistical significance of cumulative abnormal returns (CARs), we standardize the abnormal returns with the standard deviation of the daily returns during the 250 day estimation period. The reason for standardization is to give more weight to stocks with lower standard deviation where the stock price reaction can be observed with more accuracy. We note that we only use standardized abnormal returns for the assessment of the statistical significance of the event returns. All event returns reported in the paper are standard CARs and all regressions use standard CARs as dependent variable.

<sup>4</sup> We note that, although many of the rationales for value creation around cross-listings discussed in the literature appear to be more relevant for cross-listings on Anglo Saxon exchanges than for cross-listings on exchanges in continental Europe or Japan, it is an empirical question to what extent these rationales can explain cross-sectional differences in announcement returns for cross-listings on continental European markets and Tokyo. Noronha et al. (1996) and Bancel and Mittoo (2001) emphasize the benefits of cross-listings on non-US exchanges, even by US firms – for example due to an improved information environment. Saudagaran and Bidde (1992), Varela and Lee (1993), and Piotroski and Srinivasan (2008) present evidence that the costs of disclosure and regulatory compliance are an important deterrent for firms to cross-list on both US and non-US destination markets.

**Table 1**  
Sample composition. This table depicts the number of cross-listings from each of the 44 countries in our sample on each of the eight stock exchanges.

Home market	Destination market								Total
	NYSE	Nasdaq	London	A'dam	Brussels	Paris	Frankfurt	Tokyo	
Argentina	4	1	0	0	0	0	0	0	5
Australia	10	5	10	0	0	1	2	3	31
Austria	0	0	0	0	0	0	2	0	2
Belgium	2	0	0	1	0	0	0	0	3
Bermuda	0	0	2	0	0	0	0	0	2
Brazil	8	0	0	0	0	0	0	0	8
Canada	34	29	5	0	3	2	1	3	77
Chile	9	0	1	0	0	0	0	0	10
China	0	0	1	0	0	0	0	0	1
Colombia	1	0	0	0	0	0	0	0	1
Croatia	0	0	1	0	0	0	0	0	1
Cyprus	0	0	1	0	0	0	0	0	1
Czech Republic	0	0	1	0	0	0	0	0	1
Egypt	0	0	1	0	0	0	0	0	1
Finland	3	0	0	1	0	0	0	0	4
France	14	2	1	2	2	0	2	2	25
Germany	10	0	1	0	0	3	0	7	21
Greece	1	0	2	0	0	0	0	0	3
Hong Kong	1	1	1	0	0	1	0	0	4
Hungary	0	0	1	0	0	0	0	0	1
India	8	0	5	0	0	0	0	0	13
Ireland	2	1	3	0	0	0	0	0	6
Israel	1	1	2	0	0	0	1	0	5
Italy	3	0	0	0	0	2	0	0	5
Japan	13	2	15	2	0	19	4	0	55
Luxembourg	0	0	0	1	0	0	0	0	1
Malaysia	0	0	0	0	0	0	0	1	1
Mexico	4	0	0	0	0	0	0	0	4
Netherlands	9	1	1	0	1	1	4	2	19
New Zealand	1	0	0	0	0	0	0	0	1
Norway	2	0	1	1	0	0	0	0	4
Philippines	1	0	0	0	0	0	0	0	1
Poland	0	0	1	0	0	0	0	0	1
Russia	1	0	2	0	0	0	1	0	4
South Africa	2	3	0	0	4	1	1	0	11
South Korea	4	2	4	0	0	0	0	0	10
Spain	1	0	0	0	0	0	0	0	1
Sweden	0	1	1	0	1	3	0	2	8
Switzerland	7	1	0	1	0	0	2	3	14
Taiwan	3	1	6	0	0	0	0	0	10
Turkey	0	0	2	0	0	0	0	0	2
UK	37	5	0	5	2	8	3	10	70
US	0	0	11	0	3	10	10	43	77
Venezuela	1	0	0	0	0	0	0	0	1
Total	197	56	83	14	16	51	33	76	526

difficult to disentangle the effects of alternative explanations on abnormal announcement returns.<sup>5</sup>

We construct proxies for the relative characteristics of the home and the destination market for the four competing hypotheses discussed in Section 2. Following Sarkissian and Schill (2004), we use the correlation between the stock market returns of the home and destination countries as a measure for the diversification potential and consider this as our main proxy for the market segmentation hypothesis (see Section 2.1). We also use their measure of relative market liquidity, which is computed as the ratio of the Elkins/McSherry estimates of trading costs in the home and the destination markets. The market liquidity hypothesis discussed in Section 2.2 predicts a positive effect of this variable on abnormal announcement returns.

<sup>5</sup> Bris et al. (2007) use a sample of cross-listed firms with a dual-class share structure in order to separate different sources of benefits of cross-listings. For this very specific sample of firms, they show that the economic significance of the market segmentation explanation is strongest.

We measure information disclosure with the accounting standards index of La Porta et al. (1998). If improved disclosure leads to an increase in firm value around cross-listings (see Section 2.3), we expect abnormal returns to be positively related to the difference in accounting standards between the destination and the home market. We also use the credibility and the timeliness of financial disclosures as well as a proxy for a country's media development from Bushman et al. (2004) as country-specific measures for the information environment of firms.

We take the time-varying antidirector rights index of Pagano and Volpin (2005) as a measure of investor protection. If legal bonding – as discussed in Section 2.4 – is important, we expect event returns to be positively related to the difference between the antidirector rights index in the destination and the home country. We also use legal origin and judicial efficiency from La Porta et al. (1998). We take private benefits (the premium on controlling blocks of shares from Dyck and Zingales, 2004) and ownership concentration (from La Porta et al., 1998) as additional variables to measure investor protection. All country-specific variables (except correlation) are defined in such a way that the theoretical

**Table 2**

Average abnormal returns around the announcement of a cross-listing. This table shows the event study results for different intervals surrounding the earliest announcement of the firm's plans to cross-list on NYSE (197 firms)/Nasdaq (56 firms), London Stock Exchange (83 firms), Euronext (81 firms)/Frankfurt Stock Exchange (33 firms), and Tokyo Stock Exchange (76 firms). The z-statistic refers to the non-parametric Wilcoxon-test.

Stock exchange (number of cross-listings)	Event window	% Mean CAR	t-statistic	z-statistic	% non-negative
NYSE/Nasdaq (253)	$t = -1$	0.09	0.80	0.76	50.59
	$t = 0$	1.04	6.08 <sup>a</sup>	4.27 <sup>a</sup>	58.50
	$t = +1$	0.15	0.70	-0.35	46.64
	$t = -1$ to $+1$	1.29	4.38 <sup>a</sup>	3.20 <sup>a</sup>	56.13
London Stock Exchange (83)	$t = -1$	0.63	2.27 <sup>b</sup>	2.00 <sup>b</sup>	60.24
	$t = 0$	0.45	1.31	1.553	57.83
	$t = +1$	-0.01	-0.66	-0.73	46.99
	$t = -1$ to $+1$	1.07	1.68 <sup>c</sup>	2.29 <sup>b</sup>	60.24
Euronext/Frankfurt (114)	$t = -1$	-0.02	-0.38	-0.24	50.00
	$t = 0$	0.44	2.14 <sup>b</sup>	1.66 <sup>c</sup>	53.51
	$t = +1$	0.16	0.55	0.38	48.25
	$t = -1$ to $+1$	0.58	1.78 <sup>c</sup>	1.69 <sup>c</sup>	54.39
Tokyo Stock Exchange (76)	$t = -1$	0.56	1.87 <sup>c</sup>	1.77 <sup>c</sup>	52.63
	$t = 0$	0.31	2.11 <sup>b</sup>	1.41	56.58
	$t = +1$	-0.42	-1.56	-1.25	46.05
	$t = -1$ to $+1$	0.45	1.40	1.65 <sup>c</sup>	60.52
All exchanges (526)	$t = -1$	0.22	2.31 <sup>b</sup>	1.89 <sup>c</sup>	52.28
	$t = 0$	0.71	6.35 <sup>a</sup>	4.95 <sup>a</sup>	57.03
	$t = +1$	0.05	-0.11	-0.85	46.96
	$t = -1$ to $+1$	0.98	4.93 <sup>a</sup>	4.23 <sup>a</sup>	57.03

<sup>a</sup> Significant at the 1% level (two-tailed test).

<sup>b</sup> Significant at the 5% level (two-tailed test).

<sup>c</sup> Significant at the 10% level (two-tailed test).

arguments presented in Section 2 predict a positive relation between event returns and country characteristics.

We also collect data on GDP growth, the inflation rate, the real interest rate, and the return on the stock market index in the home and destination countries to assess whether macroeconomic and financial market conditions to play a role in explaining how markets value cross-listing announcements across years and across home/destination markets. We find little evidence that they do. The results are available from the authors.

Previous papers rely predominantly on country characteristics in studying the decision to cross-list and the resulting valuation changes. Given the limitations of this approach (as discussed above) and given the fact that there is considerable heterogeneity in the share price reactions of firms from the same home market that list on a certain destination market, we collect data on a host of firm-specific variables (see Table A1). We use firm size and the market-to-book ratio as controls in all our regressions. Motivated by Foerster and Karolyi (1999), we collect data on the amount of equity capital raised in the year of and the year after the cross-listing to test whether we observe greater valuation gains for firms that issue equity around the cross-listing to benefit from a decrease in the cost of capital. We construct dummy variables for prior cross-listings in London or the US to examine whether subsequent cross-listings on other markets have a less positive valuation effect.

As firm-specific measures of the importance of liquidity considerations, we compute the turnover and Amihud (2002) liquidity measure of the stock in the home market. The number of analysts following the firm serves as a proxy for the quality of the firm's information environment before the cross-listing. Motivated by Doidge et al. (2009), we create two dummy variables measuring the percentage of closely-held shares and use them as firm-level proxies for investor protection concerns related to the concentration of ownership. If a firm cross-lists in part to increase name recognition in an attempt to gain a competitive advantage in the destination country's product market, we expect firms with higher foreign sales to experience a more positive stock price response. The dividend pay-out ratio can be viewed

as a measure of financial constraints or of the severity of free cash flow problems.

## 4. Empirical results

### 4.1. Event study results

Table 2 shows the abnormal event returns for the US exchanges, London, the continental European exchanges, and Tokyo separately, as well as the average event returns for all firms in the sample. We present results for the three-day event window ( $-1, +1$ ), as announcements of cross-listings may be reported in English with at most a one day delay to allow translation from the local news source (Miller, 1999, p. 109). The three-day window also takes into account any time zone differences that may exist between the destination and the home market.

Averaged over all firms in the sample, cross-listing a firm's stock on a foreign market leads to an increase in market valuation of 0.98% ( $t$ -statistic = 4.93) between day  $-1$  and  $+1$ . We obtain qualitatively similar results when we discard 78 observations for which the news of the cross-listing coincides with other company news. The 253 firms that announce their plans to list in the US experience an average abnormal return of 1.29% (significant at the 1% level). The event return equals 1.07% (significant at the 10% level) for the cross-listings in London, 0.58% (significant at the 10% level) for the cross-listings in Amsterdam, Brussels, Paris, and Frankfurt and 0.45% (not statistically significant) for the cross-listings in Tokyo.<sup>6</sup> We obtain similar results using the non-parametric Wilcoxon test. These findings are broadly consistent with the view that

<sup>6</sup> Differences in the average announcement returns across destination markets are not statistically significant at conventional significance levels. On the one hand, this finding makes it hard to make strong statements about the differences in the level of the average announcement returns across the destination markets. On the other hand, this finding underlines the substantial variation across the cross-listings on individual destination markets. Helping to understand this variation is the main goal of the second part of this paper.

**Table 3**  
Summary statistics of country and firm characteristics. This table provides summary statistics for the country and firm characteristics. A description of the variables is provided in Table A1 in the Appendix.

	Mean	Median	Minimum	Maximum	Standard deviation	N
Emerging	0.180	0.000	0.000	1.000	0.385	526
<i>Market segmentation</i>						
Correlation	0.607	0.969	−0.468	0.995	0.531	522
<i>Market liquidity</i>						
Trading costs	1.356	1.320	0.541	5.184	0.636	510
<i>Information disclosure</i>						
Accounting standards	0.692	−3.000	−22.000	54.000	9.553	507
Audit	0.176	0.000	−1.000	3.000	0.829	507
Timeliness	5.894	0.000	−36.240	80.440	22.295	512
Media	4.786	3.350	−10.580	52.460	11.162	502
<i>Investor protection</i>						
Antidirector rights	0.280	0.000	−5.000	4.000	1.920	477
Judicial efficiency	0.573	0.000	−2.000	6.000	1.549	513
Private benefits	−0.821	0.800	−61.800	13.500	11.716	471
Ownership	−0.077	−0.060	−0.480	0.350	0.169	513
<i>Firm characteristics</i>						
Firm size (US\$ × 10 <sup>3</sup> )	33605.8	3366.0	1.057	942911.0	108643.3	491
Market-to-book ratio	3.221	1.880	0.070	35.310	4.884	469
Equity raised (% of mcap)	0.254	0.027	−0.014	14.300	0.980	427
Prior US cross-listing	0.057	0.000	0.000	1.000	0.232	526
Prior UK cross-listing	0.114	0.000	0.000	1.000	0.318	526
Amihud liquidity	−2.068	−0.001	−678.415	0.000	32.829	436
Turnover	0.027	0.003	0.000	5.689	0.274	441
Number of analysts	15.682	15.000	1.000	48.000	10.348	381
Closely held shares >5%	0.692	1.000	0.000	1.000	0.462	276
Closely held shares >50%	0.210	0.000	0.000	1.000	0.408	276
% Foreign sales	39.564	37.981	0.000	100.000	31.405	316
Dividend pay-out ratio (%)	29.476	28.570	−328.430	378.790	39.367	449

companies reap greater benefits from cross-listings on more developed capital markets.

#### 4.2. Regressions of abnormal returns on country characteristics

Table 3 shows summary statistics for the country and firm characteristics. Both country-specific and firm-specific variables exhibit a substantial amount of variation across the cross-listings in our sample. Table 4 depicts the estimation results of regression (1) with country characteristics as explanatory variables. All regressions include two firm-specific control variables (not tabulated). Firm size, as measured by total assets (similar results are obtained when we use market capitalization), is generally negatively related to abnormal returns, and often significantly so. A potential explanation is that even on less developed capital markets, the largest stocks have a relatively high level of liquidity and are subject to a relatively high level of outside scrutiny and monitoring, implying that they have less to gain from cross-listing their shares on a foreign market. We include the market-to-book ratio as a measure of the future growth opportunities of the firm. The decrease in the cost of capital of cross-listed firms as a result of the cross-listing is likely to have a bigger impact on firms with more investment opportunities. We find consistent evidence in line with this argument for the cross-listings in London. For Tokyo, we sometimes find a significant effect of the opposite sign.<sup>7</sup>

<sup>7</sup> The regression results in Table 4 are robust to the inclusion of leverage and profitability, sales growth instead of the market-to-book ratio as a measure of growth opportunities, and industry dummies. We also obtain similar results after removing the bottom and top 1% cumulative abnormal returns (except for Tokyo, for which several of our findings are driven by the very high event return of the Malaysian firm YTL Corporation Berhad).

Out of the 526 cross-listings in our sample, 95 originate from an emerging market. Consistent with Miller (1999), these firms earn a considerably higher announcement return. Averaged over all destination markets, the cross-listings from developed (emerging) markets firms have an announcement return of 0.68% (2.32%). The difference is statistically significant at the 1% level. Regression model (1) in Table 4 shows a significant effect for NYSE/Nasdaq and Tokyo. The coefficient for Tokyo is driven by the Malaysian infrastructure conglomerate YTL Corporation Berhad, which experienced an abnormal return of 3.8% around the announcement of its cross-listing in Tokyo in 1995. (YTL is the only emerging market cross-listing in Tokyo in our sample.) The coefficient for the US exchanges is estimated on the basis of 57 emerging market cross-listings and thus more reliable. Firms from emerging markets cross-listing in the US exhibit an abnormal return that is 1.59% higher than firms from developed countries.

There is some evidence that the correlation between the returns on the market indices in the home and the destination market can explain differences in abnormal returns for the cross-listings in the UK and the US. The coefficients are large and negative, but only the coefficient for the UK is significant at the 10% level. We note that most of the cross-listings in our sample took place after the 1980s, during which formal barriers to international investment were abolished in most countries. An alternative explanation is that equity market correlations are a poor proxy of the effects of market segmentation. We find no evidence that our measure of equity market liquidity can explain announcement returns for any of the destination markets.

Information disclosure variables are particularly powerful in explaining abnormal returns of cross-listings in the US. Accounting standards and timeliness are statistically significant determinants of the announcement returns of the NYSE/Nasdaq cross-listings. These results are consistent with the view that investors anticipate

**Table 4**

Regressions of announcement returns on country characteristics. This table presents the estimation results of regressions of cumulative abnormal returns (CARs) for the event window  $(-1, +1)$  on a number of individual country characteristics, controlling for firm size and the market-to-book ratio. A description of the variables is provided in Table A1 in the Appendix. Standard errors that are robust to heteroskedasticity are reported in parentheses. Intercepts and coefficients on the control variables firm size and the market-to-book ratio (all of these are destination market specific) have been suppressed to conserve space.

Model	Country characteristics	Regression coefficient				R <sup>2</sup>	Number of observations
		NYSE/ Nasdaq	London	Euronext/ Frankfurt	Tokyo		
(1)	Emerging	1.598 <sup>c</sup> (1.217)	0.424 (1.028)	-0.273 (1.249)	4.138 <sup>a</sup> (0.706)	0.036	450
<i>Market segmentation</i>							
(2)	Correlation	-1.044 (0.980)	-1.245 <sup>c</sup> (0.919)	0.765 (0.835)	-0.088 (0.621)	0.033	449
<i>Market liquidity</i>							
(3)	Trading costs	0.309 (0.318)	-0.097 (0.711)	1.156 (1.335)	-0.086 (1.588)	0.030	445
<i>Information disclosure</i>							
(4)	Accounting standards	0.056 <sup>c</sup> (0.040)	0.058 (0.050)	-0.119 <sup>c</sup> (0.073)	0.005 (0.043)	0.038	440
(5)	Audit	0.330 (0.506)	0.326 (0.414)	-0.402 (0.779)	1.398 <sup>c</sup> (0.893)	0.033	441
(6)	Timeliness	0.050 <sup>a</sup> (0.021)	0.018 (0.017)	-0.027 (0.030)	0.007 (0.025)	0.045	445
(7)	Media	0.022 (0.029)	0.077 (0.076)	-0.012 (0.037)	0.082 <sup>b</sup> (0.045)	0.032	437
<i>Investor protection</i>							
(8)	Antidirector rights	0.519 <sup>b</sup> (0.225)	0.837 (0.507)	-0.399 <sup>b</sup> (0.220)	0.016 (0.189)	0.043	419
(9)	French/German civil law	1.177 <sup>b</sup> (0.698)	1.808 <sup>c</sup> (1.155)	-0.839 (0.983)	0.926 (0.929)	0.033	450
(10)	Judicial efficiency	0.150 (0.247)	0.305 (0.317)	-0.229 (0.265)	0.610 (0.484)	0.032	446
(11)	Private benefits	0.027 <sup>c</sup> (0.021)	0.014 (0.081)	0.056 (0.060)	0.066 (0.074)	0.037	410
(12)	Ownership	2.622 (3.187)	1.991 (4.330)	-5.796 <sup>b</sup> (2.847)	1.054 (2.312)	0.036	446

<sup>a</sup> Significant at the 1% level (one-tailed test).

<sup>b</sup> Significant at the 5% level (one-tailed test).

<sup>c</sup> Significant at the 10% level (one-tailed test).

that the improved information disclosure associated with a cross-listing on the NYSE or Nasdaq will reduce the cost of capital. We find no significant effect of our information disclosure variables for the UK and Europe. The significant coefficients of two of the disclosure variables for Tokyo are not robust to the removal of the Malaysian company with a high announcement return discussed above.

Three out of five measures of investor protection (antidirector rights, French/German civil law, and private benefits) are positively and significantly related to the abnormal event return of the cross-listings in the US. These findings are consistent with the bonding hypothesis. There is also some evidence in favor of the bonding hypothesis for the cross-listings in London. Both antidirector rights and the civil law dummy are statistically significant, with coefficients that are even slightly larger than for the US cross-listings. There is little evidence for bonding on the European exchanges and in Tokyo. Remarkably, the results suggest that cross-listings from markets with relatively strong antidirector rights and more dispersed ownership create more value on European exchanges, which we find hard to justify.

The empirical evidence in Table 4 is consistent with the hypotheses that information disclosure and investor protection are associated with shareholder value creation for the cross-listings on NYSE or Nasdaq. For the cross-listings in London, our results point at improved market segmentation and investor protection as factors driving stock price reactions around the announcement date. Neither for Euronext and Frankfurt, nor for Tokyo do we detect consistent determinants of cross-sectional differences in abnormal returns.

#### 4.3. Regressions of abnormal returns on firm characteristics

Table 5 depicts the estimation results of regression (1) with firm characteristics as explanatory variables. Again, all regressions include firm size and the market-to-book ratio as control variables (not tabulated). The abnormal returns of firms that cross-list in the UK or the US are significantly positively related to the amount of equity capital raised. We conclude that the average positive share price reaction documented for the cross-listings on NYSE, Nasdaq, or London Stock Exchange stems disproportionately from firms that raise capital around or just after the announcement of the cross-listing. For Tokyo, we find a significantly negative coefficient, which is difficult to reconcile with existing theories on value creation around cross-listings.

The lower the number of analysts following the firm before the cross-listing, the more positive the share price reaction for London cross-listings. Consistent with results in Table 4 and with Lang et al. (2003a), the improved information environment due to a cross-listing in London contributes to value creation. The percentage of foreign sales has a significantly positive coefficient for the cross-listings in Europe, which suggests that product market considerations might play a role in the cross-listing decision and the valuation effects for firms seeking a secondary listing on a continental European stock exchange.

Neither the dummy variables indicating Level III ADRs, prior cross-listings, and the percentage of closely-held shares nor the dividend payout ratio can significantly explain cross-sectional variation in the event returns for any of the destination markets. The results for the market liquidity proxies are surprising. The

**Table 5**  
Regressions of announcement returns on firm characteristics. This table presents the estimation results of regressions of cumulative abnormal returns (CARs) for the event window  $(-1, +1)$  on a number of individual firm characteristics, controlling for firm size and the market-to-book ratio. A description of the variables is provided in Table A1 in the Appendix. Standard errors that are robust to heteroskedasticity are reported in parentheses. Intercepts and coefficients on the control variables firm size and the market-to-book ratio (all of these are destination market specific) have been suppressed to conserve space.

Model	Firm characteristics	Regression coefficient				R <sup>2</sup>	Number of observations
		NYSE/ Nasdaq	London	Euronext/ Frankfurt	Tokyo		
(1)	Equity raised	1.672 <sup>c</sup> (1.171)	4.684 <sup>c</sup> (3.565)	0.283 (0.616)	-9.154 <sup>c</sup> (6.582)	0.074	382
(2)	Level III ADR	0.479 (1.139)				0.015	224
(3)	Prior US cross-listing		1.119 (1.629)	-1.520 (1.375)	-0.193 (1.273)	0.029	450
(4)	Prior UK cross-listing	-0.221 (0.688)		-0.412 (1.112)	-0.330 (0.914)	0.028	450
(5)	Amihud liquidity	-2.421 (2.565)	-0.347 (1.678)	-3.251 (7.551)	-8.188 <sup>a</sup> (1.784)	0.041	375
(6)	Turnover	2.332 <sup>a</sup> (0.674)	-4.997 (57.265)	17.034 <sup>a</sup> (6.068)	6.261 (5.198)	0.036	377
(7)	Log (number of analysts)	-0.079 (0.628)	-1.306 <sup>b</sup> (0.607)	0.065 (0.550)	-0.528 (0.727)	0.034	348
(8)	Closely held shares > 5%	0.668 (1.022)	2.144 (2.812)	-0.839 (1.466)	0.314 (0.795)	0.058	263
(9)	Closely held shares >50%	0.555 (1.645)	0.286 (1.410)	-0.297 (1.210)	1.251 (1.140)	0.056	263
(10)	% foreign sales	-0.006 (0.019)	0.010 (0.044)	0.046 <sup>a</sup> (0.018)	-0.004 (0.013)	0.083	291
(11)	Dividend pay-out ratio	0.021 (0.025)	0.003 (0.021)	-0.005 (0.006)	-0.009 (0.008)	0.057	424

<sup>a</sup> Significant at the 1% level (one-tailed test).

<sup>b</sup> Significant at the 5% level (one-tailed test).

<sup>c</sup> Significant at the 10% level (one-tailed test).

**Table 6**  
Regressions of announcement returns on country and firm characteristics. This table presents the estimation results of regressions of cumulative abnormal returns (CARs) for the event window  $(-1, +1)$  on a number of country characteristics and firm characteristics simultaneously, controlling for firm size and the market-to-book ratio. A description of the variables is provided in Table A1 in the Appendix. Standard errors that are robust to heteroskedasticity are reported in parentheses. Intercepts and coefficients on the control variables firm size and the market-to-book ratio (all of these are destination market specific) have been suppressed to conserve space.

Model	Country/firm characteristics	Regression coefficient				R <sup>2</sup>	Number of observations
		NYSE/ Nasdaq	London	Euronext/ Frankfurt	Tokyo		
(1)	Correlation	-0.954 (1.153)	-1.571 <sup>b</sup> (1.108)	0.621 (0.944)	-0.253 (1.467)	0.052	410
	Trading costs	0.267 (0.337)	-0.677 (0.774)	1.002 (1.453)	0.648 (2.918)		
	Accounting standards	0.000 (0.053)	0.064 (0.079)	-0.086 (0.118)	0.036 (0.198)		
	Antidirector rights	0.490 <sup>b</sup> (0.296)	1.049 <sup>b</sup> (0.551)	-0.129 (0.355)	-0.064 (0.514)		
(2)	Correlation	0.614 (1.212)	-2.363 <sup>b</sup> (1.100)	1.015 (1.112)	-0.527 (0.795)	0.096	296
	Antidirector rights	0.361 <sup>c</sup> (0.265)	0.880 <sup>c</sup> (0.580)	-0.297 (0.276)	-0.168 (0.242)		
	Equity raised	0.846 <sup>b</sup> (0.506)	4.738 <sup>c</sup> (3.584)	0.268 (1.851)	-10.771 <sup>c</sup> (6.719)		
	Log (number of analysts)	0.139 (0.647)	-0.087 (1.059)	-0.033 (0.644)	0.513 (0.797)		

<sup>a</sup> Significant at the 1% level.

<sup>b</sup> Significant at the 5% level (one-tailed test).

<sup>c</sup> Significant at the 10% level (one-tailed test).

coefficient on the Amihud liquidity measure is only significantly negative for Tokyo. Turnover is significantly positively related to the event return of cross-listings in continental Europe and the US. If turnover is regarded as a proxy for liquidity, this finding is at variance with the liquidity argument for value creation in cross-listings.

In sum, despite some significant results, we do not find clear evidence that firm-specific factors are a dominant driver of differences in value creation across different cross-listings on various destination markets.

#### 4.4. Regressions of abnormal returns on country and firm characteristics

Table 6 presents the estimation results of two regression models that include multiple country and firm characteristics simultaneously. We limit the number of independent variables because of their high correlations and given the limited number of observations available for some of the variables (see Table 3). In the first model, we include the main proxy for each of the four hypotheses discussed in Section 2 and control for size and



**Table A1**  
Variable definitions and data sources.

Variable	Description	Source
<i>Country characteristics</i>		
Emerging	Assumes a value of 1 if the home market is classified as an emerging market and 0 if it is classified as developed	IFC's <i>Emerging Stock Markets Factbook</i>
<i>Market segmentation</i>		
Correlation	Monthly local currency return correlation of the domestic total market indices of the home and destination markets over the period 1990–1999. For some countries, correlations are estimated over a shorter time span	Datastream
<i>Market liquidity</i>		
Trading costs	Relative trading costs in home versus destination market based on the average one-way trading cost (commissions, fees, and market impact costs) for the period September 1996–December 1998	Sarkissian and Schill (2004) Elkins/McSherry
<i>Information disclosure</i>		
Accounting standards	Difference between the accounting standards index of destination and home market; index created by rating firms' annual reports for the inclusion of 90 items; ranges from 0 to 100 with 100 as highest standards	La Porta et al. (1998)
Audit	Difference between the audit index of destination and home market; index equals 1, 2, 3, 4 if the percentage share of total value audited in a country represented by Big 5 accounting firms is between (0%, 25%), (25%, 50%), (50%, 75%), and (75%, 100%), respectively	Bushman et al. (2004) Center for Financial Analysis and Research (CIFAR)
Timeliness	Difference between the timeliness index of destination and home market; index created by examining firms' 1995 annual reports; index increases with the frequency and comprehensiveness of interim reports	Bushman et al. (2004) CIFAR
Media	Difference between the index of media development of destination and home market; index represents the average rank of countries' per capita number of newspapers and televisions during 1993–1995	Bushman et al. (2004) World Development Indicators
<i>Investor protection</i>		
Antidirector rights	Difference between the antidirector rights index of destination and home market; index aggregates 6 different shareholder rights; ranges from 0 to 6 with 6 as the highest level of protection of minority shareholders. Available annually between 1993 and 2001	Pagano and Volpin (2005)
Legal origin	Dummy variables for the legal origin of the home market: assumes a value of 1 if the home market has a civil law legal origin	La Porta et al. (1998) 2005 CIA <i>World Factbook</i>
Judicial efficiency	Difference between the judicial efficiency index of destination and home market; index assesses the efficiency and integrity of the legal environment as it affects business; ranges from 1 to 10 with 10 as the highest level of efficiency	La Porta et al. (1998)
Private benefits	Difference between the private benefits of home and destination market; measured as the country dummy coefficients in a regression of controlling block premia	Dyck and Zingales (2004)
Ownership	Difference between the ownership concentration of home and destination market; measured as the average% ownership (cash flow rights) stake of the three largest shareholders in the 10 largest nonfinancial firms	La Porta et al. (1998)
<i>Firm characteristics</i>		
Firm size	Total assets measured at the last available financial year preceding the cross-listing (measured in \$1000). The regressions include the logarithm of this variable	Worldscope
Market-to-book ratio	Ratio of the market value of equity plus the book value of debt divided by total assets at the end of the financial year preceding the cross-listing. This variable is truncated at the 1% and 99% level	Worldscope
Equity raised	Total amount of net equity raised by the firm in the year of the cross-listing and in the year after the cross-listing, scaled by the market capitalization one day before the announcement date. (Note that this variable can be negative in situations with share repurchases.)	SDC
Prior US cross-listing	Dummy variable that indicates whether the firm's shares were cross-listed on NYSE or Nasdaq at the time of the announcement of this cross-listing	Worldscope, Datastream
Prior UK cross-listing	Dummy variable that indicates whether the firm's shares were cross-listed on the Official List or Alternative Investment Market of London Stock Exchange at the time of the announcement of this cross-listing	Worldscope, Datastream
Amihud liquidity	Average daily ratio of absolute stock return to dollar volume, measured over the calendar year before the announcement date of the cross-listing. We add one to the Amihud price impact measure and take logs. We multiply the result by 1 to arrive at a variable that is increasing in the liquidity of individual stocks	Datastream
Turnover	Average daily ratio of the number of shares traded to the total number of shares outstanding, measured over the calendar year before the announcement date of the cross-listing. We add one to turnover and take logs	Datastream
Number of analysts	Number of analysts following the firm at the end of the calendar year before the cross-listing	I/B/E/S
Closely held shares >5%	Dummy variable that indicates whether the percentage of shares in the firm that are closely held (measured in the calendar year before the announcement date of the cross-listing) exceeds 5%	Worldscope
Closely held shares >50%	Dummy variable that indicates whether the percentage of shares in the firm that are closely held (measured in the calendar year before the announcement date of the cross-listing) exceeds 50%	Worldscope
% foreign sales	Foreign sales as a percentage of total sales, measured in the calendar year before the announcement date of the cross-listing	Worldscope
Dividend payout ratio (%)	Ratio of dividend per share to earnings per share, measured in the calendar year before the announcement date of the cross-listing	Worldscope

the market-to-book ratio. Consistent with Table 4, we find that the equity market correlation variable is significant for the UK and the antidirector rights variable is significant for the UK and the US (all at the 5% significance level). The effect of accounting standards is no longer significant for the US, which suggests that the bonding hypothesis is more powerful than

the information disclosure hypothesis in explaining event returns. The puzzling result for the antidirector rights variable for European exchanges in Table 4 disappears in this specification.

In the second model, we drop trading costs and accounting standards and we include two of the firm characteristics with rel-

actively strong effects in Table 5: equity raised and the number of analysts. The significance of the coefficients on the equity market correlation and antidirector rights variables are not affected. For equity raised, we find very similar results as in Table 5. The number of analysts no longer has a significant coefficient.<sup>8</sup>

The results in Table 6 indicate that market segmentation, investor protection, and capital raising are significant determinants of valuation effects around the cross-listings on Anglo-Saxon exchanges. We find little evidence that country or firm characteristics related to the four explanations for value creation addressed in the literature contribute to our understanding of cross-sectional variation in value creation around cross-listings in Europe and Tokyo.

## 5. Conclusions

This paper presents evidence that the destination market matters in the valuation effects of cross-listings. First, we show that cross-listings on more developed markets create more value for shareholders. The average cumulative abnormal return around the announcement date of the cross-listing is higher for US exchanges than for London. Abnormal returns for continental European markets and Tokyo are lower still. Second, the extent to which country-specific and firm-specific proxies for alternative potential sources of value creation are able to explain cross-sectional variation in abnormal returns differs across destination markets. For NYSE and Nasdaq, variables related to investor protection have significant explanatory power. For London, our evidence is consistent with an important role for market segmentation and investor protection.

Our analysis generates limited insight into the explanations of cross-sectional differences in market reactions to cross-listings in Europe and Japan. Further theoretical and empirical research is needed to shed light on the costs and benefits of cross-listings on non-Anglo Saxon equity markets.

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## Appendix A

See Table A1.

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<sup>8</sup> It is possible that unobserved characteristics can explain why firms select a particular destination market and at the same time affect the stock price reaction at the announcement of the cross-listing. This is similar to the endogeneity issue in Kryzanowski and Lazrak (2009), who study whether liquidity differences between AMEX, NYSE, and Nasdaq influence the choice among these three US listing venues for Canadian firms. To address this endogeneity concern, we include the inverse Mill's ratios from Heckman selection models of the firm's choice of the destination market as explanatory variables in the regressions of abnormal returns on firm and country characteristics. The results are similar and available from the authors. We thank an anonymous referee for pointing out this issue.

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