A Breakdown of the Valuation Effects of International Cross-Listing*

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Abstract

It is well known that cross-listing domestic stocks in foreign exchanges has significant valuation effects on the listed company's shares. Using a sample of firms with dual shares, we explore the differential effects of cross-listing on prices and we are able to separate the different sources of the benefits of cross-listing. Our results show that even though the market segmentation and bonding effects are both statistically significant, the economic significance of segmentation is more than double that of bonding. Furthermore, we document an economically and statistically significant increasse in the liquidity of both share classes after the listing. Overall, our results explain why less and less firms are willing to list in the U.S.: Sarbanes Oxley has increased the cost of adopting better governance while its benefits are not substantial; and market segmentation has decreased significantly in the last years.

I Introduction

In the last few years, and especially following the passage of the Sarbanes Oxley Act, non-U.S. firms have started reviewing the costs and benefits of having their stock listed in the U.S. markets. ITV, Britain's largest commercial TV broadcaster, decided to deregister its stock in 2005, arguing that the reporting obligations imposed by the S.E.C were "very costly." ITV estimated that they were saving $13m over two years with the decision.[1] Multinational firms like BMW and Samsung have for long refused to list in the U.S. A number of European companies are considering whether to terminate their listing, arguing that the costs outweigh the benefits, and actually claiming that there may be no benefit at all.[2] While the costs of complying with U.S. standards have filled pages in the popular press in recent years, academics have identified a long list of benefits of listing abroad consistent with the earlier evidence that the announcement of an ADR program is associated with abnormal returns of around one percent (Miller (1999)). The recent trends might question the true economic impact of the potential benefits of cross listing. This paper contributes to this debate by providing a simple and intuitive test to evaluate the relative statistic and economic significance of the various sources of value.

For years, the conventional wisdom associated the beneficial valuation effects of cross listing with market segmentation and liquidity. If markets are segmented, trading in a foreign market makes the company stock available to more investors, and consequently increases the shareholder base and risk sharing, which results in higher valuation (Foerster and Karolyi (1999); Domowitz, Glenn, and Madhavan (1997); and Miller (1999)). Liquidity effects come from the reduction of trading costs through listing in a more "liquid" exchange and through intermarket competition as well as from order flow migration (see Domowitz, Glenn, and Madhavan (1998)).

These established ideas have been challenged by Stulz (1999), who points out that even firms from countries that are substantially integrated in world markets enjoy cross-listing abnormal returns. Additionally, Karolyi (2004) posits that the market segmentation hypothesis can not explain the time series pattern of cross listings, since dual listings have increased in the nineties, but segmentation has reduced. Domowitz, Glenn, and Madhavan (1997) show, on the other hand, that liquidity in the home market decreases after an ADR program.

More recent papers have therefore put forth new explanations for the value effects of dual

[1] Wall Street Journal, "Goodbye, Farewell, Auf Wiedersehen, Adieu ...", 9 February 2005.

[2] Financial Times, "Delisting European companies should think twice before delisting from the US stock markets," 25 April 2005.

listings. The bonding hypothesis was empirically studied in Doidge (2004) and Doidge et al. (2004), and it is based on the papers by Coffee (1999, 2002), Stulz (1999) and Reese and Weisbach (2002). The bonding hypothesis posits that the increased disclosure and monitoring associated with cross-listing on a U.S. exchange enhances investor protection and, consequently, reduces the agency costs of controlling shareholders. Cantale (1996), Fuerst (1998), and Moel (1999), on a similar line, characterize signalling equilibria, where firms cross-list in markets with high disclosure standards to convey that they are high-value firms.

Pagano, Röell, and Zechner (2002), and Lins, Strickland, and Zenner (2005) find that companies list abroad to have better access to foreign markets. In particular, Pagano et al. (2002) show that European companies listing abroad are mostly large, export oriented, and that the listing allows them to capitalize on their product market reputation and expand their sales. Ultimately, the listing facilitates acquisitions financed with stock. Lins et al. (2005) find that cross-listed firms have a lower sensitivity of investment to free cash flow, which suggests that an ADR reduces capital constraints.

Empirically, it is very difficult to disentangle these hypotheses, since all theoretical arguments predict that a firm coming from a "low quality market" will experience a positive reaction in the home market when its shares are listed on a "better market". Low quality can be understood as low liquidity, poor investor protection and accounting standards, and strong ownership restrictions. In most developing economies most of these factors are present altogether, and disentangling them is challenging. Miller (1999), for instance, finds higher abnormal returns around the U.S. cross-listing for firms from emerging markets relative to those of firms from developed countries (this difference is not statistically significant) and suggests that this result is consistent with market segmentation. However, it is also consistent with the signaling, bonding and liquidity effects to the extent that the reporting and listing requirements, the investor protection, and the liquidity of the domestic emerging markets are lower than those of the developed domestic markets.

We use a data set that allows us to separate the different value sources of cross-listing, including the originally proposed effects of market integration and liquidity as well as the newly proposed effects of signaling and bonding, and access to foreign capital markets. We study non-U.S. firms with dual-class shares that cross-list only one of the shares in U.S. markets. In this sense, our dataset resembles the one in Doidge (2004). Unlike Doidge (2004) though, we classify each share class not only in terms of voting rights and liquidity, but also in terms of ownership restrictions. Our sample comprises 40 stocks, corresponding to 20 firms from 8 different countries. Our sampling

period is 1987 to 1996. As a result, and by construction, our study covers a period when markets were more segmented.

Our paper contributes to the literature in three different ways. Firstly, it provides a simple, direct, and intuitive test of market segmentation in a cross-listing environment. Secondly, by proposing a framework that considers an array of competing cross-listing explanations, we are able to test them in an integrated framework. Thirdly, we calculated the economic significance of each hypotheses and we rank their relative importance. We analyze in multivariate panel regressions the determinants of the ratio between the price at home of the share class that is listed in the foreign market, and the unlisted class. We find that the market segmentation hypothesis is supported by the data. A premium is paid for the listed share class (unrestricted) relative to the unlisted class (restricted) before the listing, and the premium is reduced after the listing. This suggests that cross-listing acts as a move toward capital market integration. Moreover, we document a symmetric and stastically significant increase of the liquidity of both share classes after the ADR listing. We also find evidence consistent with the bonding hypothesis: we document a voting premium before the listing, and this premium is significantly reduced after the listing. Finally, we calculate the economic significance of each variable and we find that, among the various hypotheses, the largest benefit of a cross-listing comes from market segmentation. Although our results are consistent with the liquidity and the bonding hypotheses, and we find statistically significant coefficients, the improvement in liquidity and the commitment to better monitoring explain a much smaller fraction of the variation of the premium. The last finding is in line with Ammer et al. (2005), that uses data on foreign ownership by U.S. investor and provide little support for the argument that firms with weak investor protections increase their attractiveness by adopting U.S. regulation.

The remainder of the paper is organized as follows. Section II analyzes the effects of cross listing and derives the testable hypotheses. Section III describes the sample selection and provides some summary statistics. Section IV provides some initial evidence in support of the hypotheses and section V proceeds with the formal tests and analysis of the results. Section VI tests the robustness of our results by implementing alternative econometric specifications on our data. Section VII concludes the paper.

II Data and summary statistics

Our objective is to construct a sample of all the firms that are not originally listed in one of the U.S. markets, that have two classes of shares, and that decide to list only one class in a U.S. exchange. To reach our goal, we use the following procedure. We construct an initial sample that includes all foreign firms listed in the New York Stock Exchange, Nasdaq, and Amex as of December 1998. We also collect information about over-the-counter issues and RADRs (Rule 144A, or private placements) in the U.S. Information about company names, date of listing, sponsor (where applicable), and nationality of the issuer were directly provided by the corresponding exchange. Over-the-counter issues and RADRs were obtained from the Bankers Trust's American Depositary Receipts Directory, and complemented with information directly obtained from Citibank, Morgan Guaranty Trust Company, and the Bank of New York. Those parties sponsor most of the ADRs listed in U.S. exchanges, and they provide additional information to that obtained from NYSE, Nasdaq and AMEX. The initial sample of foreign listings comprises a total of $2,053$ foreign listings. Of these, 314 correspond to the NYSE, 448 to Nasdaq, 373 are Rule 144A private placements, and 918 are OTC issues.

The second step in the sample selection process consists of restricting our investigation to those firms that have more than one class of shares traded on an organized exchange. NYSE and Nasdaq made that information available. For OTC issues, we obtained information from the Bank of New York ADR directory, and the Banker's Trust Client Inquiry Facility. We also obtained information about most of the OTC (*pink sheet*) listings sponsored by Morgan Guarantee Trust Corporation, and Citibank, directly from the sponsors. For AMEX, we investigated that piece of information from different sources: in some cases, we directly contacted the companies involved; in other cases, we checked with Datastream that a particular company had at least two different classes of shares. Datastream provides information on the underlying class in a foreign listing, and this was our last source of share class information. We found 86 international firms that have more than one class of shares and list at least one share class on a U.S. market. We did not find any firm with more than two share classes, and we excluded firms that had both classes cross-listed in the U.S. (6 firms).

Finally, we collect daily stock prices for all the firms in the sample around the event date. We include in our final sample only those firms for which there are daily price data available on both classes before and after the listing event in the domestic market. These data were available for 20 firms. For 8 of these firms we have foreign market data. We consider the event date as the listing

date. Foerster and Karolyi (1999) perform different analyses for both the announcement and the listing day, but they do not find significant differences.

[Insert Table I]

The final sample of firms together with information on industry, listing date, country of nationality, foreign market, and listing type, is available in Table I. There are 2 companies from Asia, 3 from Canada, 7 from Europe, and 9 companies from Latin America. Fifteen firms list on OTC and five in Nasdaq. Listing dates range from 1987 to 1996.

[Insert Table II]

We also obtain information about the ownership and voting characteristics of each class in the pair. In some cases, like Mexico and Sweden, regulation at the country level determines the features of the two classes.[3] Yet differences may coexist. For example, companies may differentiate share classes by the number of votes assigned. Additionally, Mexico, Norway, and Sweden, restrict foreign ownership to a particular share class (typically the one without control rights). We find this information by direct contact with the companies, from the companies annual reports, or from the firms' websites. Table III describes the characteristics of each class, by pair of stocks. The typical company restricts foreign ownership to a share class without control rights. Control is limited by limiting the percentage of votes over the total awarded to a particular class (Mexico), or by giving a very small fraction of a vote to each share in the limited class (Norway, Sweden). Table III gives information about the class that is listed abroad, the voting rights assigned to each class of shares, and the ownership restrictions. With respect to the last variable, we find that 5 firms do not have ownership restrictions on either share class, and that the remaining firms have ownership restrictions on the share that is not listed abroad.

[Insert Table III]

Finally, we obtain data on market indices from Datastream. In most cases, the relevant market return is the Datastream market index.[4] Market indexes and stock prices are denominated in the domestic currency. Stock prices of the listed class abroad are denominated in dollars.

[3] See Domowitz et al (1997) for a description of the dual-class system in Mexico.

[4] Total market calculations do not include all companies in a market. Instead the most important companies by

A Premium

To measure the relative comovement of the prices of the two share classes in the domestic market, we construct a time series of the ratio of the listed class to the unlisted class, both in the domestic market. We define premium (PRM) as follows:

$$PRM = 100 * \ln\left(\frac{P_L}{P_U}\right) \tag{1}$$

where P_L is the price of the listed class (in the domestic market, and denominated in the home currency), and P_U is the price of the unlisted class (denominated in the home currency).[5] We use weekly prices for the two classes, denominated in the domestic currency. The variable PRM thus ranges between $-\infty$ and $+\infty$. Table IV reports summary statistics on the premium for the 50 weeks around the cross listing. For the overall sample, the average ratio is 45.44% before the foreign listing, and 15.24% afterwards, and the decrease in the ratio between the two subperiods is statistically significant. Table V shows the premium by market of foreign listing, country of origin, and by ownership restriction.

[Insert Table IV]

The results by market of listing show that while the premium is reduced for the OTC market (and the difference is statistically significant), the same cannot be said for the firms listing on Nasdaq. The (negative) premium does not statistically decrease after the listing. In the results by country of nationality, we find that the price premium is generally reduced and that only in the Philippines and Venezuela the price ratio increases after the foreign listing. Lastly, once again when grouped by ownership restrictions, we document a statistically significant decline in the premium after the event date.

[Insert Table V]

market value are chosen - the precise number of constituents varies from market to market, according to the size of the market capitalisation, and changes to reflect current market conditions. For those countries for which the Datastream Market Index is not available, we use: the Oslo Stock Exchange General Index, for Norway; the Manila Stock Exchange Composite Index for the Phillippines.

[5] Our approach is similar to Doidge, (2004), Zingales (1995) and Froot and Dabora (1999).

III Breakdown of the impact of cross listings on firm valuation

A Theoretical background

It is well established in the literature that international cross-listings have significant and positive valuation effects. To a great extent these effects were documented through share price reactions around a firm's listing decision. Perhaps the most comprehensive studies are those of Miller (1999) and Foerster and Karolyi (1998). Miller (1999) conducts an event study concentrating on the 80 day period around the ADR-initiating announcement dates of 183 firms between 1985 and 1995, and finds a positive 1.15 percent average abnormal return. He also finds higher abnormal returns for emerging market firms (1.54 percent) and that these abnormal returns were higher for exchange listings (2.63 percent). He argues that these findings are consistent with the market segmentation explanation. Foerster and Karolyi (1998) employed weekly abnormal returns for the two year period around the listing dates of 183 ordinary and ADR listings and find a significant listing week return of 1 percent on average, a pre-listing run-up of 10 percent and a post listing decline of 9 percent. These results were similar for both emerging and developed countries, but the post-listing decline was lower for capital-raising ADRs. They conclude that market segmentation could not explain these results and relate the findings with management strategic market timing decisions and other theories about diminished market incompleteness (Merton 1987) as the firms shares become more widely held after the cross-listing.

More recently, Stulz (1999) and Doidge, Karolyi, and Stulz (2004) challenge the market segmentation explanation that firms that cross-list benefit from the relaxation of investment barriers associated with the listing. This challenge lies within the following observations and empirical results. First, cross listed firms from countries that are substantially integrated with the U.S. market also have been shown to benefit. Second, cross listings have grown in numbers and have continued to generate positive announcement effects even as international capital markets have become more integrated. Third, Lee (2003) shows that the abnormal return on announcement of a cross-listing does not fall as the number of listings from a country increases.

The existing literature proposes several alternative sources of cross-listing benefits. These include the expansion of shareholder base (Foerster and Karolyi (1999)), the access to more developed capital markets (Lins, Strickland, and Zenner (2005)), the listing serving as a signal of high value firms (Cantale (1996), Fuerst (1998), and Moel (1999)), and the bonding and monitoring hypothesis (Coffee (1999, 2002), Stulz (1999), and Reese and Weisbach (2002). Doidge et al. (2004) argue

for the importance of the bonding and monitoring hypothesis, which suggests that a U.S. listing enhances the protection of firm investors and, thus, reduces the agency costs of controlling shareholders. They develop a theoretical model that predicts that cross-listed firms have higher growth opportunities compared to their peers that do not cross-list and that the growth opportunities of cross listed firms are likely to be more valuable not only because they are at a better position to take advantage of them, but also because of the lower expropriation of firm resources by controlling shareholders. They proceed to find empirical evidence in support of these predictions.

One additional source value is liquidity. Surveys of corporate managers that have initiated an overseas listing for their firm often cite increased liquidity as a primary motivation (Fanto and Karmel, 1997). Foerster and Karolyi (1999) find a 29 percent increase in intraday volume and a 44 basis point decline in intraday effective spreads for 52 Canadian firms listing in the U.S. Smith and Sofianos (1996) measured the increase in the combine trading from $240 million per stock to $340 million per stock for a sample of 128 NYSE-listed non U.S. stocks. Domowitz, Glenn, and Madhavan (1998) in a more complex study of Mexican stocks listed in the U.S. find that international listing embodies aspects of both the benefits of international competition and the costs of order flow migration, and that these benefits and costs accrue differently to different classes of shares and are affected by ownership restrictions.

Given the different potential sources of the benefits of cross-listing, it has proven to be notoriously difficult to separate all the effects and measure the relative importance of all the potential benefits. The early event studies merely document the benefits, which could be consistent with a number of the aforementioned explanations. More recent studies that propose and test new sources of benefits typically do so for one source at a time. In this paper we develop an approach to separate the effects of three of the main explanations of the benefits of cross-listing, market segmentation, liquidity, and bonding and monitoring, and assess their relative importance, while controlling for the signaling hypothesis. We select a sample period where market segmentation was more prevalent (1980-1996) and construct a unique dataset of cross-listed firms with dual shares and only one share cross-listed. We then exploit the differential effects of the hypothesis on the prices of the two shares to assess their validity and relative importance. We therefore complement and extend the findings in Doidge (2004), who uses a sample of cross listed firms with dual shares for a more recent period (1994-2001), to test the bonding and monitoring hypothesis.

B Empirical Hypotheses

This subsection derives the empirical implications of the aforementioned theories. In particular, we focus on the implications regarding the price reaction of both the listed and unlisted shares in the domestic market, as well as on the price ratio of the listed and the unlisted shares.

B.1 Market Segmentation

In some of the countries during our sample period there are ownership restrictions on foreigners in one of the share classes. In all cases the ownership restrictions are imposed on the share that is not eventually cross-listed. The effect of the listing on share prices depends on whether it represents a relaxation of investment restrictions. In our sample we have firms with both classes of shares open to foreign ownership (unrestricted) even before the cross listing and firms with one share closed to foreign ownership prior to the cross listing. We have no firms with both shares restricted before the cross listing.

If both the listed and unlisted shares were allowed to be held by foreigners before the listing then we would not expect any listing effects related to market segmentation. However, given that foreigners are restricted from holding the unlisted shares we can expect two different scenarios based on the restrictions on the listed shares both before and after the listing. First, when only the listed shares are available to foreigners in the domestic market before the cross-listing, we expect a price premium before the listing associated with market segmentation as in Hietala (1989). If the foreign listing represents further liberalization of the listed shares we expect this premium to decrease after the listing as the stock price of the listed share in the domestic market will drop. This is similar to the reduction in premiums in closed-end country funds after further liberalization events documented in Bonser-Neal et al (1990) and Nishiotis (2004). Similarly, other things equal, we would expect a negative abnormal return for the listed shares to be associated with the listing. Second, if the listing does not represent further liberalization, we would not expect any effect of the ADR listing on either the premium or the abnormal return of the listed shares.

B.2 Liquidity

It is well accepted in the literature that liquidity has important asset pricing effects (see Amihud and Mendelson (1986)). We therefore expect the liquidity of the listed shares relative to the unlisted to have significant explanatory power on the relative prices of the two share classses. More specifically,

the higher the relative liquidity the higher will be the premium in the listed share price relative to the unlisted in the domestic market. However the more interesting question is: What are the effects of cross listing on the relative liquidity of the two share classes and how does it affect the relationship between relative liquidity and price premium? Intermarket competition and lower order processing costs in the foreign exchange can increase the liquidity of the listed shares in both the foreign and domestic markets relative to the liquidity before the listing. Order flow migration from the domestic to the foreign market after the listing, especially from foreigners, can however reduce the liquidity of the listed shares in the domestic market (see Domowitz et al. (1998)). As Domowitz et al. (1998) suggest, the benefits and costs of cross-listings associated with liquidity effects are complex and not evenly distributed across all share classes. With transparent markets, the increase in the total number of traders following cross-listing reduces spreads, increases the precision of public information, and increases liquidity in both markets. However, when intermarket information linkages are extremely poor, cross-listing results in the diversion of informative order flow overseas, resulting in lower domestic market quality. When information linkages are imperfect heightened intermarket competition may narrow domestic market spreads, but order flow migration may result in lower domestic market liquidity and may increase price volatility. Therefore, the effect of cross listing on both the relative liquidity of the two share classes and on its relationship with the price premium remain an empirical question, the answer of which depends on which of the factors described above dominates.

B.3 Bonding and Monitoring

The dual shares in our sample differ in terms of their voting rights. In our sample the unlisted shares typically have higher voting rights than the listed shares—the firm owners retain control of the firm at home. A possible control premium, other things equal, will manifest itself as a discount in the price ratio. In order to test for the effect of cross-listing on the control premium we use the relative voting rights of the listed and unlisted shares. The lower the voting rights of the listed share relative to the unlisted share the higher would be the discount (the lower the premium) in the price ratio prior to the cross-listing. As the cross-listing reduces the value of corporate control and enhances minority shareholder protection according to the bonding and monitoring hypothesis, we expect that firms where the relative voting rights variable is higher have a larger increase in the premium upon the cross-listing.

B.4 Signaling

If the foreign listing represents a costly commitment of the cross-listed firm to satisfy the increased disclosure and monitoring requirements set by the foreign exchange, as well as higher investor scrutiny and potential legal exposure, then the listing will represent a signal that the firm is of a "good type" and will reduce asymmetric information. This will affect the firm as a whole and therefore, it will change the price of both share classes. The signaling hypothesis predicts a positive abnormal return around listing for both shares and no effect on the price ratio. The effect on abnormal returns will be higher for firms whose domestic exchange standards and reporting requirements exhibit the larger disparity with the standards and reporting requirements of the foreign listing exchange.

IV Initial Evidence

A Abnormal Returns

In this subsection we analyze the abnormal reaction to the foreign listing reflected in the prices of the two classes of shares, in the domestic market. For every firm and every class of stock (listed and non-listed), the following time series regression is estimated:

$$R_{it} = \alpha_i + \beta_i R^i_{Mt} + \varepsilon_{it} \tag{2}$$

for $t = -250$ to $t = -100$ days relative to the listing (announcement) date. R^i_{Mt} is the corresponding market index, which is different for every firm. Then one can calculate abnormal returns from the residuals:

$$AR_{it} = R_{it} - \widehat{\alpha} - \widehat{\beta} R^i_{Mt} \tag{3}$$

for $t = -100$ to $t = +200$ days relative to the listing date. Finally, Cumulative Abnormal Returns for different subperiods are obtained by adding up the corresponding ADRs Significance tests are performed with a Z-statistic (normally distributed) calculated as explained in Campbell et al. (1997).

[Insert Table VI]

Table VI reports the average daily abnormal returns (annualized) for the 100 days around the cross-listing date for the listed and unlisted shares in the domestic market and the listed shares in the U.S. The results show that the average daily abnormal return across all firms in the pre-listing period is positive and statistically significant and it is reduced significantly in the period after cross-listing for both the listed and unlisted shares. We find that the average daily abnormal return for the domestic class is 1.32 percent (significant at the one percent level), and 0.62 percent for the listed class (significant at the one percent level), in the 50 days before the cross-listing. Similarly, average daily abnormal returns are 0.40% (significant at the ten percent level), and 0.14 percent (significant at the ten percent level) in the 50 days following the listing, respectively.

[Insert Table VII]

The results for the cumulative abnormal returns for the period $t = -50$ to $t = +50$ are reported in Table VII and are plotted in Figure 1. We find similar results for the two classes of shares in the 50 day window before and after the cross listing, although significance levels are lower. In the 20 days before the listing announcement, the CAR for the listed class is 2.68% (significant at the 10% level), while the CAR for the unlisted class is insignificant.

[Insert Figure 1]

After documenting a price reaction to the listing, we look, in the next section, into the effect of the foreign listing on the liquidity of both share classes.

B Liquidity

Table VIII reports liquidity estimates before and after the listing date for both the listed and unlisted shares in the domestic market and the listed shares in the U.S. Following Bekaert et al. (2003) liquidity is proxied by the frequency of zero returns. We use 200 days before, and 200 days after the listing, to compute the liquidity measure. The results show that the liquidity of both share classes in the domestic market increases significantly after the cross-listing. For the group of firms where the listed class is unrestricted, and the unlisted class is restricted, the fraction of days with zero return in the listed class drops from 41.6 percent to 12.9 percent. For the unlisted class, the increase in liquidity is also significant: the percentage of zero returns is 47.2 before the listing, and

17.7 after the listing. Both differences are significantly different from zero based on non-parametric tests. The results are similar for the group of stocks where both classes are unrestricted.

These results suggest that the positive effects on liquidity associated with intermarket competition and reduction of asymmetric information dominate the negative effects from possible order flow migration. The fact that both share classes benefit from cross-listing in terms of a symmetric increase in liquidity suggests that the increase in liquidity is associated with a reduction in asymmetric information. Our findings are consistent with Smith and Sofianos (1996), who analyze the effect of a NYSE listing on the liquidity of 128 non-U.S. stocks and find that, after the listing, the average annual turnover ratio in the domestic market increases from 65% to 89%. However, our results are not consistent with the findings of Domowitz et al (1998), who find that for Mexican shares open to foreign ownership prior to cross-listing, liquidity decreases reflecting order flow migration to the U.S. In the group of firms where the unlisted class is restricted, the ADR is less liquid than the listed class at home. However, the result is the opposite for stocks where both classes are restricted.

[Insert Table VIII]

V Empirical Tests

A Econometric Model and Methodology

The previous results ignore cross-sectional differences among firms, as well as differences in institutional and legal characteristics of the countries where these firms operate. In this section, we estimate a panel regression where we try to exploit the richness of our sample. We estimate the following panel data model:

$$\begin{aligned} PRM_{it} &= \alpha_t + \beta_t DR_{it}(1 - LR_{it}) + \gamma_t RVOT_{it} + \delta_t RLIQLD_{it} \\ &\quad + \zeta_t RLIQADR_{it} ADR_{it} + \eta_t CONTROLS + \varepsilon_{it} \qquad (4) \\ \alpha_t &= \alpha_0 + \alpha_1 ADR_{it} \\ \beta_t &= \beta_0 + \beta_1 ADR_{it} \\ \gamma_t &= \gamma_0 + \gamma_1 ADR_{it} \\ \delta_t &= \delta_0 + \delta_1 ADR_{it} \end{aligned}$$

where the premium (PRM), the dependent variable of our econometric model, is defined in Section 2B; ADR is a dummy variable that takes the value of 1 after the foreign listing, and 0 otherwise; LR is a dummy variable that takes the value of 1 when the listed class is restricted before the listing, and 0 otherwise; DR is a dummy variable that takes the value of 1 when the unlisted class is restricted before the listing, and 0 otherwise; $RVOT$ is the relative voting rights variable and is defined as $RVOT = \ln(1 + \frac{V_{listed}}{V_{Unlisted}})$, where V_{Listed} and $V_{Unlisted}$ are the number of votes[6] of the listed and the unlisted shares, respectively; $RLIQLD$ is the relative liquidity variable of the listed share class with respect to the unlisted class and is defined as $RLIQLD = \ln(1 + \frac{LIQ_{Listed}}{LIQ_{Unlisted}})$, where LIQ_{Listed} is the percentage of zero returns in the listed share class at home, and $LIQ_{Unlisted}$ is the percentage of zero returns in the unlisted share class at home; $RLIQADR$ is the relative liquidity variable of the ADR with respect to the unlisted class and is defined as $RLIQADR = \ln(1 + \frac{LIQ_{ADR}}{LIQ_{unlisted}})$, where LIQ_{ADR} is the percentage of zero returns in the ADR.[7] We include as controls ($CONTROLS$) the La Porta et al. (1998) variables of antidirector rights, accounting standards, and efficiency of the judicial system. Additionally, we control for firm size, measured as the natural log of market capitalization. The model is estimated using weekly data for a period of $t = -50$ to $t = +50$ weeks around the listing date. We estimate country-random and year-fixed effects. Although country-fixed effects seem more natural, the La Porta et al. (1998) variables are time invariant, thus forcing us to estimate random effects.[8]

B Results

The results from testing several versions of the model in equation 1 are presented in Table IX. First, we test the three main hypotheses separately (columns 1-3). We then combine them in the model two at a time (columns 4-6), and finally we test them all together (column 7). All versions of the model control for firm size and the level of investor protection in the firm home country using the La Porta et al. (1998) variables on antidirector rights, accounting standards, and efficiency of the judicial system. A dummy variable capturing the ADR listing is also included in all versions of the model. In every table, we report t-statistics for all the coefficients, and we report both a t-statistic and the economic significance, whenever the coefficient is significant.

[6] We use this formulation because for some firms the listed shares do not carry any votes.

[7] Pre-listing, we set $LIQ_{ADR} = 1$.

[8] In (non-reported) robustness tests, we have estimated the model with country-fixed effects, and without the La Porta et al. (1998) variables, with a negligible change in our results. We also perform robustness tests on the length of the estimation period.

[Insert Table IX]

Consider the variables in row 2 and 3 (our test of the segmentation hypothesis). For firms with restrictions on foreign ownership on the domestic shares, but not on the listed shares, we find that shareholders pay a premium on the unrestricted class. The estimated coefficient for the DR x (1-LR) variable is positive and statistically significant in all versions of the model. This result is consistent with the segmentation hypothesis, and in particular with Hietala (1989). Additionally, when we interact this variable with the ADR dummy, the coefficient is negative and statistically significant at the one percent level in all versions of the model. This indicates that the premium is reduced after the cross-listing, which is again consistent with the market segmentation hypothesis and indicates that the cross-listing acts as a move toward capital market integration. [9]

With respect to the liquidity hypothesis, the results in Table IX suggest that liquidity plays an important role in determining the premium before and after the listing. More precisely, the coefficient estimate on the relative liquidity variable (row 6) is negative and statistically significant in all versions of the model, indicating that the lower the liquidity of the listed share relative to that of the unlisted share, the lower the premium in the price of the listed share relative to the unlisted.[10] In addition, our findings in the full model presented in column 7 show that the sensitivity of the premium to the relative liquidity of the two share classes does not change after the listing. The coefficient estimates on the two variables in row 7 and 8 are positive, but not significant.[11] Furthermore, the insignificant coefficient estimate on the liquidity of the ADR relative to that of the unlisted share indicates that the liquidity in the U.S. ADR market has effects symmetric to both shares implying no significant impact of order flow migration from the listed share in the domestic market to the ADR. The findings in the other versions of the model when the segmentation and/or control variables are not included differ from the full version in that the coefficients of the two variables after the listing are typically significant. These differences highlight the importance of including all three hypotheses in the model as the liquidity variables after the ADR listing appear to be picking up other effects in the absence of segmentation and/or control variables.

[9] These results are also consistent with the presence of premiums in closed-end country funds associated with market segmentation in Bonser-Neal et al. (1990) and Nishiotis (2004) and the documented negative effect of liberalization on these premiums.

[10] Note that liquidity is measured as the percentage of zero returns. Therefore, the higher the value of the relative liquidity variable, the lower the liquidity of the listed share relative to the unlisted.

[11] This result does not imply that the liquidity of the two share classes is unaffected by the cross listing. We have already documented in Table VIII that liquidity increases significantly after the listing for both share classes.

We test the bonding hypothesis by including a relative voting rights variable (row 4) in our model, and by interacting it with the ADR dummy (row 5). According to the bonding hypothesis, we expect a control premium before the listing, and this premium to be reduced after the listing as investor protection increases. In our sample the listed class has typically limited or no voting rights relative to the unlisted class. Therefore, the control premium corresponds to a discount (negative premium) in our dependent variable. Given that our relative voting rights variable is always positive, we expect a negative coefficient estimate before the listing to indicate the discount (voting premium) and a positive coefficient on the relative voting rights variable when it is interacted with the ADR dummy to indicate the reduction in the discount after the listing. The coefficient estimate of the relative voting rights variable is negative and statistically significant in all versions of the model, revealing the presence of a voting premium. We find that the effect of the relative voting rights variable on the voting premium after the ADR introduction is consistent with the bonding argument. The coefficient estimate of relative voting rights times the ADR variable is positive and significant at the one percent level in all versions of the model. The positive coefficient indicates the reduction of the voting premium in the price of the high voting shares after the cross-listing. Therefore, we find that listing in the U.S. increases the value of the vote as predicted by Coffee (1999). This result is also similar to Dyck and Zingales (2004), who find that the control premium is lower for firms with an ADR.

In the full version of the model, the ADR dummy variable (first row in Table IX) displays a positive, but not significant coefficient. Thus, upon the listing, once we control for the characteristics of the two classes, the premium is not further affected. This result is in line with the signaling story. The signaling hypothesis predicts in fact that, once we control for share characteristics, the price reaction of both share classes should be positive, but of equal magnitude, thus leaving the price premium unchanged. Therefore, both the results in Table IX and the abnormal returns in Table VII are consistent with cross listing being a signal to communicate quality to the market. In the other versions of the model (column 1 to 6) when only one or two hypotheses are tested, the coefficient estimates change both in sign and significance levels, once again highlighting the importance of testing all the hypotheses simultaneously.

With respect to the corporate governance variables, the premium is larger the higher the index of antidirector rights, and the higher the index of efficiency of the judiciary system. This is consistent with a better legal system leading higher minority shareholders' protection and a reduction in the voting premium. Conversely, the premium is smaller the higher the index of accounting standards

in the domestic market.

Summarizing our results, we are able to separate out the different effects of cross-listing. Firstly, we find that the market segmentation hypothesis is supported by the data: a premium is paid for the listed share class and this premium is reduced after cross listing, suggesting that cross listing acts as a move towards capital market integration. Secondly, we find evidence that supports the liquidity hypothesis, and more specifically, that the premium is linked to the relative liquidity of the two classes of shares; after the listing, liquidity significantly improves for both classes of shares in the domestic market, but the impact of the relative liquidity on the premium is not changed. We also document the relative liquidity of the ADR has a symmetric effect on the price of the two classes of shares in the domestic market, leaving the premium unaffected. Thirdly, we find evidence consistent with the bonding hypothesis: we document a voting premium before the listing, and this premium is significantly reduced after the listing. Finally, we find indirect evidence that firms use cross listing to signal quality.

C Economic Significance

In the previous section, we investigated the determinants of cross listing. In this section, we make a step further and we rank the relative importance of each variable by calculating the economic significance of each estimated coefficient. For each coefficient that is significant, we calculate economic significance as the coefficient times the standard deviation of the corresponding exogenous variable, divided by the standard deviation of the endogenous variable. Economic significance is then measured in percent standard deviations of the left-hand side variable that is explained with a one-standard deviation change in the corresponding right-hand side variable, and it is comparable across coefficients.

Consider the full version of the model (column 7). Ownership restrictions explain most of the variation in premiums irrespective of the cross-listing. The economic significance of the ownership restriction dummy is 40 percent when the domestic class is restricted, and the listed class is unrestricted (row 4). This means that a one-standard deviation increase in the ownership restriction dummy increases the premium by 0.40 standard deviations. Voting rights have an economic significance of 25.6 percent, and the liquidity variable 7.4 percent. The variable with the largest economic significance after an ADR listing is, once again, the ownership restriction dummy at 17 percent. The voting rights variable explains only half of this amount with an economic significance equal to 8.3 percent. The economic significance was not calculated for the liquidity variables since

the two estimated coefficients were not significant. The last result does not imply that liquidity does not play any role. In Table VIII in fact, we document that the liquidity of both share classes improves significantly. However, since the effect is symmetric on both share classes, cross listing does not appear to change the sensitivity of the premium to the relative liquidity of the two share classes. That is, the increase in liquidity for both share classes seems to be informationally driven rather than related to order flow migration from the local to the US market and/or intermarket competition for the listed shares.

VI Robustness Tests

The power of our tests comes from the cross-sectional variation across firms, even though we have only 20 firms in the sample. In this section, we test the robustness of our results by implementing alternative econometric specifications on our data. We estimate the model in equation (4) removing observations around the listing date (25 weeks before and 25 weeks after) to test the reasonableness of our assumption that most of the effects of the cross-listing will take place around the listing date, and not the date of the announcement of the listing. Next, we estimate a pooled-regression model with the same specification as in the original model. We then estimate the panel regression in equation (4) interacting the ADR dummy with the country fixed-effects.

A Removing Observations Around the Listing Date

We start by eliminating from the sample the observations in weeks $t = -25$ to $t = +25$ relative to the listing date. Because of the remoteness of the event at hand, we are not able to gather good information regarding announcement dates, therefore in the paper we focus on the day of the listing. We argue that it is unlikely that more than 25 weeks elapsed since the date of announcement to the date of the actual listing.[12] Moreover, we remove weeks $t = 0$ to $t = +25$ to control for the possibility that the effects of the listing are reflected with certain delay in the home market, because of frictions, inefficiencies, or inaccuracies in our assessment of the listing date. Results of the estimation are in Table X.

[Insert Table X]

[12] Miller (1999) finds that there are on average 77 days between the announcenment of a cross listing decision and the actual listing date.

The results for the market segmentation and the bonding hypotheses are robust to the alternative specification and the liquidity coeffcients display the expecetd signs. The liquidity variables after the cross-listing are now significant. In the full version of the model, the ADR dummy displays a negative and significant coefficient. Thus, upon the listing, once we control for the characteristics of the two classes, the premium is reduced, and the price of the unlisted shares increases more than the price of the listed shares. This is consistent with the firm having access to acquisition currency in the U.S. (Lins et al. (2005), which benefits the controlling shareholders (the owners of the unlisted stock) more than the non-controlling shareholders (the owners of the listed stock).

B Pooled Regression

In our earlier estimation, each firm accounts for at most 100 observations in the regressions. Some of the controls, as well as the premium, are time-varying. But some of the variables such as the segmentation and voting right dummies are time-invariant. This may reduce the standard errors and artificially inflate significance levels. In this section we estimate the model by pooling the data within firms. To that end, we calculate the mean value of all variables in the model, in two subperiods: pre-listing and post-listing. We then estimate a panel regression with two time periods and 20 firms (40 observations in total), which reduces drastically the degrees of freedom. Obviously, there is no need for year-fixed effects.

[Insert Table XI]

Table XI reports the result of the estimation. The only share characteristic which is significant is the ownership restriction dummy. Firms whose listed class is unrestricted, and whose unlisted class is restricted, trade at a premium, which is 0.89 standard deviations higher. Although the statistical significance of the coefficients drops substantially, the signs of the coefficients are similar to those in Table IX.

C The Effect of Country Characteristics

Dyck and Zingales (2004) show that the effect of a cross-listing on the price paid for control is more negative the larger the disparity in investor protection between the acquiring and the target country. In this section we explore the effect of the nationality of the listing firms on the effects of the cross-listing. We estimate the panel regression in equation (4), interacting the ADR dummy

with the country-fixed effects. Therefore, we estimate the coefficients of two dummy variables per country: a pure country dummy, and the country-specific effect of the cross-listing. Results are in Table XII.

[Insert Table XII]

In the Table, we do not estimate an individual effect for Brazil, in order to avoid multicollinearity. After controlling for these country-specific effects, the estimated coefficients of the market segmentation and liquidity hypotheses do not change while the coefficients associated with bonding display the opposite signs.

VII Conclusions

We use a sample of firms with dual-class shares which decide to list only one of the share classes in the U.S. We characterize both share classes in terms of ownership restrictions, voting characteristics, and liquidity, and we measure the effect of listing an ADR on one of the share classes on the price premium of the listed relative to the unlisted shares. Our paper contributes to the literature in three different ways. Firstly, it provides a simple, direct, and intuitive test of market segmentation in a cross-listing environment. Secondly, by proposing a framework that considers an array of competing cross-listing explanations, we are able to test them in an integrated framework. Thirdly, we calculated the economic significance of each hypothesis and we rank their relative importance. We find that the market segmentation hypothesis is supported by the data: a premium is paid for the listed share class (unrestricted) and this premium is reduced after cross listing, suggesting that cross listing acts as a move towards capital market integration. We find evidence that supports the liquidity hypothesis, and more specifically, that the premium is linked to the relative liquidity of the two classes of shares; after the listing, liquidity significantly improves for both classes of shares in the domestic market, while the sensitivity of the premium to the relative liquidity variable remains unchanged. We also document that the relative liquidity of the ADR has a symmetric effect on the price of the two classes of shares in the domestic market, leaving the premium unaffected. Finally, we find evidence consistent with the bonding hypothesis: we document a voting premium before the listing, and this premium is significantly reduced after the listing. Finally, we are able to

determine the economic impact of these factors, and we conclude that, elimination of segmentation barriers is the most important economic effect of cross-listing. We also perform several robustness tests and we conclude that the main results remain fundamentally unchanged, providing further evidence of the economic soundness of our results.

We deem our results very important in the current debate on the costs and benefits of a dual listing. In the last ten years, investment barriers have been removed in many countries, and the markets have become less segmented (Stulz, 1999). Additionally, while ADRs where important trading vehicles in the early nineties, in the most recent years ADRs become very illiquid a few months after their first listing. Finally, a cross-listing may provide a commitment to better monitoring and disclosure, but our paper finds that this effect has a much lower economic impact than that of the segmentation hypothesis. Moreover, Sarbanes-Oxley has increased the costs that foreign firms have to pay to have access to better governance. Therefore, it seems that, while ADRs were a beneficial strategy in the past, the potential benefits have reduced over time. We think this explains the current trend of firms going back to their own domestic markets.

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Table I

Our sample consists of firms that are not originally listed in a U.S. market, that have two classes of shares, and that decide to list one of the two classes of shares in a U.S. market in the period 1987-1996.
The data were gathered from different sources.This table shows the name of the firms in the sample together with information on country of nationality, market of foreign listing, listing type, ADR ratio, listing date, and industry.

Company Name	Nationality	Market of Foreign Listing	Type of Dual Listing	ADR ratio	Date of Listing	Industry
Acesita S.A.[1]	Brazil	OTC	ADR(Pr.)	1 to 1,800	July 22, 1994	Steel
AGA AB[7]	Sweden	OTC	ADR(B)	1 to 1	April 1, 1989	Chemicals, commodity
Alliance Atlantis Communications, Inc.	Canada	Nasdaq	B	1 to 1	January 16, 1996	Television Broadcasting
Call-Net Enterprises Inc.	Canada	Nasdaq	B	1 to 1	December 15, 1993	Telecommunications
CEMEX, S.A. de C.V.[4]	Mexico	OTC	ADR(B) level 1	1 to 2	September 1, 1991	Building materials
CHC Helicopter Corporation	Canada	Nasdaq	A	1 to 1	December 7, 1993	Air Transportation
Electrolux AB[8]	Sweden	Nasdaq	ADR(B)	1 to 2	June 30, 1987	Household appliances
Eucatex	Brasil	OTC	ADR Sponsored	1 to 100	January 27, 1994	Building materials
Grand Hotel Holding	Hong Kong	OTC	ADR (A) Sponsored	1 to 5	February 12, 1993	Financial
Grupo Industrial Maseca	Mexico	OTC	ADR (B)	1 to 100	March 10, 1992	Food
Internacional de Ceramica[5]	Mexico	OTC	ADR(B)	1 to 5	October 29, 1991	Ceramic Tile Manufacturing
Kimberly - Clark de Mexico - SA DE CV	Mexico	OTC	ADR(A)	1 to 5	November 22, 1993	Paper
Norske SKOG	Norway	OTC /144A	ADR (B)	1 to 1	May 5, 1994	Paper
San Miguel	Phillippines	OTC	ADR(B)	1 to 10	July 1, 1991	Brewers
Sandoz	Switzerland	OTC	ADR(B)	20 to 1	October 7, 1991	Pharmaceuticals
Sandvik AB	Sweden	OTC	ADR(B)	1 to 1	December 1, 1987	Industrial Engineering
SKF AB	Sweden	Nasdaq	ADR(B)	1 to 1	May 18, 1989	Steel
Sudamtex de Venezuela	Venezuela	OTC	ADR (B)	200 to 1	January 1, 1994	Textiles and leather
Svenska Cellulosa AB	Sweden	OTC	ADR(B) Level I	1 to 1	November 30, 1995	Paper and Packaging
Transportacion Maritima Mexicana[6]	Mexico	OTC/144A	ADR(L)	1 to 1	November 11, 1991	Shipping and ports

Table II

This table gives additional information regarding the country of origin and the choice of foreign listing.

	Number of Firms	Foreign Market	
		Nasdaq	OTC
Asia			
Hong Kong	1	-	1
Philippines	1	-	1
TOTAL ASIA	**2**	**0**	**2**
Canada	**3**	**3**	**0**
Europe			
Norway	1	-	1
Sweden	5	2	3
Switzerland	1	-	1
TOTAL EUROPE	**7**	**2**	**5**
Latin America			
Brazil	2	-	2
Mexico	5	-	5
Venezuela	1	-	1
TOTAL LATIN AMERICA	**9**	**0**	**9**
TOTAL SAMPLE	**20**	**5**	**15**

Table III

In this table, we report information regarding voting rights and ownership restrictions for each class in the pair. We find this information by direct contact with the companies, from the companies annual reports, and from the firms' websites.

				Stock Characteristics	
Company	**Country**		**Share Classes**	**Voting Rights**	**Ownership Restrictions**
Acesita S.A.	Brazil	LISTED CLASS	Preferred	No voting rights	No
		UNLISTED CLASS	Common	One vote per share	Yes
AGA AB	Sweden	LISTED CLASS	B	1/10 of a vote per share	No
		UNLISTED CLASS	A	One vote per share	Yes
Alliance Atlantis Communications, Inc.	Canada	LISTED CLASS	B	No voting rights	No
		UNLISTED CLASS	A	One vote per share	No
Call-Net Enterprises Inc.	Canada	LISTED CLASS	B	No voting rights	No
		UNLISTED CLASS	A	One vote per share	No
CEMEX, S.A. de C.V.	Mexico	LISTED CLASS	B	One vote per share	No
		UNLISTED CLASS	A	One vote per share	Yes
CHC Helicopter Corporation	Canada	LISTED CLASS	A	One vote per share	No
		UNLISTED CLASS	B	10 votes per share	No
Electrolux AB	Sweden	LISTED CLASS	B	1/10 of a vote per share	No
		UNLISTED CLASS	A	One vote per share	Yes
Eucatex	BRAZIL	LISTED CLASS	A	No voting rights	No
		UNLISTED CLASS	B	One vote per share	Yes
Grand Hotel Holding	Hong Kong	LISTED CLASS	A	No voting rights	No
		UNLISTED CLASS	B	One vote per share	No
Grupo Industrial Maseca	Mexico	LISTED CLASS	B	One vote per share	No
		UNLISTED CLASS	A	One vote per share	Yes
Internacional de Ceramica	Mexico	LISTED CLASS	B	One vote per share	No
		UNLISTED CLASS	A	One vote per share	Yes
Kimberly - Clark de Mexico - SA DE CV	Mexico	LISTED CLASS	B	One vote per share	No
		UNLISTED CLASS	A	One vote per share	Yes
Norske SKOG	Norway	LISTED CLASS	B	No voting rights	No
		UNLISTED CLASS	A	One vote per share	Yes
San Miguel	Phillippines	LISTED CLASS	B	One vote per share	No
		UNLISTED CLASS	A	One vote per share	Yes
Sandoz	Switzerland	LISTED CLASS	B	No votign rights	No
		UNLISTED CLASS	A	One vote per share	Yes
Sandvik AB	Sweden	LISTED CLASS	B	1/10 of a vote per share	No
		UNLISTED CLASS	A	One vote per share	Yes
SKF AB	Sweden	LISTED CLASS	B	1/1000 of a vote per share	No
		UNLISTED CLASS	A	One vote per share	Yes
Sudamtex de Venezuela	Venezuela	LISTED CLASS	B	One vote per share	No
		UNLISTED CLASS	A	One vote per share	No
Svenska Cellulosa	Sweden	LISTED CLASS	B	One vote per share	No
		UNLISTED CLASS	A	10 votes per share	Yes
Transportacion Maritima Mexicana	Mexico	LISTED CLASS	L	No voting rights	No
		UNLISTED CLASS	A	One vote per share	Yes

Table IV

Summary statistics for the Premium. We define Premium as the ratio of the price of listed class to the price of the unlisted class in the domestic market as follows: 100 * ln{P(L)/P(U)}, where P(L) is the price of the listed class, and P(U) is the price of the unlisted class. N refers to the number of observations (weeks) Test of differences are based on a non-parametric Wilcoxon test.

	Pre-Listing Premium (50 weeks)						Post-Listing Premium (50 weeks)						Difference	
Company Name	N	Mean	Median	St.Dev	Min	Max	N	Mean	Median	St.Dev	Min	Max	Mean	p-value
Acesita S.A.	41	271.93	282.68	50.37	167.46	358.84	50	29.50	-2.88	73.60	-20.76	199.60	-242.43	(0.0000)
AGA AB	50	-3.20	-2.57	4.42	-18.19	5.72	50	-5.51	-4.21	4.90	-23.63	3.67	-2.31	(0.0000)
Alliance Atlantis Communications, Inc.	8	-4.34	-3.29	3.90	-12.26	1.81	50	-3.82	-0.80	9.42	-52.01	5.42	0.52	(0.0004)
Call-Net Enterprises Inc.	2	-30.20	-28.34	4.52	-39.20	-25.77	49	-28.14	-27.71	3.33	-41.84	-18.75	2.06	(0.1618)
CEMEX, S.A. de C.V.	13	1.74	0.00	4.89	-5.72	19.42	50	5.44	5.06	2.73	-1.87	15.77	3.70	(0.0000)
CHC Helicopter Corporation	28	-3.29	-2.83	6.76	-24.10	21.06	50	0.01	0.00	2.75	-6.73	7.65	3.30	(0.0000)
Electrolux AB	32	-32.64	-28.38	21.56	-91.56	6.68	50	-65.10	-66.75	16.05	-101.58	-22.55	-32.46	(0.0000)
Eucatex	50	40.70	43.84	19.80	-20.54	70.68	50	10.70	9.98	5.76	1.59	25.78	-30.00	(0.0000)
Grand Hotel Holding	47	237.21	235.14	21.38	201.49	283.32	50	235.94	237.49	11.17	211.02	256.49	-1.26	(0.8573)
Grupo Industrial Maseca	50	40.70	43.84	19.80	-20.54	70.68	50	10.70	9.98	5.76	1.59	25.78	-30.00	(0.0000)
Internacional de Ceramica	50	40.70	43.84	19.80	-20.54	70.68	50	10.70	9.98	5.76	1.59	25.78	-30.00	(0.0000)
Kimberly - Clark de Mexico - SA DE CV	50	-1.54	-1.11	6.49	-19.61	16.22	50	-0.71	-0.37	3.37	-11.39	9.63	0.83	(0.2934)
Norske SKOG	50	16.06	17.17	4.66	1.80	24.32	50	14.83	14.81	2.08	8.88	20.27	-1.23	(0.0000)
San Miguel	46	26.74	25.87	14.72	-0.87	57.00	50	33.59	33.98	14.04	3.81	60.04	6.85	(0.0000)
Sandoz	50	40.70	43.84	19.80	-20.54	70.68	50	10.70	9.98	5.76	1.59	25.78	-30.00	(0.0000)
Sandvik AB	37	45.66	47.33	13.68	21.17	70.68	50	10.70	9.98	5.76	1.59	25.78	-34.96	(0.0000)
SKF AB	4	-2.44	-2.46	2.89	-8.24	3.26	49	1.00	0.00	9.70	-27.52	26.40	3.45	(0.0704)
Sudamtex de Venezuela	18	-11.21	-13.35	8.92	-35.67	0.00	50	3.48	0.00	11.85	-22.31	51.08	14.69	(0.0000)
Svenska Cellulosa AB	50	-28.45	-16.95	42.32	-119.32	41.30	50	43.89	44.54	8.40	21.13	61.25	72.34	(0.0000)
Transportacion Maritima Mexicana	2	0.22	0.00	0.88	-1.10	1.77	50	-8.89	-8.53	6.39	-29.86	2.44	-9.11	(0.0000)
ALL FIRMS - 20	678	45.44	23.46	84.06	-119.32	358.84	998	15.24	5.04	56.71	-101.58	256.49	-30.20	(0.0000)

Table V

Sumamry statistics for the Premuim by Market of Listing, by Country of Origin, and by Owner Restrictions.
We define Premium as the ratio of the price of listed class to the price of the unlisted class in the domestic market
as follows: 100 * ln{P(L)/P(U)}, where P(L) is the price of the listed class, and P(U) is the price of the unlisted class. N refers to the number of observations (weeks)
Test of differences are based on a non-parametric Wilcoxon test.

	Pre-Listing Premium						**Post-Listing Premium**						Difference	
	N	Mean	Median	St.Dev	Min	Max	N	Mean	Median	St.Dev	Min	Max	Mean	p-value
By Market of Listing														
Nasdaq	161	-14.49	-7.32	17.38	-53.07	12.98	253	-18.90	-2.77	28.62	-101.58	19.22	-4.41	(0.0551)
OTC	696	43.37	21.84	71.58	-18.23	253.85	765	34.30	14.87	65.97	-23.63	256.49	-9.06	(0.0000)
By Country of Origin														
Brazil	98	119.01	103.63	90.97	21.17	253.85	102	70.54	22.04	86.22	-18.59	199.60	-48.47	(0.0000)
Canada	95	-5.33	-2.69	10.45	-39.20	12.98	152	-9.64	-1.83	13.33	-38.40	7.01	-4.31	(0.1232)
Hong Kong	49	223.53	225.13	4.07	214.01	235.14	51	232.28	230.26	13.51	215.95	256.49	8.75	(0.6876)
Mexico	206	14.34	10.91	15.18	-13.03	39.81	255	6.40	3.64	9.48	-15.08	25.78	-7.94	(0.0000)
Norway	49	18.30	18.37	2.40	13.25	24.32	51	16.99	16.79	1.64	13.59	20.27	-1.31	(0.0000)
Philippines	49	11.97	11.30	5.72	3.50	24.87	51	15.67	10.48	10.56	3.81	51.36	3.70	(0.0000)
Sweden	262	6.54	12.57	25.27	-53.07	41.30	305	-0.48	5.03	35.03	-101.58	59.70	-7.02	(0.0172)
Venezuela	49	-8.37	-11.78	7.52	-18.23	0.00	51	14.37	13.35	15.12	-15.42	51.08	22.75	(0.0000)
By Ownership Restrictions														
Both Unrestricted	193	52.00	0.00	100.68	-39.20	235.14	664	26.83	19.30	55.00	-53.07	253.85	-25.18	(0.0000)
Listed Unrestricted, Unlisted Restricted	254	43.75	0.00	96.12	-38.40	256.49	764	13.54	6.35	45.18	-101.58	199.60	-30.21	(0.0000)

Table VI

In this table we report the average daily abnormal returns (annualized) for the 100 days around the cross-listing date for the listed and unlisted shares in the domestic market and the listed shares in the US.

	Market Adjusted Daily Return									
	Listed Class				Domestic Class				Foreign Class	
Company name	Pre-Listing [-50,0]		Post-Listing [0,+50]		Pre-Listing [-50,0]		Post-Listing [0,+50]		Post-Listing	
AGA AB	0.64%		0.11%		0.61%		0.11%		-	
Call-Net Enterprices Inc.	2.00%		0.09%		1.10%		0.10%	*	-	
CEMEX S.A. DE C.V	0.67%		0.37%		1.65%		0.32%		-	
CHC Helicopter Corporation	0.27%	**	0.07%		0.24%	*	0.06%		-	
Eucatex	0.10%		0.25%		5.17%		5.53%		-	
Grand Hotel HDG. 'A' ADR	0.44%		0.23%		0.92%		0.64%		-	
International de ceramica	0.65%	*	0.10%		1.50%		0.51%		-	
Sandoz	0.37%		0.17%		1.62%		0.53%		-	
Sandvik AB	1.02%		0.44%		0.24%		0.29%		-	
SKF AB	1.58%		0.41%		1.48%		0.43%		-	
Sudamtex de Venezuela	-0.01%	*	-1.00%		1.36%	*	-0.38%		-	
Svenska Cellulosa AB	0.17%	**	0.21%		0.07%		0.18%		-	
Acesita S. A. [ACSTY]	0.78%	***	-0.64%	***	3.71%	***	-0.39%	**	-1.18%	***
Alliance Atlantis Communications	0.14%		0.35%		0.13%		0.33%		-0.05%	
Electrolux AB	1.03%		-0.04%		1.31%		-0.18%		-0.13%	
Kimberly - Clark de Mexico - SA DE CV	0.79%	**	0.22%		0.81%		0.26%		0.23%	
Maseca 'B' ADR	0.17%		0.16%		1.48%		0.40%		-0.37%	*
Norske SKOG	0.16%		0.22%		0.40%		0.28%		-0.26%	
San Miguel	0.58%		0.70%		1.07%		0.50%		20.47%	
Transportacion Maritima Mexicana	0.81%	*	0.30%		1.46%		0.41%	*	-0.12%	
Only 20 firms with pre and post-listing data	0.62%	***	0.14%	*	1.32%	***	0.50%	*		
Only 9 firms with data on three share classes	0.56%	***	0.16%		1.30%	***	0.20%	**	2.32%	

Table VII

Cumulative abnormal returns (CARs) using daily returns around the listing announcement
Significance tests are performed with the Z-statistic calculated using the methodology illustrated in Campbell et al. (1997).

	Listed Class			Domestic Class		
	CAR	St.Dev.	P-value	CAR	St.Dev.	P-value
From week t=-50 to t=-21	-2.79%	3.27%	(0.4044)	-1.99%	2.85%	(0.4926)
From week t=-20 to t=-1	2.68%	1.39%	(0.0676)	-0.23%	1.23%	(0.8541)
From week t=0 to t=+20	0.57%	1.55%	(0.7187)	-0.01%	1.42%	(0.9937)
From week t=+21 to t=+50	0.52%	2.14%	(0.8104)	-0.44%	1.85%	(0.8150)
From week t=-1 to t=+1	1.19%	0.63%	(0.0734)	-1.18%	0.53%	(0.0367)
From week t=-3 to t=+3	-0.16%	0.91%	(0.8653)	-0.36%	0.86%	(0.6767)
From week t=-5 to t=+5	-1.19%	1.05%	(0.2728)	-1.01%	1.05%	(0.3445)

Table VIII

We report results on liquidity before and after the listing day for the listed and the unlisted shares in the domestic market and the listed shares in the US. Liquidity is measured as the percentage of zero returns as in Bekaert et al. (2003).

		Liquidity Measure: % Days with Zero Returns							
		Listed Class				Domestic Class			Foreign Class
	Company name	Pre-Listing	Post-Listing	Difference		Pre-Listing	Post-Listing	Difference	Post-Listing
Panel A - Listed Unrestricted and Unlisted Restricted									
1	Acesita S. A. [ACSTY]	45.5%	5.8%	-39.7%		48.0%	17.0%	-31.0%	16.8%
2	AGA AB	7.7%	5.5%	-2.2%		12.8%	6.6%	-6.2%	98.7%
3	CEMEX S.A. DE C.V	90.0%	17.2%	-72.8%		69.6%	17.4%	-52.2%	-
4	Electrolux AB	8.2%	5.4%	-2.8%		17.8%	9.6%	-8.3%	88.1%
5	Eucatex	69.1%	21.8%	-47.4%		74.4%	24.1%	-50.4%	-
6	International de ceramica	66.3%	31.4%	-34.9%		61.6%	35.3%	-26.3%	-
7	Kimberly - Clark de Mexico - SA DE CV	58.7%	10.2%	-48.5%		35.4%	10.0%	-25.4%	23.5%
8	Maseca 'B' ADR	57.4%	30.8%	-26.6%		67.8%	34.4%	-33.4%	48.8%
9	Norske skog SPN 'B' ADR	33.7%	3.1%	-30.5%		33.7%	2.9%	-30.8%	73.6%
10	San Miguel	43.1%	6.1%	-37.0%		38.8%	12.6%	-26.2%	48.9%
11	Sandoz	61.7%	39.2%	-22.5%		71.0%	42.1%	-28.8%	45.2%
12	Sandvik AB	12.4%	5.2%	-7.2%		64.2%	30.9%	-33.3%	-
13	SKF AB	7.0%	4.2%	-2.8%		12.4%	10.4%	-2.0%	-
14	Svenska Cellulosa AB	4.8%	2.2%	-2.6%		3.4%	2.1%	-1.3%	94.6%
15	Transportacion Maritima Mexicana	58.7%	5.4%	-53.3%		96.8%	9.8%	-87.0%	40.2%
	Total	**41.6%**	**12.9%**	**-28.7%**	*****	**47.2%**	**17.7%**	**-29.5%**	*****	**57.8%**
Panel B - Both Unrestricted									
1	Alliance Atlantis Communications	88.4%	1.8%	-86.6%		88.0%	4.1%	-83.9%	17.5%
2	Call-Net Enterprices Inc.	93.4%	9.8%	-83.6%		78.5%	25.2%	-53.3%	31.7%
3	CHC Helicopter Corporation	66.9%	10.0%	-56.8%		67.7%	11.0%	-56.7%	-
4	Grrand Hotel HDG. 'A' ADR	87.5%	67.9%	-19.7%		98.1%	96.7%	-1.4%	-
5	Sudamtex de Venezuela	92.9%	89.0%	-3.9%		79.2%	91.0%	11.8%	-
	Total	**85.8%**	**35.7%**	**-39.7%**	*****	**82.3%**	**45.6%**	**-34.4%**	*****	**24.6%**

Table IX

The random effect panel data model in Section V of the paper is estimated using data from 100 weeks around the listing date. We control for the La Porta et al. (1998) variables and Economic significance is calculated only when the corresponding coefficient is significant.

	(1) Premium	(2) Premium	(3) Premium	(4) Premium	(5) Premium	(6) Premium	(7) Premium
ADR listing (Y/N)	0.093	8.401***	-19.735***	-10.971***	1.298	5.216**	-15.625***
	[0.03]	[4.3,0.063]	[9.5,-0.146]	[8.83,-0.083]	[0.41]	[2.12,0.039]	[5.87,-0.116]
DR x (1-LR)	62.467***	88.778**			85.470***	63.210***	
	[14.95,0.4]	[2.14,0.573]			[25.02,0.547]	[16.15,0.408]	
DR x (1-LR) x LIST	-23.616***	-19.265***			-20.450***	-23.796***	
	[8.91,-0.17]	[8.62,-0.143]			[7.56,-0.148]	[8.78,-0.177]	
Relative Control = Log (1 + Votes in Listed / Votes in Domestic))	-54.827***			-82.834**		-52.789***	-90.624***
	[10.7,-0.256]			[2.27,-0.387]		[11.06,-0.246]	[20.82,-0.422]
Relative Control x ADR Listing	21.574***			18.100***		21.967***	17.627***
	[5.76,0.083]			[5.89,0.069]		[5.95,0.083]	[4.45,0.068]
Relative Liquidity Listed / Domestic	-12.618***		-4.932**		-16.928***		-16.495***
	[4.81,-0.074]		[2.1,-0.029]		[6.37,-0.099]		[5.89,-0.096]
Rel. Liquidity Listed / Domestic x ADR Listing	4.401		11.213***		9.607***		10.747***
	[1.37]		[4.46,0.071]		[3.06,0.061]		[3.16,0.068]
Rel. Liquidity ADR / Domestic x ADR Listing	1.054		4.133***		0.827		-2.810***
	[1.03]		[4.44,0.064]		[0.79]		[2.65,-0.043]
Antidirector Rights	6.920***	14.601	1.648	-6.224	17.044***	5.887***	-5.208***
	[4.6,0.146]	[0.9]	[0.29]	[0.48]	[15.19,0.36]	[4.15,0.125]	[4.29,-0.11]
Accounting Standards	-4.762***	-5.761**	-3.515***	-3.205*	-5.664***	-4.647***	-2.816***
	[22.69,-0.886]	[2.41,-1.08]	[4.55,-0.654]	[1.95,-0.601]	[29.06,-1.054]	[23.42,-0.872]	[18.72,-0.524]
Efficiency of the Judicial System	23.915***	33.112**	24.537***	17.782	30.927***	24.895***	11.993***
	[18.29,0.706]	[2.3,1.006]	[4.85,0.724]	[1.62]	[27.63,0.912]	[20.9,0.756]	[12.46,0.354]
Size of Company : Log(Market Capitalization)	0.526	-1.379***	-1.420***	-1.551***	0.975***	0.594*	1.255***
	[1.63]	[4.6,-0.052]	[4.86,-0.05]	[5.13,-0.058]	[2.95,0.035]	[1.82,0.022]	[3.69,0.045]
Constant	36.968***	-24.926	2.384	75.506	-19.336**	14.399	340.691***
	[3.66,0.547]	[0.23]	[0.06]	[0.82]	[2.31,-0.286]	[1.54]	[39.37,5.041]
Observations	1652	1875	1652	1875	1652	1875	1652
Number of ncode	20	20	20	20	20	20	20
R-squared within	0.1	0.08	0.09	0.06	0.06	0.08	0.02
R-squared between	0.95	0.94	0.85	0.92	0.95	0.95	0.93
R-squared total	0.89	0.85	0.8	0.84	0.89	0.87	0.88

Absolute value of z statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table X

The random effect panel data model described in Section V of the paper, is estimated using data from week t= -50 to t=-25 and t=+25 to t=+50 around the listing date. We control for the La Porta et al. (1998) variables and firm size. Economic significance is calculated only when the corresponding coefficient is significant.

	(1) Premium	(2) Premium	(3) Premium	(4) Premium	(5) Premium	(6) Premium	(7) Premium
ADR listing (Y/N)	-17.417***	6.261*	-44.797***	-25.248***	-18.170***	0.647	-44.576***
	[3.66,-0.126]	[1.66,0.048]	[12.28,-0.324]	[10.59,-0.192]	[3.51,-0.131]	[0.15]	[11.19,-0.322]
DR x (1-LR)	19.088**	85.630**			90.541***	57.682***	
	[2.35,0.119]	[2.34,0.552]			[15.85,0.565]	[8.51,0.372]	
DR x (1-LR) x LIST	-39.708***	-27.246***			-34.165***	-35.999***	
	[9.35,-0.279]	[6.29,-0.205]			[7.43,-0.24]	[7.73,-0.271]	
Relative Control = Log (1 + Votes in Listed / Votes in Domestic))	-137.951***			-92.670***		-73.580***	-133.356***
	[12.09,-0.634]			[2.77,-0.439]		[8.74,-0.349]	[17.56,-0.613]
Relative Control x ADR Listing	34.024***			38.000***		40.954***	27.511***
	[5.75,0.13]			[6.8,0.147]		[6.72,0.159]	[4.5,0.105]
Relative Liquidity Listed / Domestic	-24.467***		-19.951***		-36.517***		-26.103***
	[6.02,-0.147]		[4.67,-0.12]		[8.67,-0.22]		[6.08,-0.157]
Rel. Liquidity Listed / Domestic x ADR Listing	19.946***		29.648***		32.882***		23.787***
	[4.07,0.126]		[6.55,0.187]		[6.59,0.208]		[4.61,0.15]
Rel. Liquidity ADR / Domestic x ADR Listing	5.037***		7.077***		5.607***		2.75
	[3,0.072]		[3.75,0.102]		[3.06,0.08]		[1.6]
Antidirector Rights	-14.759***	11.652	0.147	-7.875	14.782***	0.563	-13.640***
	[4.88,-0.303]	[0.82]	[0.02]	[0.67]	[8.11,0.303]	[0.23]	[7.24,-0.28]
Accounting Standards	-1.969***	-4.606**	-2.629**	-2.239	-4.912***	-3.413***	-2.084***
	[5,-0.361]	[2.2,-0.877]	[2.41,-0.482]	[1.49]	[14.74,-0.9]	[9.85,-0.65]	[9.21,-0.382]
Efficiency of the Judicial System	4.371*	26.460**	20.437***	11.981	26.775***	16.997***	4.886***
	[1.69,0.127]	[2.09,0.815]	[2.86,0.592]	[1.2]	[14.17,0.776]	[8.29,0.524]	[3.29,0.142]
Size of Company : Log(Market Capitalization)	-1.237**	-3.500***	-3.372***	-4.178***	-0.441	-1.827***	-1.871***
	[2.35,-0.041]	[6.15,-0.125]	[6.25,-0.113]	[7.48,-0.149]	[0.77]	[3.23,-0.065]	[3.42,-0.063]
Constant	406.799***	222.716***	230.322***	76.024	-21.18	31.340**	419.820***
	[22.96,5.884]	[3.11,3.403]	[5.16,3.332]	[0.91]	[1.55]	[2.04,0.479]	[28.76,6.073]
Observations	757	874	757	874	757	874	757
Number of ncode	20	20	20	20	20	20	20
R-squared within	0.34	0.19	0.27	0.2	0.28	0.23	0.26
R-squared between	0.88	0.94	0.85	0.93	0.94	0.95	0.87
R-squared total	0.89	0.81	0.78	0.81	0.87	0.84	0.88

Absolute value of z statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table XI

The pooled regression variation of the model presented in Section V is estimated. We control for the La Porta et al. (1998) variables and firm size.
Economic significance is calculated only when the corresponding coefficient is significant.

	(1) Premium	(2) Premium	(3) Premium	(4) Premium	(5) Premium	(6) Premium	(7) Premium
ADR listing (Y/N)	-7.712	7.063	-24.284*	-5.828	-7.803	3.808	-24.522*
	[0.47]	[0.79]	[1.7,-0.194]	[0.95]	[0.47]	[0.42]	[1.71,-0.196]
DR x (1-LR)	129.659*	114.415*			129.142**	121.440*	
	[1.83,0.899]	[1.9,0.793]			[2.11,0.895]	[1.71,0.842]	
DR x (1-LR) x LIST	-18.138	-12.788			-15.605	-13.79	
	[1.53]	[1.14]			[1.33]	[1.26]	
Relative Control = Log (1 + Votes in Listed / Votes in Domestic))	-14.712			-82.698		-8.732	-85.784
	[0.17]			[1.04]		[0.1]	[1.07]
Relative Control x ADR Listing	18.77			17.674		20.38	13.418
	[1.2]			[1.19]		[1.41]	[0.81]
Relative Liquidity Listed / Domestic	6.337		-9.24		4.815		-6.966
	[0.35]		[0.5]		[0.26]		[0.38]
Rel. Liquidity Listed / Domestic x ADR Listing	6.088		20.961		14.756		15.658
	[0.35]		[1.27]		[0.92]		[0.89]
Rel. Liquidity ADR / Domestic x ADR Listing	7.604		5.994		6.069		6.802
	[1.4]		[1.04]		[1.14]		[1.17]
Antidirector Rights	36.903	35.913**	15.847	7.665	37.837**	36.92	7.371
	[1.6]	[2.11,0.819]	[1.13]	[0.47]	[2.2,0.863]	[1.6]	[0.45]
Accounting Standards	-7.486**	-6.907**	-2.945	-2.75	-7.483**	-7.132**	-2.917
	[2.14,-1.465]	[2.21,-1.352]	[1.29]	[1.17]	[2.37,-1.464]	[2.04,-1.396]	[1.24]
Efficiency of the Judicial System	20.601	19.484	2.278	-3.013	21.227	19.892	-3.394
	[0.99]	[1.13]	[0.14]	[0.18]	[1.22]	[0.96]	[0.2]
Size of Company : Log(Market Capitalization)	-12.839*	-8.937	-9.574	-10.858	-12.272*	-10.666	-12.491*
	[1.71,-0.388]	[1.2]	[1.42]	[1.58]	[1.65,-0.37]	[1.42]	[1.77,-0.377]
Constant	240.414*	203.851*	221.258**	294.189**	227.454**	218.896	322.801**
	[1.74,3.801]	[1.95,3.223]	[2.1,3.498]	[2.12,4.651]	[2.13,3.596]	[1.6]	[2.31,5.104]
Observations	40	40	40	40	40	40	40
Number of ncode	20	20	20	20	20	20	20
R-squared within	0.59	0.3	0.43	0.35	0.54	0.39	0.51
R-squared between	0.2	0.26	0.08	0.11	0.2	0.24	0.09
R-squared total	0.21	0.26	0.08	0.11	0.21	0.25	0.09

Absolute value of z statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table XII

The panel data model in Section V of the paper is estimated interacting the ADR dummy with the country-fixed effects. Two variables are created for each country (but Brazil): a dummy, and a country-specific effect of the cross-listing. The model is estimated using data from 100 weeks around the listing date.
We control for the La Porta et al. (1998) variables and firm size. Economic significance is calculated only when the corresponding coefficient is significant.

	(1) Premium	(2) Premium	(3) Premium	(4) Premium	(5) Premium	(6) Premium	(7) Premium
ADR listing (Y/N)	-6.958	2.666	-87.555***	-68.227***	-8.05	3.193	-87.595***
	[0.95]	[0.39]	[15.2,-0.647]	[13.68,-0.515]	[1.1]	[0.46]	[15.23,-0.648]
DR x (1-LR)	120.702***	-116.877***			99.678***	-113.764***	
	[11.32,0.772]	[17.64,-0.754]			[18.18,0.638]	[17.07,-0.734]	
DR x (1-LR) x LIST	-80.636***	-70.602***			-79.505***	-71.420***	
	[9.41,-0.582]	[8.31,-0.524]			[9.29,-0.574]	[8.4,-0.53]	
Log (1 + Votes in Listed / Votes in Domestic))	30.195**			38.978***		38.978***	30.195**
	[2.28,0.141]			[2.88,0.182]		[2.88,0.182]	[2.28,0.141]
Relative Control x ADR Listing	-17.025			-22.695		-22.695	-17.025
	[1.07]			[1.49]		[1.49]	[1.07]
Relative Liquidity Listed / Domestic	-32.351***		-33.130***		-33.130***		-32.351***
	[8.68,-0.189]		[8.9,-0.194]		[8.9,-0.194]		[8.68,-0.189]
Rel. Liquidity Listed / Domestic x ADR Listing	17.017***		18.196***		18.196***		17.017***
	[3.65,0.107]		[3.92,0.115]		[3.92,0.115]		[3.65,0.107]
Rel. Liquidity ADR / Domestic x ADR Listing	-0.582		-1.085		-1.085		-0.582
	[0.37]		[0.7]		[0.7]		[0.37]
Size of Company : Log(Market Capitalization)	4.378***	4.683***	4.405***	4.655***	4.405***	4.655***	4.378***
	[10.8,0.155]	[12.16,0.175]	[10.86,0.156]	[12.11,0.174]	[10.86,0.156]	[12.11,0.174]	[10.8,0.155]
Canada	19.148*	-219.511***	-99.591***	-104.989***	0.087	-218.753***	-101.554***
	[1.91,0.095]	[34.92,-1.124]	[20.12,-0.492]	[21.14,-0.538]	[0.02]	[34.83,-1.12]	[20.28,-0.502]
Hong Kong	245.983***	0	127.633***	113.764***	227.311***	0	125.281***
	[22.18,0.868]	[.]	[19.22,0.45]	[17.07,0.387]	[31.81,0.802]	[.]	[18.72,0.442]
Mexico	-114.868***	-107.537***	-93.316***	-135.357***	-93.316***	-135.357***	-114.868***
	[11.1,-0.749]	[23.74,-0.701]	[19.75,-0.609]	[13,-0.883]	[19.75,-0.609]	[13,-0.883]	[11.1,-0.749]
Norway	-83.400***	-93.656***	-83.323***	-93.720***	-83.323***	-93.720***	-83.400***
	[14.1,-0.242]	[17.06,-0.319]	[14.07,-0.242]	[17.12,-0.319]	[14.07,-0.242]	[17.12,-0.319]	[14.1,-0.242]
Philippines	-117.076***	-104.522***	-94.385***	-134.073***	-94.385***	-134.073***	-117.076***
	[9.69,-0.363]	[15.82,-0.356]	[13.11,-0.293]	[11.22,-0.456]	[13.11,-0.293]	[11.22,-0.456]	[9.69,-0.363]
Sweden	-87.398***	-90.586***	-84.839***	-94.624***	-84.839***	-94.624***	-87.398***
	[16,-0.59]	[18.25,-0.63]	[15.79,-0.573]	[18.57,-0.658]	[15.79,-0.573]	[18.57,-0.658]	[16,-0.59]
Venezuela	0	-221.601***	-99.678***	-131.773***	0	-245.537***	-120.702***
	[.]	[30.49,-0.754]	[18.18,-0.352]	[12.1,-0.448]	[.]	[21.71,-0.835]	[11.32,-0.426]
Canada x ADR dummy (Y/N)	-35.527***	-33.776***	43.873***	38.475***	-35.631***	-32.945***	45.110***
	[4.19,-0.136]	[4.03,-0.139]	[6.48,0.169]	[5.96,0.158]	[4.2,-0.137]	[3.94,-0.135]	[6.61,0.173]
Hong Kong x ADR dummy (Y/N)	0	0	79.505***	71.420***	0	0	80.636***
	[.]	[.]	[9.29,0.202]	[8.4,0.174]	[.]	[.]	[9.41,0.204]
Mexico x ADR dummy (Y/N)	73.928***	51.657***	61.694***	68.725***	61.694***	68.725***	73.928***
	[5.9,0.375]	[8.81,0.266]	[9.75,0.313]	[5.89,0.354]	[9.75,0.313]	[5.89,0.354]	[5.9,0.375]
Norway x ADR dummy (Y/N)	52.312***	51.362***	53.284***	51.335***	53.284***	51.335***	52.312***
	[5.55,0.102]	[6.68,0.125]	[5.66,0.104]	[6.69,0.125]	[5.66,0.104]	[6.69,0.125]	[5.55,0.102]
Philippines x ADR dummy (Y/N)	90.374***	65.120***	79.329***	80.820***	79.329***	80.820***	90.374***
	[5.91,0.206]	[7.78,0.159]	[8.13,0.18]	[5.89,0.197]	[8.13,0.18]	[5.89,0.197]	[5.91,0.206]
Sweden x ADR dummy (Y/N)	66.658***	51.029***	65.803***	52.956***	65.803***	52.956***	66.658***
	[10.16,0.364]	[8.72,0.283]	[10.28,0.36]	[8.88,0.294]	[10.28,0.36]	[8.88,0.294]	[10.16,0.364]
Venezuela x ADR dummy (Y/N)	4.125	-5.592	72.732***	80.842***	-6.772	9.422	84.761***
	[0.29]	[0.56]	[9.34,0.184]	[6.17,0.197]	[0.69]	[0.68]	[6.29,0.215]
Constant	-18.806*	206.556***	101.374***	91.134***	1.696	204.898***	101.896***
	[1.76,-0.278]	[41.52,3.127]	[20.28,1.5]	[19.32,1.38]	[0.3]	[41.12,3.102]	[20.38,1.508]
Observations	1652	1875	1652	1875	1652	1875	1652
Number of year	13	13	13	13	13	13	13
R-squared	0.78	0.75	0.78	0.75	0.78	0.75	0.78
R-squared within	0.21	0.34	0.23	0.33	0.23	0.33	0.21
R-squared between	0.73	0.72	0.73	0.72	0.73	0.72	0.73

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Figure 1

Cumulative abnormal returns are plotted for the window t=-50 to t=+50 around the listing day.