Legal bonding, investor recognition, and cross-listing premia in emerging markets

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Abstract

Using the IFC investable measure to designate firms as either investable or non-investable prior to cross-listing, I show that Level 2/3 cross-listing firms that were previously non-investable enjoy the largest "cross-listing premia". Since previously non-investable firms are likely to experience the largest increase in their shareholder base post-listing, the results are consistent with the notion that enhanced "recognition" explains cross-listing premia. For these firms, a combination of bonding *and* greater recognition serves to deliver the largest cross-listing premia. For previously investable firms, bonding alone is sufficient to generate cross-listing premia.

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1. Introduction

Firms from emerging market countries have increasingly come to dominate the international cross-listing market. To illustrate this point, consider the following. In 2010, more than 36% or 794 of the total international depositary receipt programs were from Brazil, Russia, India, and China (The so-called BRIC Countries). India (315), Russia (179), and then China (159) provided the greatest number of international cross-listing firms, followed by Brazil (141) in fourth. Contrast this with the corresponding figures from 2006, when the top three positions were occupied by India (234), followed by the United Kingdom (146), and Australia (119). In turn, this changing of the guard, so to speak, has come as no surprise, since in recent years much of the growth in the international cross-listing market has come from firms from emerging market countries.[1] For example, in 2006, BRIC countries provided half of the new depositary receipt programs (Bank of New York, 2007). This number increased to 58% (93 out of a total number of 160 cross-listings) in 2007, 48% (49/102) in 2008, and 55% (57/104) in 2009 (Bank of New York, 2008, 2009, 2010). In 2010, almost 53% (80/151) of new listings originated from China (37), India (31), and Brazil (12) collectively (see Bank of New York, 2011). Furthermore, the surge in new listings from emerging markets is not concentrated in any one-host market.[2] Of the 26 new international cross-listings on the NYSE in 2010, Chinese firms accounted for 22 or 85% of these, and all but 4 of 34 new international listings in Luxembourg were from India (Bank of New York, 2011).[3] Finally, the ascension of emerging market countries to the position as the top providers of international cross-listing firms has also come about because once listed, these firms are less likely to cross-delist (Chaplinsky and Ramchand, 2009).[4] Thus the influx of new lists and the apparent satisfaction experienced by those already cross-listed, together suggests that international cross-listings should generate large benefits for these firms, which ultimately should enhance their value. In fact, recent work suggests that this is in fact the case. For example, Lins et al. (2005) shows that cross-listing in the U.S. alleviates financing constraints for emerging

[1] But for a blip in 2009, the number of international depositary receipts has increased steadily since 2002. The major growth has taken place in the global depositary receipt (GDR) market (Bank of New York, 2011). For example, in 2008, nearly 55% of new depositary receipt programs were GDRs (Bank of New York, 2009).
[2] Despite the popularity of cross-listing for emerging market firms, Siegel (2009) finds that for Mexican firms, strategic alliances provide greater bonding benefits than do Level 2/3 cross-listings in the U.S.
[3] Russia (2), Spain and Germany accounted for the other 4.
[4] Piotroski and Srinivasan (2008) identify a small number of large high quality firms from emerging markets who cross-list on U.S. exchanges post 2002, despite the additional costs imposed by SOX.

market firms, resulting in enhanced externally-financed growth (Khurana et al., 2008)).[5] In turn, O'Connor (2009a) and Smirnova (2008) both document cross-listing premia (Doidge et al., 2004, 2009) for emerging market firms cross-listing in the U.S. as Level 2/3 ADRs.[6] However, neither of these before mentioned studies, nor some others, seeks to identify the sources of these valuation gains. This paper attempts to fill this void.

To do so, I focus on two, albeit non-mutually exclusive hypotheses, namely the legal bonding hypothesis (Coffee, 1999, 2002; Stulz, 1999; Doidge et al., 2004), and Merton's (1987) recognition hypothesis.[7] Recent evidence suggests that both explain the valuation gains from international cross-listings (see Doidge et al., 2004, 2009; and King and Segal, 2009 who relate the cross-listing premium to legal bonding, and Foerster and Karolyi, 1999, and King and Segal, 2009 for evidence relating investor recognition and the joint effects of recognition and legal bonding on cross-listing premia, respectively), although their relative importance differs across firms. In their study of single- and dual-class Canadian firms cross-listing in the U.S., King and Segal (2009) show that dual-class share firms enjoy permanent cross-listing premia irrespective of whether they attract and maintain a larger shareholder base. For these firms, bonding to the U.S. regulatory regime is sufficient to generate a cross-listing premium. These findings are in line with the predictions of the legal bonding hypothesis (Doidge et al. 2004). In contrast, single-class share firms only experience permanent cross-listing premia if they can attract and maintain a wider shareholder base.[8] For these firms, since the bonding gains are likely to be minimal, cross-listing premia are determined by changes in the firms shareholder base; the greater the expanse of the shareholder base, the greater the cross-listing premia. In this paper, I examine whether either of these hypotheses, either individually, or collectively, can explain cross-listing premia for emerging market firms.

[5] Khurana et al. (2008) do not examine emerging market firms separately, but do show that the gains from cross-listing do not differ by level of financial development. Thus the growth effects uncovered for the full sample of firms apply also to emerging market firms.

[6] Interestingly, using a sample of cross-listing firms from Central Europe (Czech Republic, Hungary, Poland) and Russia, Smirnova (2008) uncovers a cross-listing premium for all depositary receipt types, with surprisingly, non-exchange traded issues (Level 1 and Rule 144a) enjoying larger premia than exchange-traded (Level 2/3) firms. Using a larger sample of emerging market firms cross-listing in the U.S.; O'Connor (2009a) finds a cross-listing premium for Level 2/3 ADRs only.

[7] For a review of the legal bonding hypothesis see Benos and Weisbach (2004), Ferris et al. (2009), and Karolyi (2010).

[8] In turn, single-class share firms who can do so experience much larger percentage changes in value relative to dual-class firms (King and Mittoo, 2007, Figure 6).

I begin by first establishing the existence of cross-listing premia for emerging market firms who choose a Level 2/3 listing in the U.S. In subsequent tests, I show that these cross-listing premia are a function of both enhanced recognition *and* bonding, but in my tests of the latter, I reveal some mixed findings. Specifically, when I classify cross-listing firms as either single- or dual-class share firms, I find no discernible differences in their cross-listing premia. Cross-listing serves to endow both with a cross-listing premium, and inconsistent with the predictions of the legal bonding hypothesis, dual-class share firms do not enjoy a larger cross-listing premium than single-class share firms. However, when I classify cross-listing firms by pre-listing levels of insider ownership, I find in favour of the bonding hypothesis. Less well-governed firms (i.e. firms with below-median closely held shares as a % of total common shares outstanding) enjoy larger cross-listing premia. Better-governed firms do not.

I then proceed to examine the effects of investor recognition on cross-listing premia. My paper is most closely related to that of King and Segal (2009), but differs to theirs in a number of crucial respects, namely in terms of the methodological approach and in terms of the findings. First, my test of the Merton's (1987) investor recognition hypothesis is different to theirs. Since cross-listing firms that were previously "unrecognized" to U.S. investors are more likely to reap that largest expansion of their shareholder base once they cross-list (Merton, 1987), I use the investable measure from the IFC to classify cross-listing firms as previously "recognized" and "unrecognized". Since investable (non-investable) firms are already likely to be known (unknown) to U.S. investors (Holland and Warnock, 2003; and Edison and Warnock, 2004), investable (non-investable) firms are likely to experience modest (large) expanses in their shareholder base once they cross-list. In turn, and all else equal, previously non-investable firms should experience a larger cross-listing premium than previously investable firms. This is what I find; previously non-investable and investable Level 2/3 firms witness cross-listing premia, but the premium is larger for previously non-investable firms, a result in line with the predictions of the recognition hypothesis. In turn, I show that these findings are robust to several distinct approaches used to measure the effect of cross-listing on firm value, namely firm fixed-effects, pooled ordinary least squares (with and without Mundlak (1978) corrections for unobserved heterogeneity), random effects, and Fama-MacBeth (1973) regressions. Each approach points to a cross-listing premium for previously non-investable firms and a smaller premium for previously investable firms. My results are in line with the predictions of Merton's (1987)

recognition hypothesis, and consistent with the findings of King and Segal (2009). However, my paper differs to that of King and Segal (2009) in how I examine the influence of investor recognition on the cross-listing premium. In their paper, they relate *post-listing* changes in a firm's shareholder base to greater recognition; firms that experience the largest *post-listing* change in their shareholder base are, they suggest, likely to be those firms that investors were previously "unaware" of prior to firms cross-listing. In this paper, I use a different measure, which allows me to explicitly classify between firms that investors are likely to be, and unlikely to be aware of once they cross-list. In doing so I am then able to identify two sets of firms, namely those for which investors are likely to be "aware" of (i.e. previously investable firms), and "unaware" of (i.e. previously non-investable firms) just as I am able to do so when I test the predictions of the bonding hypothesis by distinguishing between single- and dual-class share firms, as King and Segal (2009) also do. Using this measure, I find evidence to support Merton's (1987) recognition hypothesis. Previously non-investable Level 2/3 firms enjoy much larger cross-listing premia than do previously investable firms.

Next, using this approach to test for the effects of enhanced recognition on cross-listing premia greatly simplifies the analysis needed to test the joint effects of investor recognition *and* legal bonding on cross-listing premia. To do so, I just re-estimate the investor recognition regressions, but now for single- and dual-class firms alone, and for cross-listing firms with above- and below-median closely held shares (as a % of total common shares outstanding). When I do so, I find that previously non-investable firms enjoy the largest cross-listing premia. For them, the combination of enhanced recognition *and* legal bonding leads to large cross-listing premia. In summary, these findings suggest that previously non-investable firms, whom are likely to experience a sizable expansion of their shareholder base, witness the largest cross-listing premia. Using alternate proxies for investor recognition, Foerster and Karolyi (1999) and King and Segal (2009) find likewise.[9]

Finally, I document cross-listing premia for single- *and* dual-class share Level 2/3 ADRs, irrespective of their prior investable status. In contrast to their Canadian counterparts, I find that bonding alone is sufficient to generate cross-listing premia for single-class share emerging market firms who trade as Level 2/3 ADRs in the U.S. For these firms, the gains from bonding in the U.S. appear larger than for

[9] As do Fresard and Salva (2010). They show that the "cross-listing discount" between cross-listing and U.S. firms is smaller if cross-listing firms can attract U.S. institutional investors.

their Canadian counterparts. For dual-class share emerging market firms, the gains are no greater than for single-class share firms. When I classify cross-listing firms by level of insider ownership, I reveal cross-listing premia for poorly-governed firms, irrespective of their prior investable status. For these firms, again I find that bonding alone to delivers cross-listing premia. In summary, I find that bonding alone is sufficient for Level 2/3 firms to enjoy cross-listing premia. However, legal bonding combined with greater recognition deliver the largest cross-listing premia.

The paper proceeds as follows. In the next section I describe the data. Section 3 presents some regression estimates and a discussion of the findings. Section 4 concludes.

2. Data Description and Summary Statistics

I begin by sourcing a complete list of emerging market firms that have cross-listed in the U.S. over the period from 1980 to 2007. All information on cross-listed firms is sourced from the Bank of New York, and cross-referenced with information from Deutsche Bank, JP Morgan, the New York Stock Exchange, and NASDAQ. I take great care in order to identify a firm's initial listing. To do so, I consult the historical records from the Bank of New York (since the currently available on-line records refer to a firm's current - not previous/initial cross-listing). I cross-reference this data with the cross-listing database provided by Citibank. They flag firms that have changed their cross-listing status by including a "successor depositary receipt" data type for all firms. Once I have identified these firms, I am able to identify their initial listing in the U.S. Using both databases, firms are classified as either, a Level 1 over-the-counter; Level 2 and 3 exchange-traded; or Rule 144a listings that trade on Portal to Qualified Institutional Buyers.[10] For inclusion in my sample, I require that firms have (financial) data available in both the pre- and post-listing periods.

To this list of firms, I seek to identify all firms that became investable in emerging markets over the same period. To do so, I use the "investable" measure provided by the IFC's Emerging Markets Database (EMDB). I use this measure to try and identify "recognized" and "unrecognized" firms a la Merton (1987). His theory, applied to international cross-listings, suggests that all else equal, cross-listing

[10] I group Level 2 and 3 firms together because separately the number of each is small. Most cross-listing studies tend to adopt the same approach (although not always due to sample size considerations). Bancel et al. (2009) do examine Level 2 and Level 3 European ADRs separately.

serves to enhance the visibility of firms. Institutional investors "recognize" and become more "aware" of firms, and in particular, firms that they were previously not aware of, once these firms cross-list. Thus, to test this proposition, the difficulty lies in trying to identify "recognized" and "unrecognized" firms.[11] To do so, I use the investable measure. This firm-specific measure of equity market liberalizations, as opposed to the all-encompassing country-specific measures (Bekeart et al., 2005), allows me to classify cross-listing firms into those that were previously investable as a result of stock market liberalizations (and not cross-listings), and thus potentially known to foreign investors prior to cross-listing, and those previously non-investable (their investable status arises out of cross-listing and not stock market liberalizations), and thus potentially not known to investors prior to cross-listing.[12] Country-specific measures by their very nature prevent me from performing such an exercise. The recognition hypothesis then suggests that, all else equal, firms that experience the greatest level of "recognition" upon listing should witness the largest cross-listing premium. Institutional investors are likely to be already aware of "investable" firms, and less "aware" of "non-investable" firms.[13] Recent evidence suggests this is the case. For example, Holland and Warnock (2003) and Edison and Warnock (2004) both show that U.S. investors do invest in "investable" firms.[14] Non-investable firms remain "unrecognized". Thus, I conjecture that once "non-investable" firm's cross-list; they are likely to experience the largest increase in their

[11] Others adopt different approaches. Foerster and Karolyi (1999) proxy for Merton's (1987) 'shadow cost of incomplete information'. Merton (1987) extends the CAPM and (positively) relates the expected return of a firm to its shareholder base (and other factors). He shows that the size of a firm's shareholder base is inversely related to what he refers to as the firms 'shadow cost of incomplete information'. The greater the 'shadow cost of incomplete information' the less "recognized" or more "neglected" firms are. Consequently, actions which tend to reduce firms 'shadow cost of incomplete information' e.g., cross-listing, lowers expected returns, and increases firm value. In turn, firms with the greatest change in the 'shadow cost of incomplete information', i.e., previously "unrecognized" firms, should experience the largest gains from cross listing. Foerster and Karolyi (1999) show that this is in fact the case, thus lending support to the recognition hypothesis. King and Segal (2009) proxy for the extent of investor recognition by using two proxies which they suggest are likely to be highly correlated with investor's awareness of the stock, namely the number of U.S. institutional investors holding the stock, and the proportional ownership by U.S. institutional investors of the stock.

[12] One notable shortcoming of these investable measures is that their use in this context is also likely to pick up some market segmentation effects (Bris et al., 2007). Since a cross-listing is likely to be the first liberalization event for non-investable firms, they are likely to experience a decrease in segmentation once they cross-list. The non-investable dummy is thus likely to pick up both the effects of segmentation and greater recognition. Foerster and Karolyi (1999) and Bris et al. (2007) examine the effects of market segmentation on the value of cross-listing firms.

[13] A possibility is that firms become indirectly investable, and thus known to investors via country funds. In the empirical analysis, I include country-fund data, and find that my results are qualitatively unchanged.

[14] Of course, not all investable firms are likely to be equally attractive to foreign investors. Consistent with a large literature, which shows that institutional investors prefer well-governed firms (McCahery et al., 2009; Bushee et al., 2007; Ferreira and Matos, 2008), Bae and Goyal (2010) show that well-governed Korean firms experience the greatest stock price increases and physical capital accumulation rates post equity market liberalization in Korea.

shareholderbase. Thus, relative to previously investable firms, these firms should experience the largest increase in their shareholderbase, and thus all else equal, the largest cross-listing premia.[15]

Like Mitton (2006) and Mitton and O'Connor (2011), I measure the openness of a firm's stock to foreign investors using the "investable" measure provided by the EMDB.[16] The IFC designates a firm as investable if its stock is free from both country-level and firm-level restrictions on foreign investment. They also require that stocks have sufficient size and liquidity to be realistically available to foreign investors. I define a firm as investable in a given year if the firm's stock appears in the IFC investable index by December of that year.[17] From this sample of investable firms, I identify all cross-listed firms that were deemed investable, not as a result of cross-listing, but previously (prior to cross-listing) as a result of stock market liberalizations. In my final sample, what I term joint 'investable/cross-listing' firms are cross-listing firms that were initially deemed investable as a result of stock market liberalizations. Non-investable/cross-listing firms become investable through cross-listing alone.

Next, I test the legal bonding hypothesis in this emerging market setting using two different measures to gauge the strength of corporate governance for cross-listing firms. First, and like King and Segal (2009), I examining the differing effect of cross-listing on single- and dual-class share firms. Dual-class share firms tend to be quite prominent in emerging markets (Lins, 2003; Claessens et al., 2002), and since, agency costs are likely to be greater in dual-class share firms; the legal bonding hypothesis then suggests that exchange cross-listing in the U.S. should generate the greatest gains for these firms.[18] I designate firms as either single- or dual-class share firms using the 'Currently a Multiple Share Company' indicator from Worldscope, which they define as "Currently a multiple share company indicates which companies currently have more than one type of common/ordinary share".[19]

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[15] Greater recognition also results in greater analyst following once firm's cross-list. Lang et al. (2003) relate the cross-listing premium to greater analyst following.

[16] Others that use these investable measures include Mitton (2006), Mitton and O'Connor (2011), Bae et al. (2004), Flavin and O'Connor (2010), and Bae et al. (2010).

[17] As noted in Edison and Warnock (2003), there are limitations to using these measures. However, like Mitton and O'Connor (2011), I don't believe that they introduce any significant biases in the tests performed in this paper.

[18] However, recent evidence suggests that firms who conceivable should gain the most from exchange cross-listing don't do so, not because they don't gain from cross-listing, but rather because the costs (e.g., of U.S. GAAP compliance) is greatest for these firms (Hope et al., 2007). The net effect (i.e., benefits less costs) then is that for these firms, the gains are less, than for firms with less pre-listing agency costs. Thus, it may not be the case that dual-class share firms gain more than single-class share firms from legal bonding upon cross-listing.

[19] Durnev and Kim (2005) classify dual-class share firms as those whose control/voting rights exceed cash flow rights by at least 10%. Since I do not have access to ownership data, I am unable to perform a similar exercise.

The second measure of corporate governance, also sourced from Worldscope, is the number of shares held by insiders as a percentage of the total number of shares outstanding. Firms with a larger percentage of closely held shares (as a percentage of total common shares outstanding) are likely to suffer less from agency conflicts since the incentives of the controlling insiders are likely to better aligned with those of non-controlling minority outsiders. Consistent with this view, Mitton (2002) and Claessens et al. (2002) show how firm profitability and firm value is greater the larger the ownership (cash-flow) stake held by controlling insiders. Using the liberalization of the Korean equity market in 1992, Bae and Goyal (2010) show that better-governed Korean firms (i.e. non-Chaebol affiliated; dividend paying; and/or firms where the ownership stake of the largest shareholder is large) enjoy the largest value gains from stock market liberalizations.

I employ Tobin's *q* to measure firm value, where Tobin's *q* is defined as the book value of debt plus market capitalization divided by the book value of assets. Market value of debt is proxied using its book value counterpart, and the replacement cost of assets as the book value of assets. Book value of debt is calculated as the book value of total assets less the book value of equity. Doidge et al., (2004, 2009), Gozzi et al. (2008), and Mitton and O'Connor (2011) also use Tobin's *q* to proxy for firm value in their studies on the valuation effects of international cross-listings, internationalizations, and investability, respectively. All firm-level financial information is sourced from Worldscope for each year from 1980 to 2007. I control for firm and industry related factors commonly employed in other studies using Tobin's *q*. I use the average (geometric) sales growth (inflation-adjusted) over the last two years and global industry *q* to account for firm and industry growth, respectively. Based upon the general industry classification codes provided by Worldscope, the (yearly) mean global industry *q* is calculated as the average *q* of all global firms within each classification.[20] I use the log of sales (inflation-adjusted and in $U.S.), rather than total assets (given the definition of Tobin's *q*) to control for firm size. Tobin's *q*, sales growth, firm size, leverage and profitability are winsorized at the 1 and 99% tails of the distribution to remove the confounding effects of outliers. Finally, I exclude financial firms since these firms are more likely to be valued differently from non-financial firms.

[20] The general industry classification codes are; 1 (Industrial), 2 (Utility), 3 (Transportation), 4 (Bank/Savings & Loan), 5 (Insurance), 6 (Other Financial).

My final sample is outlined in Table 1. It comprises of 6,258 firms in total, made up of 123 cross-listing firms, and 6,135 non-cross-listing firms, from 19 countries. These are Brazil, Chile, China, Colombia, Greece, India, Indonesia, Israel, Korea (Republic), Malaysia, Mexico, Philippines, Poland, Portugal, Russia, South Africa, Taiwan, Thailand, and Turkey. From my original sample of countries, I lose all cross-listing firms from Argentina, Czech Republic, Egypt, Hungary, Morocco, Pakistan, Peru, and Sri Lanka. Of the 123 cross-listing firms, 39 trade as Level 1 issues, 25 as Level 2/3 issues, and 59 on Portal under Rule 144a to Qualified Institutional Buyers. Taiwan provides the largest number of cross-listing firms (23), while Colombia, Greece, Indonesia, Poland, Thailand, and Turkey provide just one each. South Africa (10) provides the greatest number of Level 1 firms, Mexico (6) the most Level 2/3 firms, and Taiwan (21) the greatest number of Rule 144a firms.[21] The largest number of non-cross-listing firms comes from China (1,327). Column 4 of Table 1 outline the number of cross-listing firms that were also previously deemed investable (CL & Inv). Column 5 does likewise for cross-listing dual-class share firms (CL & DC). Of the entire sample of 123 cross-listing firms, 58 (65) are also previously investable (non-investable), and 31 (92) are also dual-class (single-class) share firms. Of the single-class (dual-class) share Level 1 firms, 10 (7) are investable and 13 (9) are non-investable. 10 (6) of the 16 single-class Level 2/3 firms are investable (non-investable), while 7 (2) of the dual-class firms are investable (non-investable). Finally, of the 52 single-class Rule 144a firms, 20 are investable and 32 are non-investable. For dual-class firms, 4 are investable and 3 non-investable. Some of these numbers are small, and suggest that some of my findings should be interpreted with caution.

Together, Mexico (11) and South Africa (12) provide almost 40% of all joint cross-listing/investable firms. Brazil (9) and Mexico (10) provide the majority of joint cross-listing/dual-class share firms. In the remaining columns of Table 1, I outline by cross-listing type, the number of joint cross-listing/investable and cross-listing/dual-class share firms. Of the 39 Level 1 firms, 17 (22) are also investable (non-investable) firms, and 16 (23) dual-class (single-class) share firms. 17 (8) of the Level 2/3 firms are also investable (non-investable) firms, while 9 (16) are also dual-class (single-class) share firms. Finally, 24 (35) Rule 144a firms are also investable (non-investable) firms, while only 7 are dual-class firms.

[21] In a recent paper, Boubakri et al. (2010) show that emerging market firms are less likely to choose Level 2 ADRs, and more likely to choose Level 1 ADRs. Since SOX, emerging market firms are more likely to choose a Rule 144a listing.

The remaining 52 are single-class share firms. Finally, column 6 presents the pre-cross-listing median value of closely-held shares (as a % of total shares outstanding) for all cross-listing firms by country. They suggest that insiders own a greater proportion of soon to be cross-listed firms in China (90.37%), Indonesia (90.57%) and Russia (73.70%). Inside ownership of cross-listing firms tends to be much lower in Taiwan (15.57%) and Thailand (14.31%).

3. Regression Estimates

In Table 2, I present regression estimates, which seeks to examine the differential effects of investor recognition, and legal bonding on firm value. As a precursor, I first seek to establish the existence or not of cross-listing premia, using two-way (time and firm) fixed effects regressions of the following form:

$$\text{Tobin's } q_{it} = \alpha + \beta X_{it} + \text{Level } 1_{it} + \text{Level } 2/3_{it} + \text{Rule } 144a_{it} + \text{Year}_t + \text{Firm}_i + \varepsilon_{it} \quad (1)$$

Where Tobin's q_{it} is Tobin's q for firm i in year t, X_{it} is a set of firm and industry controls (sales growth, size, global industry q), and Level 1, Level 2/3, and Rule 144a are 0/1 cross-listing dummies of the specified type. Year_t and Firm_i represent a full set of year and firm fixed-effects. The coefficient estimates are outlined in Table 2, with standard errors robust to clustering at the firm level reported in parentheses underneath the coefficient estimates.[22] One drawback with using firm-fixed effects is that the transitory changes in firm value (see Figure 1) around the time of listing are ignored.[23] To try and alleviate some of these concerns, I present two sets of estimates. In column 1, I estimate Eq. (1), where the cross-listing dummies equal one in the year of listing and one thereafter (and zero if the firm cross-delists). In column 2, I do likewise, but now the cross-listing dummies first equal one in the year immediately prior to cross-listing and one thereafter (and zero if the firm cross-delists). The coefficient estimates presented in

[22] I also estimate Eq. (1) with standard errors robust to heteroscedasticity (and not clustering), and with standard errors clustered by country, and find that my results are qualitatively unchanged. The standard errors, robust only to heteroscedasticity are much smaller, resulting in much larger t-statistics. The fact that the standard errors (without clustering) even given the inclusion of fixed effects are much smaller lends support for clustering the standard errors. The difference between the standard errors with firm fixed effects and clustering and with firm fixed effects without clustering likely reflects the fact that the firm effect is not fixed, but decays over time. In this instance, the firm fixed effects do not fully capture the within-cluster dependence in the error terms (Petersen, 2009). Hence, even given the inclusion of firm fixed-effects, I also cluster by firm. The time fixed effects help to absorb the time effect, thus accounting for the correlation in observations in the same time (year) period. An alternative approach would be to cluster in both dimensions i.e., firm and time (Thompson, 2011).

[23] In Figure 1, I plot the time-series behavior of Tobin's q around the time of cross-listing. They depict the now well-documented behavior of firm value around the time of cross-listing (see Gozzi et al., 2008; Sarkissian and Schill, 2009b); value increases in the period prior to becoming investable, peaks on the list year, and falls-off thereafter.

columns 1 and 2 suggest that only Level 2/3 firms enjoy a cross-listing premium. The coefficient is large (for example, relative to the coefficient estimates presented in Doidge et al. (2009), it is at least 2 times greater), and highly significant. The existence of a cross-listing premium for Level 2/3 has been confirmed in a number of studies (Doidge et al., 2004, 2009; Hope et al., 2007). O'Connor (2009a) also documents a cross-listing premium for Level 2/3 emerging market cross-listing firms, but none for Level 1 and Rule 144a firms. I confirm these findings here. The coefficient estimates on the Level 1 and Rule 144a firms are statistically indifferent to zero. This contrasts with Doidge et al. (2004, 2009) who document a cross-listing premium for Level 1 firms, albeit a smaller one than the premium for Level 2/3 firms. The fact that Level 1, nor Rule 144a emerging market firms do not command a cross-listing premium is interesting, and in part puzzling, since while emerging market firms are more likely to cross-list, they are less likely to exchange cross-list i.e., choose a Level 2/3 listing (Hope et al., 2007). At least in terms of valuation, this decision appears to be without merit.[24]

In columns 3 and 4, I take a first look at how investor recognition impacts the cross-listing premium. To do so, I estimate the following, also using two-way fixed effects:

$$\begin{aligned}\text{Tobin's } q_{it} = {} & \alpha + \beta X_{it} + \text{Level } 1_{it} + \text{Level } 2/3_{it} + \text{Rule } 144a_{it} + \text{Level } 1_{it} * \text{Investable}_i \\ & + \text{Level } 2/3_{it} * \text{Investable}_i + \text{Rule } 144a_{it} * \text{Investable}_i + \text{Investable}_{it} + \text{Year}_t + \text{Firm}_i + \varepsilon_{it}\end{aligned} \quad (2)$$

Where in addition to the variables defined earlier, Investable_{it} is a 0/1 dummy which is one of the firm is deemed investable, and zero otherwise, and $\text{Level } 1_{it} * \text{Investable}_i$, $\text{Level } 2/3_{it} * \text{Investable}_i$, and $\text{Rule } 144a_{it} * \text{Investable}_i$, represent the interaction of the cross-listing and investable dummies. Again, I estimate two-separate regressions. The first (column 3) regression uses cross-listing dummies, which are one on the cross-listing year and one thereafter. The second (column 4) uses cross-listing dummies, which are one in the year immediately prior to cross-listing, and one thereafter. In this specification, the sole cross-listing dummies and the interaction terms capture the effect of cross-listing and investor recognition on firm value. The sum of the sole cross-listing dummy and its interaction with the investable dummy captures the effect of cross-listing on the value of previously deemed investable emerging market firms. The sole cross-listing dummies capture the effect of cross-listing for firms that were not previously deemed investable. For these firms, cross-listing in the U.S. potentially represents their first liberalization event. If investor

[24] O'Connor (2009b) does show that there is some merit in this decision for non-exchange listings from low-disclosure regimes. Cross-listing does endow these firms with a cross-listing premium.

recognition is important for cross-listing, then the cross-listing premium should be greatest for cross-listing firms that were previously not investable. This is exactly what I find for Level 2/3 firms. Level 2/3 firms that were previously not investable enjoy the largest cross-listing premium. The coefficient estimates are large (0.415 and 0.540) and statistically significant. In contrast, Level 2/3 firms that were previously investable, and for whom investors were likely to be "aware" of prior to listing, enjoy a smaller cross-listing premium i.e. using the coefficient estimates from column 3, the effect of a Level 2/3 cross-listing on the value of previously investable firms is given by the sum of the sole Level 2/3 dummy plus its interaction with the investable term (i.e. 0.415 + (0.223) = 0.192).

Investor recognition does not appear to matter for Level 1 and Rule 144a firms, in the sense that previously deemed investable firms perform just as well as firms that were previously not investable. Neither Level 1 investable or non-investable firms enjoy a statistically significant cross-listing premium. Neither does previously non-investable Rule 144a firms, while their counterpart investable firms lose value. Although in the case of Rule 144a firms, the coefficient estimates are very different for investable and non-investable firms (-0.180 (i.e. 0.291 + (0.471) = -0.180 versus 0.291, respectively).

In both specifications, the coefficient estimate on the sole investable dummy is positive and statistically significant. This is in line with Mitton and O'Connor (2011), who uncover an "investable premium" for firms that become investable in emerging markets. Furthermore, the results from this paper suggest that cross-listing serves to add to this premium for Level 2/3 firms that were previously investable. In fact, the "cross-listing premium" for previously investable firms is larger than the "investable premium". For previously investable firms, a Level 1 or Rule 144a listing does not add value to their "investable premium".

In the final column of Table 2, I take a first look at how legal bonding may explain the magnitude of the cross-listing premia evident from column 1, by comparing the cross-listing premium for single- and dual-class share firms who choose a Level 2/3 listing in the U.S. To do so, I use the regression approach of Plumber and Troeger (2007, 2011), namely the fixed effects vector decomposition (FEVD) estimator.[25] I adopt this approach, and not the fixed-effects approach adopted earlier, since the dual-class indicator

[25] Others that use the fixed effects vector decomposition approach are Lensink and van der Molen (2010), Davies et al. (2008), Andersson and Noseleit (2011), and Akhter and Daly (2009).

variable is time-invariant.[26] The fixed effects vector decomposition approach decomposes the firm specific fixed effects (Firm_i) into an unexplained part and a part explained by the time-invariant variables. It is ultimately estimated using pooled ordinary least squares (see Equation 5), which permits for the inclusion of time-invariant variables. It is estimated in three distinct steps. In the first step, the (firm) fixed effects are retrieved from a fixed-effects regression:

$$\text{Tobin's } q_{it} = \alpha + \beta X_{it} + \text{Year}_t + \text{Firm}_i + \varepsilon_{it} \tag{3}$$

Second, an ordinary least squares regression of the fixed effects on the time-invariant variable(s) is performed:

$$\hat{\text{Firm}}_i = \upsilon + \beta \text{Dual-Class}_i + \varepsilon_{2i} \tag{4}$$

The final step, estimated using pooled ordinary least squares includes all time-variant and invariant variables plus the error term from the second stage regression:

$$\begin{aligned}\text{Tobin's } q_{it} = {} & \alpha + \beta_1 X_{it} + \text{Level } 1_{it} + \text{Level } 2/3_{it} + \text{Rule } 144a_{it} + \text{Level } 1_{it} * \text{Dual} - \text{Class}_i \\ & + \text{Level } 2/3_{it} * \text{Dual} - \text{Class}_i + \text{Rule } 144a_{it} * \text{Dual} - \text{Class}_i + \beta_2 \text{Dual} - \text{Class}_i + \text{Year}_t \\ & + \text{Country}_c + \varepsilon_{2i} + \varepsilon_{it}\end{aligned} \tag{5}$$

Where Dual-Class_i is one if the firm is a dual-class share firm, zero otherwise (single-class), and $\text{Level } 1_{it} * \text{Dual-Class}_i$, $\text{Level } 2/3_{it} * \text{Dual-Class}_i$, and $\text{Rule } 144a_{it} * \text{Dual-Class}_i$, represent the interaction of the cross-listing and dual-class dummies. In this specification, the sum of the sole cross-listing variable and the cross-listing * dual-class interaction term captures the effect of cross-listing on the value of dual-class firms. The sole cross-listing dummies capture the effect of cross-listing for single-class share firms. The coefficient estimates suggest the following.[27] The most striking result which is in stark contrast to the predictions of the bonding hypothesis is that single- and dual-class share Level 2/3 firms enjoy comparable cross-listing premia. The coefficient estimate on the single Level 2/3 dummy is positive and statistically significant. The coefficient on the Level 2/3 * Dual-Class interaction term is indifferent to zero, which suggests that dual-class Level 2/3 firms experience a cross-listing premium comparable to that

[26] The results from a series of separate fixed-effects regressions for single- and dual-class shares are in line with the findings that I am about to present.

[27] The coefficient estimates from the fixed effects vector decomposition regressions are qualitatively unchanged when I exclude country fixed-effects, since the fixed effects retrieved from Equation 3 should capture the effects of all time-invariant variables (see Equation 4 of Akhter and Daly (2009)). Lensink and van der Molen (2010) include industry fixed effects in step 3 of their single country study (i.e., they may have included country fixed effects in a multi-country study).

of single-class share firms. This finding is inconsistent with the legal bonding hypothesis, which suggests that poorly governed firms that exchange-cross-list i.e., (Level 2/3 ADR or Ordinary Lists) should reap the largest gains from cross-listing, all else equal. This is not what I find. My findings may be consistent with those of Hope et al. (2007). They show that exchange-listed firms that incur lower costs of adherence to U.S. GAAP (i.e., firms from high-disclosure regimes) reap greater valuation gains from cross-listing (i.e., cross-listing premium) than firms from low-disclosure regimes, despite the fact that the legal bonding hypothesis suggests that the later should experience the largest gains. Fresard and Salva (2010) reach some similar conclusions. My findings appear to be consistent with this view. While the (relative) costs of U.S. GAAP adherence is likely to be highest for dual-class share firms, a priori, one would expect that dual-class share firms would reap the largest benefits. My findings suggest that the net benefits (i.e. benefits less costs) for dual-class firms are on a par with single-class share firms. For dual-class share firms the costs of cross-listing serve to reduce the benefits. The end result is that these firms do not experience a larger cross-listing premium compared to single-class share firms.

The coefficient estimate on the single dual-class share dummy variable is statistically negative, a result consistent with a large literature, which suggests that investors place a large discount on these firms (Lins, 2003; Durnev and Kim, 2005; Smart et al., 2008). Finally, in all regressions, the control variables are of the correct sign and statistically significant. Large firms are worth less, and firm value increases in both firm and industry-level growth.

In Tables 3 and 4, I present a series of alternative estimates of the impact of investor recognition and legal bonding on the cross-listing premium, respectively. In Table 3, I present, along with the fixed effects estimates presented in Table 2, pooled ordinary least squares, random effects, pooled ordinary least squares with Mundlak (1978) correct terms (i.e., the time-averages (by firm) of the time-variant explanatory variables as additional regressors), and Fama-MacBeth (1973) regressions which examine the impact of investor recognition on the cross-listing premium.[28] In Table 4, I supplement the fixed-effects vector decomposition estimates which examine the impact of legal bonding on the cross-listing premium, by also presenting alternative estimates, which allow for the inclusion of time-invariant variables (i.e., the dual-class dummy variable). Like Table 3, these are pooled ordinary least squares with and without

[28] The Fama-MacBeth (1973) regressions are performed in STATA using the two-step procedure written by Hoechle (2007).

Mundlak (1978) terms, random effects, and Fama-MacBeth (1973) regressions.[29] In their paper, Doidge et al. (2009) also present firm-fixed effects, pooled ordinary least squares, and Fama-MacBeth (1973) regressions. Like them, I present two sets of pooled ordinary least squares estimates; where in both the standard errors are adjusted for clustering on firms. In the first set of estimates, presented in column 2 of both Tables 3 and 4, I regress Tobin's *q* on the post-listing cross-listing dummies, the firm-level controls, and with time and country fixed effects included. In the second set of estimates, presented in column 3 of Tables 3 and 4, I now include a full set of pre-listing cross-listing dummies which equal one in all years prior to firms cross-listing in the U.S. I do so since in column 2 of Tables 3 and 4, we do not control for any unobserved heterogeneity which may well manifest in valuation differences between cross-listing and non-cross-listing firms. Since these differences are also likely to be evident prior to listing, the coefficient estimates presented in columns 2 are likely to reflect both the effects of (uncontrolled for) unobserved heterogeneity and the cross-listing effect itself (if there is one). In effect, by including pre-listing cross-listing dummies, and then by testing whether the pre- and post-listing dummies are statistically different from one another, we can separate the effects of unobserved heterogeneity from the listing event itself on firm value.[30] The pooled ordinary least squares estimates with Mundlak (1978) correction terms included are also intended to perform a similar role.

The coefficient estimates suggest the following. First, the coefficient estimates presented in Table 3 are in line with those presented in columns 3 and 4 of Table 2. Across all specifications, the coefficient estimate on the sole Level 2/3 dummy variable is large, positive, and statistically significant. The coefficient estimates range from 0.250 in the Fama-MacBeth (1973) regressions to 0.493 in the first set of pooled ordinary least squares estimates. The firm fixed-effects (0.415), random effects (0.456), and pooled ordinary least squares estimates with Mundlak (1978) correct times are slightly lower (0.431). In column 3, the coefficient estimates on the Level 2/3 and Level 2/3 Pre dummies are not statistically significant, although the difference between the two (which is large and positive) is. Together, these estimates suggest that previously non-investable firms experience large cross-listing premia. These findings are in line with Merton's (1987) recognition hypothesis. Next, and also consistent with the coefficient estimates presented

[29] Even though a Hausman (1978) test suggests the use of fixed over random effects, I present random effects estimates since they allow for the inclusion of time-invariant variables.
[30] The F-stats are presented in the remaining rows of both Tables 3 and 4.

in Table 2, previously investable firms, of which institutional investors are likely to be aware of, experience a smaller cross-listing premium. In four of the six specifications, the coefficient estimate on the Level 2/3 * Investable interaction is statistically negative (They range from -0.223 to -0.598), but in general, the sum of the sole Level 2/3 dummy and the interaction of the Level 2/3/Investable dummy is positive. For previously investable Level 2/3 firms, cross-listing does result in a cross-listing premium, but less than that of previously non-investable firms. In summary, the coefficient estimates presented in Table 3 are in line with the predictions of Merton's (1987) recognition hypothesis. Previously non-investable Level 2/3 firms, for whom institutional investors are unlikely to be aware of, enjoy a large positive cross-listing premium. Previously investable firms experience smaller cross-listing premia.

In Table 4, I present alternative estimates of the impact of legal bonding on the cross-listing premium. For comparison purposes, I also present the fixed effects vector decomposition estimates from Table 2. The coefficient estimates are in line with those presented in Table 2, and confirm that single- and dual-class Level 2/3 firms enjoy comparable cross-listing premia. The coefficient estimates on the sole Level 2/3 dummy variable range from 0.235 to a high of 0.422. In all specifications, the coefficient estimates on the Level 2/3 * Dual-Class interaction term is statistically indifferent to zero, suggesting that a Level 2/3 cross-listing in the U.S. results in a comparable cross-listing premium for single- and dual-class firms. The net benefits of cross-listing in the U.S. are the same for both.

In Table 5, I present alternative tests of the legal bonding hypothesis. Specifically, I present a series of firm fixed-effects regressions for firms with above- or below-median closely held shares (as a % of total common shares outstanding). Here, I seek to examine whether cross-listing firms with above- or below median corporate governance experience differing value effects (i.e. cross-listing premia) once they cross-listing. Hence, cross-listing firms are classified as either having above- or below median closely held shares (as a % of total common shares outstanding) based on their pre-listing levels of closely-held shares. A priori, the bonding hypothesis would predict that less well-governed firms (firms with below-median pre-listing closely-held shares as a % of total common shares outstanding) would enjoy the largest cross-listing premia. This is what I find. In particular, I find that only poorly-governed firms who choose a Level

2/3 cross-listing in the U.S. enjoy a statistically significant cross-listing premia.[31] In contrast, better-governed Level 2/3 firms do not. For them, the coefficient estimate on the Level 2/3 dummy is positive, but statistically indifferent to zero. Interestingly, I find that better-governed Rule 144a firms enjoy a large cross-listing premia. This finding is consistent with those of Pinegar and Ravichandran (2010). They find that reputable high quality Rule 144a firms do experience cross-listing premia.

In Tables 6 and 7, I examine the joint effects of investor recognition and legal bonding on the cross-listing premium. In Table 6, I re-estimate Eq. (2) but now for single- and dual-class cross-listing firms separately.[32] In Table 7, I also re-estimate Eq. (2), but now for firms with above- or below-median closely-held shares (as a % of total common shares outstanding). From Table 2, we know that single- and dual-class share Level 2/3 firms enjoy comparable cross-listing premia, and that previously non-investable Level 2/3 firms experience a larger cross-listing premium than do previously investable Level 2/3 firms. Here in Table 6, I now examine whether the cross-listing premia for single- and dual-class share Level 2/3 firms differs depending on whether the firms were previously investable or not. The results for single-class share firms are presented in columns 1-4 of Table 6. In the remaining columns of Table 6, I present the results using dual-class share firms.

The coefficient estimates presented in Table 6 again highlight the importance of investor recognition in explaining cross-listing premia. Single- and dual-class share Level 2/3 firms that were previously investable do enjoy cross-listing premia. However, for both, the premia is less than the cross-listing premia for Level 2/3 firms that were not previously investable. For single-class Level 2/3 firms, the coefficient estimates on the sole Level 2/3 dummy (which captures the cross-listing premium for previously non-investable firms) ranges from 0.453 to 0.458, and are statistically significant in all specifications. The average coefficient estimate for these firms is 0.455. The cross-listing premium for previously investable firms is lower. For these firms, the cross-listing premium ranges from a low of 0.224 (0.458 plus -0.234) to a high of 0.242 (0.456 plus -0.214), with an average coefficient estimate of 0.233. These firms enjoy cross-listing premia, but they are less than those of previously non-investable firms. For

[31] The coefficient estimate on the sole Level 2/3 dummy (i.e. previously non-investable) for well-governed firms is large and marginally statistically insignificant.
[32] Each regression includes all non-cross-listing firms and either single/dual-class share cross-listing firms.

single-class share Level 1 and Rule 144a firms, there are no cross-listing premia, regardless of their prior investable status.

I reach similar conclusions for dual-class share Level 2/3 firms as I do for their single-class counterparts. Again, previously non-investable firms enjoy the largest cross-listing premia. The coefficient estimates on the sole Level 2/3 dummy range from 0.355 to a high of 0.388, with an average coefficient estimate of 0.367. For previously investable firms, the listing premia are lower, ranging from 0.135 (0.355 plus -0.220) to a high of 0.258 (0.370 plus -0.112), with an average coefficient estimate of 0.224. Finally, and again consistent with the findings for single-class share firms, for dual-class share Level 1 and Rule 144a firms, there are no cross-listing premia, regardless of their prior investable status.

The findings in Table 7 are in line with those revealed in Table 6 in the sense that Level 2/3 firms that were previously non-investable enjoy the largest cross-listing premia. However, in contrast to the findings presented in Table 6, but in line with the findings outlined earlier in Table 5, again only poorly-governed Level 2/3 firms enjoy cross-listing premia. In turn, cross-listing premia are greater for poorly-governed Level 2/3 firms who were previously non-investable. For previously investable firms, the cross-listing premium is lower, but positive and statistically significant nonetheless (0.487 versus 0.232 (0.487-0.256). Finally, Table 7 reveals that it is only well-governed previously non-investable Rule 144a firms that enjoy a cross-listing premium.

The findings can be summarized as follows. First, my tests of the legal bonding hypothesis reveal mixed findings. When I classify cross-listing firms as dual- or single-class share firms, I find cross-listing premia for both, but in contrast to the predictions of the legal bonding hypothesis, the magnitude of the premia are the same for both. The legal bonding hypothesis would predict larger premia for dual-class share firms. However, when I measure the extent of insider ownership in cross-listing firms, I do find support for the bonding hypothesis; poorly-governed firms (i.e. Level 2/3 firms with below-median pre-listing levels of closely-held shares as a % of total common shares outstanding) enjoy large cross-listing premia. Better-governed firms do not. Second, I find that bonding alone is sufficient to generate cross-listing premia for emerging market firms cross-listing as Level 2/3 ADRs in the U.S. For previously investable single- and dual-class share Level 2/3 firms, for whom the majority of the cross-listing premium is likely to be derived from legal bonding, and not investor recognition, cross-listing does

enhance the value of these firms. For dual-class share firms, my findings are consistent with those of King and Segal (2009). They show that for a sample of Canadian dual-class firms, an exchange cross-listing in the U.S. results in a cross-listing premium even absent an expansion in the firm's shareholder base. In contrast, single-class share Canadian firms must attract and maintain a wider shareholder base to also gain from cross-listing in the U.S. Here, in this paper, I find that single-class share emerging market firms need not do so. For them, bonding alone is sufficient to generate a cross-listing premium. This is likely to be the case since single-class share emerging market firms are, compared to their Canadian counterparts, likely to derive greater legal bonding benefits. When I classify firms by pre-listing level of closely-held shares, I find that bonding alone is sufficient to deliver a cross-listing premium for poorly-governed Level 2/3 firms.

Third, previously non-investable firms single- and dual class share Level 2/3 firms, and Level 2/3 firms with below-median closely-held shares (as a % of total common shares outstanding) enjoy the largest cross-listing premia. These findings are consistent with Merton's (1987) recognition hypothesis. These findings also show how bonding and greater recognition together explain cross-listing premia. Bonding alone is sufficient to deliver cross-listing premia for single- and dual-class Level 2/3 firms, and for poorly-governed Level 2/3 firms (as measured using pre-listing levels of closely-held-shares). Bonding *and* greater recognition results in even larger listing premia.

4. Concluding Remarks

In this paper, I seek to examine whether the legal bonding and/or the recognition hypotheses can explain the cross-listing premia documented for Level 2/3 emerging market firms (see O'Connor (2009), and Smirnova (2008)). To evaluate the effects of legal bonding on firm value, I perform two separate tests. In the first, I follow King and Segal (2009) and estimate the effects of cross-listing on the value of single and dual-class firms. Since dual-class share firms have potentially the most to gain from legal bonding as theory predicts, I would then expect to find the largest cross-listing premia for these firms (relative to single-class share firms). In the second set of tests, I classify cross-listing firms by their pre-listing level of closely-held shares (as a % of total common shares outstanding) and estimate separate regressions for

cross-listing firms with above- and below-median pre-listing levels of insider ownership. I deem firms with below-median pre-listing median levels of closely-held shares to be poorly-governed.

My approach to examining the effects of greater recognition upon cross-listing differs from both King and Segal (2009) and Foerster and Karolyi (1999). I deem previously non-investable firms as firms that U.S. investors are likely to be "unaware" of pre-listing. Hence, U.S. investors are likely to become "aware" of these non-investable firms once they cross-list. In turn, these firms are likely to experience the greatest increase in their shareholder base and hence larger cross-listing premia once they cross-list.

I find that cross-listing premia are explained by the legal bonding and investor recognition hypotheses. Single- and dual-class Level 2/3 firms witness cross-listing premia, regardless of their prior investable status. For previously investable firms, bonding alone is sufficient to deliver a cross-listing premium. For previously non-investable firms, cross-listing premia are much larger, both for single- and dual-class firms. In subsequent analysis, I also show that the listing premium is greatest for the former. I also find that cross-listing premia tend to be greatest for poorly-governed Level 2/3 firms that were previously non-investable. Using the closely-held share measure to gauge the quality of corporate governance in cross-listing firms, I find no cross-listing premia for better-governed firms, irrespective of their prior investable status. Thus, in summary, while I find mixed results for the effects of legal bonding hypothesis, I consistently find that cross-listing premia increase in both bonding *and* greater recognition.

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Table 1

Sample Description

The table reports summary statistics of the sample by country. # CL refers to the number of firms with ADRs that also have pre- and post-listing financial data. # NCL is the number of non-cross-listing firms. All information on ADRs is sourced from the Bank of New York, Citibank, NYSE, and NASDAQ. Investable dates are taken from the Emerging Markets Database. CL & Inv is the number of firms that are both cross-listed and Investable. Firms are deemed cross-listed and Investable if they become Investable prior to cross-listing in the U.S. CL & DC is the number of firms that are both cross-listed and dual-class firms. In the remaining columns, I provide the number (#) of each cross-listing type i.e., Level 1, Level 2/3, and Rule 144a, and the number of each that are also deemed investable, and dual-class firms. CHS ADR is the median pre-cross-listing % of shares held by insiders in cross-listing firms as a percentage of total common shares outstanding.

	Sample Description		Investable & Dual-Class Firms		CHS ADR	Cross-Listing Firms, Cross-Listing & Investable and Cross-Listing & Dual-Class Share Firms								
	# CL	# NCL	CL & Inv	CL & DC	CHS ADR	Level 1	Level 1 & Inv	Level 1 & DC	Level 2/3	Level 2/3 & Inv	Level 2/3 & DC	Rule 144a 4	Rule 144a & Inv	Rule 144a & DC
Brazil	9	200	3	9	58.08	4	1	4	3	2	3	2	0	2
Chile	5	109	5	1	69.52	0	0	0	4	4	1	1	1	0
China	2	1,327	0	2	90.37	2	0	2	0	0	0	0	0	0
Colombia	1	15	1	1	-	0	0	0	0	0	0	1	1	1
Greece	1	254	1	1	-	1	1	1	0	0	0	0	0	0
India	17	366	4	0	26.56	1	1	0	2	0	0	14	3	0
Indonesia	1	200	0	0	90.57	0	0	0	0	0	0	1	0	0
Israel	2	75	0	0	58.40	0	0	0	1	0	0	1	0	0
Korea	13	746	9	0	28.52	1	0	0	2	2	0	10	7	0
Malaysia	5	782	4	0	55.11	5	4	0	0	0	0	0	0	0
Mexico	15	59	11	10	48.12	6	3	4	6	5	4	3	3	2
Philippines	3	95	1	2	55.12	2	1	1	0	0	0	1	0	1
Poland	1	109	0	0	-	0	0	0	0	0	0	1	0	0
Portugal	2	52	0	1	42.08	2	0	1	0	0	0	0	0	0
Russia	4	21	0	0	73.70	4	0	0	0	0	0	0	0	0
Sth Africa	17	229	12	3	49.04	10	6	2	5	4	1	2	2	0
Taiwan	23	1,009	6	1	15.57	0	0	0	2	0	0	21	6	1
Thailand	1	352	0	0	14.31	1	0	1	0	0	0	0	0	0
Turkey	1	135	1	0	-	0	0	0	0	0	0	1	1	0
	123	6,135	58	31	38.96	39	17	16	25	17	9	59	24	7

Table 2

Regression estimates of the impact of investor recognition and legal bonding on the cross-listing premium

The table reports coefficient estimates from firm fixed effects regressions in columns 1-4, and fixed effects vector decomposition regressions in column 5 of the impact of cross-listing on firm value with t-statistics (absolute value), adjusted for clustering at the firm level presented in parentheses underneath the coefficient estimates. The dependent variable is Tobin's *q*. Level 1, Level 2/3, and Rule 144a are dummy variables that equal 1 in each year in which the firm is cross-listed in the U.S. of the specified type. In columns 2 and 4, the cross-listing dummies equal one in the year before listing instead of the year of listing as is the case in columns 1, 3, and 5. Investable is a dummy variable that is set equal to one in years in which the firm is designated as investable. Dual Class is a dummy variable which equals 1 if the firm is a dual-class share firm, 0 otherwise. Firm size is measured as the log of annual sales in real $U.S. Firm growth is measured as the (geometric) average real growth in sales over the prior two years. Global industry *q* is calculated as the average *q* of all global firms within each industry classification. Also estimated but not reported are a constant, a full set of year dummies, and a full set of country dummies in column 5. Statistical significance is denoted by ***, **, * for the 1%, 5, and 10% levels, respectively.

	Firm Fixed-Effects (FE)				Fixed Effects Vector Decomposition (FEVD)
	Cross-Listing Premia		Cross-Listing Premia and Investor Recognition		Cross-Listing Premia and Legal Bonding
	(1)	(2)	(3)	(4)	(5)
Level 1	0.033	0.128	0.033	-0.001	-0.013
	(0.22)	(0.86)	(0.21)	(0.01)	(0.16)
Level 2/3	0.340***	0.328***	0.415***	0.540***	0.301***
	(3.40)	(2.79)	(3.61)	(2.59)	(9.27)
Rule 144a	-0.140	-0.032	-0.103	0.291	-0.167***
	(1.34)	(0.29)	(0.96)	(1.40)	(4.66)
Level 1 * Investable			0.027	0.201	
			(0.12)	(0.77)	
Level 2/3 * Investable			-0.223***	-0.243	
			(2.69)	(1.00)	
Rule 144a * Investable			-0.148	-0.471*	
			(1.37)	(1.95)	
Investable			0.094**	0.074*	
			(2.18)	(1.78)	
Level 1 * Dual Class					0.104
					(1.01)
Level 2/3 * Dual Class					-0.020
					(0.24)
Rule 144a * Dual Class					0.075
					(0.70)
Dual Class					-0.166***
					(15.20)
Firm Size	-0.093***	-0.093***	-0.094***	-0.093***	-0.094***
	(5.48)	(5.51)	(5.52)	(5.53)	(5.55)
Firm Growth	0.814***	0.814***	0.814***	0.812***	0.895***
	(12.61)	(12.62)	(12.61)	(12.59)	(12.60)
Global Industry Q	0.831***	0.838***	0.844***	0.841***	0.813***
	(5.26)	(5.25)	(5.23)	(5.18)	(5.28)
Time Dummies	Yes	Yes	Yes	Yes	Yes
Country Dummies	No	No	No	No	Yes
# Obs	42,238	42,238	42,238	42,238	42,238
R-Squared	0.010	0.010	0.010	0.010	0.622

Table 3

Alternative regression estimates of the impact of investor recognition on the cross-listing premium

The table reports coefficient estimates from a series of regressions, which estimate the effect of investor recognition and cross-listing on firm value. Column 1 reports coefficient estimates from firm fixed effects regressions. Columns 2 & 3 reports coefficient estimates from pooled ordinary least squares estimates with t-stats calculated using standard errors clustered by firm presented underneath in brackets. Column 4 reports coefficient estimates from random effects regressions. Column 5 does likewise using Mundlak (1978) correction terms to account for unobserved heterogeneity, and column 6 reports coefficient estimates from Fama-MacBeth (1973) regressions. The dependent variable is Tobin's *q*. Level 1, Level 2/3, and Rule 144a are dummy variables that equal 1 in each year in which the firm is cross-listed in the U.S. of the specified type. Investable is a dummy variable that is set equal to one in years in which the firm is designated as investable. The firm-level controls are defined in the main text. The bottom panel reports a set of F-stats related to coefficient estimates presented in column 3. Also estimated but not reported are a constant, a full set of year dummies, and a full set of country dummies. Statistical significance is denoted by ***, **, * for the 1%, 5, and 10% levels, respectively.

	Fixed Effects (FE)	Pooled Ordinary Least Squares (POLS)		Random Effects (RE)	Mundlak (1978)	Fama-MacBeth (1973)
	(1)	(2)	(3)	(4)	(5)	(6)
Level 1	0.033	0.243*	-0.070	0.077	-0.082	0.165*
	(0.21)	(2.03)	(0.62)	(0.56)	(0.51)	(1.92)
Level 2/3	0.415***	0.493*	0.941	0.456***	0.431***	0.250**
	(3.61)	(1.85)	(1.33)	(4.19)	(3.50)	(2.60)
Rule 144a	-0.103	0.035	-0.033	-0.061	-0.153	-0.101**
	(0.96)	(0.46)	(0.32)	(0.70)	(1.42)	(2.27)
Level 1 * Investable	0.027	0.300	0.681***	0.038	0.286	0.213**
	(0.12)	(1.02)	(3.43)	(0.16)	(1.10)	(2.72)
Level 2/3 * Investable	-0.223***	-0.598**	-0.785	-0.269***	-0.508*	-0.052
	(2.69)	(2.16)	(1.13)	(3.21)	(1.77)	(0.74)
Rule 144a * Investable	-0.148	-0.153	0.058	-0.154	-0.136	0.100***
	(1.37)	(1.43)	(0.47)	(1.48)	(1.39)	(2.85)
Investable	0.094**	0.350***	0.315***	0.128***	0.150***	0.092***
	(2.18)	(5.54)	(5.12)	(3.11)	(3.38)	(3.49)
Level 1 (Pre)			0.120			
			(0.54)			
Level 2/3 (Pre)			0.225			
			(0.65)			
Rule 144a (Pre)			0.078			
			(0.61)			
Level 1 * Investable (Pre)			-0.319			
			(1.15)			
Level 2/3 * Investable (Pre)			0.319			
			(0.60)			
Rule 144a * Investable (Pre)			0.157			
			(0.83)			
Firm Size	-0.094***	-0.058***	-0.060***	-0.086***	-0.093***	-0.019
	(5.52)	(6.83)	(6.87)	(9.16)	(5.59)	(1.15)
Firm Growth	0.814***	1.206***	1.207***	0.901***	0.800***	1.045***
	(12.61)	(16.74)	(16.79)	(15.53)	(12.30)	(6.00)
Global Industry Q	0.844***	0.935***	0.864***	0.863***	0.631***	0.713***
	(5.23)	(6.00)	(5.50)	(5.62)	(3.86)	(3.44)
Time Dummies	Yes	Yes	Yes	Yes	Yes	No
Country Dummies	No	Yes	Yes	Yes	Yes	Yes
# Obs	42,238	42,238	42,238	42,238	42,238	42,238
R-Squared	0.010	0.129	0.131	0.117	0.167	0.243
	F-Stats					
Level 1: Pre vs. Post			1.07			
Level 2/3: Pre vs. Post			4.96**			
Rule 144a: Pre vs. Post			0.33			
Level 1 INV: Pre vs. Post			6.12***			
Level 2/3 INV: Pre vs. Post			0.85			
Rule 144a INV: Pre vs. Post			0.64			

Table 4

Alternative regression estimates of the impact of legal bonding on the cross-listing premium

The table reports coefficient estimates from a series of regressions, which estimate the effect of corporate governance and cross-listing on firm value. Column 1 reports coefficient estimates from Fixed Effects Vector Decomposition (FEVD) regressions. Columns 2 & 3 report coefficient estimates from pooled ordinary least squares estimates with t-stats calculated using standard errors clustered by firm presented underneath in brackets. Column 4 reports coefficient estimates from random effects regressions. Column 5 does likewise using Mundlak (1978) correction terms to account for unobserved heterogeneity, and column 6 reports coefficient estimates from Fama-MacBeth (1973) regressions. The dependent variable is Tobin's *q*. Level 1, Level 2/3, and Rule 144a are dummy variables that equal 1 in each year in which the firm is cross-listed in the U.S. of the specified type. Dual Class is a dummy variable which equals 1 if the firm is a dual-class share firm, 0 otherwise. The firm-level controls are defined in the main text. The bottom panel reports a set of F-stats related to coefficient estimates presented in column 3. Also estimated but not reported are a constant, a full set of year dummies, and a full set of country dummies. Statistical significance is denoted by ***, **, * for the 1%, 5, and 10% levels, respectively.

	Fixed Effects VD (FEVD)	Pooled Ordinary Least Squares (POLS)		Random Effects (RE)	Mundlak (1978)	Fama-MacBeth (1973)
	(1)	(2)	(3)	(4)	(5)	(6)
Level 1	-0.013	0.486***	0.500***	0.020	0.142	0.570***
	(0.16)	(2.77)	(2.84)	(0.10)	(0.79)	(3.01)
Level 2/3	0.301***	0.383	0.394	0.422***	0.329*	0.235***
	(9.27)	(1.20)	(1.23)	(4.12)	(1.85)	(2.95)
Rule 144a	-0.167***	0.023	0.031	-0.117	-0.154	-0.016
	(4.66)	(0.32)	(0.42)	(1.30)	(1.50)	(0.70)
Level 1 * Dual Class	0.104	-0.190	-0.185	0.156	-0.225	-0.374*
	(1.01)	(0.71)	(0.68)	(0.62)	(0.85)	(1.93)
Level 2/3 * Dual Class	-0.020	0.035	0.049	-0.117	0.044	-0.013
	(0.24)	(0.10)	(0.14)	(0.59)	(0.13)	(0.30)
Rule 144a * Dual Class	0.075	0.262*	0.277**	0.204	0.218	0.128***
	(0.70)	(1.84)	(1.96)	(0.72)	(1.47)	(3.17)
Dual Class	-0.166***	-0.173***	-0.179***	-0.197***	-0.143***	0.137
	(15.20)	(5.00)	(5.19)	(5.23)	(4.16)	(1.39)
Level 1 (Pre)			0.425**			
			(2.24)			
Level 2/3 (Pre)			-0.193			
			(1.34)			
Rule 144a (Pre)			0.184			
			(1.63)			
Level 1 * Dual Class (Pre)			0.045			
			(0.13)			
Level 2/3 * Dual Class (Pre)			0.381			
			(1.24)			
Rule 144a * Dual Class (Pre)			0.121			
			(0.49)			
Firm Size	-0.094***	-0.050***	-0.052***	-0.084***	-0.092***	-0.010
	(5.55)	(5.76)	(5.87)	(8.86)	(5.50)	(0.23)
Firm Growth	0.895***	1.173***	1.169***	0.893***	0.800***	0.975***
	(12.60)	(16.34)	(16.35)	(15.42)	(12.36)	(5.75)
Global Industry Q	0.813***	0.967***	0.934***	0.855***	0.615***	0.723***
	(5.28)	(6.19)	(5.97)	(5.65)	(3.67)	(3.52)
Time Dummies	Yes	Yes	Yes	Yes	Yes	No
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes
# Obs	42,238	42,238	42,238	42,238	42,238	42,238
R-Squared	0.622	0.127	0.129	0.117	0.136	0.253
	F-Stats					
Level 1: Pre vs. Post			5.01***			
Level 2/3: Pre vs. Post			4.24**			
Rule 144a: Pre vs. Post			1.35			
Level 1 DC: Pre vs. Post			0.35			
Level 2/3 DC: Pre vs. Post			0.87			
Rule 144a DC: Pre vs. Post			2.19			

Table 5

Regression estimates of the impact of legal bonding on the cross-listing premium

The table reports coefficient estimates from firm fixed effects regressions with t-statistics (absolute value), adjusted for clustering at the firm level presented in parentheses underneath the coefficient estimates. The dependent variable is Tobin's *q*. Level 1, Level 2/3, and Rule 144a are dummy variables that equal 1 in each year in which the firm is cross-listed in the U.S. of the specified type. Seperate regressions are estimated for firms with above- and below-median closely-held shares (as a % of total common shares outstanding). Firm size is measured as the log of annual sales in real $U.S. Firm growth is measured as the (geometric) average real growth in sales over the prior two years. Global industry *q* is calculated as the average *q* of all global firms within each industry classification. Also estimated but not reported is full set of year dummies. Statistical significance is denoted by ***, **, * for the 1%, 5, and 10% levels, respectively.

	Closely Held Shares (as a % of Total Shares Outstanding)	
	Above-Median	Below-Median
Level 1	0.168	-0.055
	(0.75)	(0.28)
Level 2/3	0.238	0.412***
	(1.24)	(3.03)
Rule 144a	0.259**	-0.234*
	(2.23)	(1.80)
Firm Size	-0.030	-0.128***
	(1.18)	(5.39)
Firm Growth	0.792***	0.917***
	(6.82)	(10.23)
Global Industry Q	0.638***	1.073***
	(3.46)	(4.47)
Time Dummies	Yes	Yes
# Obs	14,740	14,765
R-Squared	0.014	0.010

Table 6

Regression estimates of the joint impact of investor recognition and legal bonding on the cross-listing premium

The table reports coefficient estimates from firm fixed effects regressions of the impact of cross listing on firm value with t-statistics (absolute value), adjusted for clustering at the firm level presented in parentheses underneath the coefficient estimates. The dependent variable is Tobin's *q*. Separate regressions are reported for single- and dual-class cross-listing firms. Level 1, Level 2/3, and Rule 144a are dummy variables that equal 1 in each year in which the firm is cross-listed in the U.S. of the specified type. Investable is a dummy variable that is set equal to one in years in which the firm is designated as investable. Firm size is measured as the log of annual sales in real $U.S. Firm growth is measured as the (geometric) average real growth in sales over the prior two years. Global industry q is calculated as the average *q* of all global firms within each industry classification. Also estimated but not reported are a constant, and a full set of year dummies. Statistical significance is denoted by ***, **, * for the 1%, 5, and 10% levels, respectively.

	Single & Dual-Class Share Firms							
	Single-Class Share Cross-Listing Firms				Dual-Class Share Cross-Listing Firms			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Level 1	-0.143	-0.131	-0.117	-0.106	0.223	0.212	0.186	0.194
	(0.54)	(0.50)	(0.45)	(0.41)	(1.30)	(1.26)	(1.13)	(1.18)
Level 2/3	0.453***	0.456***	0.454***	0.458***	0.355	0.370	0.388*	0.355*
	(3.84)	(3.85)	(4.08)	(4.09)	(1.54)	(1.61)	(1.74)	(1.68)
Rule 144a	-0.182	-0.168	-0.142	-0.138	0.117	0.121	0.113	0.118
	(1.51)	(1.41)	(1.23)	(1.20)	(0.42)	(0.44)	(0.42)	(0.44)
Level 1 * Investable	0.191	0.187	0.192	0.193	-0.179	-0.167	-0.157	-0.156
	(0.51)	(0.50)	(0.50)	(0.50)	(0.68)	(0.64)	(0.64)	(0.64)
Level 2/3 * Investable	-0.214**	-0.214**	-0.226**	-0.234**	-0.105	-0.112	-0.135	-0.220**
	(2.06)	(2.07)	(2.09)	(2.16)	(1.05)	(1.11)	(1.40)	(2.42)
Rule 144a * Investable	-0.114	-0.123	-0.110	-0.110	-0.300	-0.313	-0.329	-0.330
	(0.94)	(1.01)	(0.92)	(0.91)	(1.32)	(1.39)	(1.48)	(1.48)
Investable	0.098**	0.100**	0.102**	0.102**	0.076*	0.077*	0.079*	0.080*
	(2.20)	(2.25)	(2.30)	(2.32)	(1.68)	(1.72)	(1.78)	(1.80)
Firm Size		-0.036**	-0.091***	-0.091***		-0.035**	-0.092***	-0.092***
		(2.33)	(5.28)	(5.30)		(2.29)	(5.28)	(5.31)
Firm Growth			0.800***	0.801***			0.798***	0.799***
			(12.34)	(12.34)			(12.26)	(12.28)
Global Industry Q				0.799***				0.809***
				(4.63)				(4.77)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# Obs	41,770	41,770	41,770	41,770	41,133	41,133	41,133	41,133
R-Squared	0.020	0.010	0.010	0.010	0.020	0.010	0.010	0.010

Table 7

Regression estimates of the impact of legal bonding and investor recognition on the cross-listing premium

The table reports coefficient estimates from firm fixed effects regressions with t-statistics (absolute value), adjusted for clustering at the firm level presented in parentheses underneath the coefficient estimates. The dependent variable is Tobin's *q*. Level 1, Level 2/3, and Rule 144a are dummy variables that equal 1 in each year in which the firm is cross-listed in the U.S. of the specified type. Seperate regressions are estimated for firms with above- and below-median closely-held shares (as a % of total common shares outstanding). Investable is a dummy variable that is set equal to one in years in which the firm is designated as investable. Firm size is measured as the log of annual sales in real $U.S. Firm growth is measured as the (geometric) average real growth in sales over the prior two years. Global industry *q* is calculated as the average *q* of all global firms within each industry classification. Also estimated but not reported is full set of year dummies. Statistical significance is denoted by ***, **, * for the 1%, 5, and 10% levels, respectively.

	Closely Held Shares (as a % of Total Shares Outstanding)	
	Above-Median	Below-Median
Level 1	0.229	-0.095
	(0.83)	(0.47)
Level 2/3	0.302	0.487***
	(1.61)	(2.89)
Rule 144a	0.243**	-0.198
	(2.09)	(1.39)
Level 1 * Investable	-0.271	0.148
	(1.08)	(0.51)
Level 2/3 * Investable	-0.219	-0.256**
	(1.50)	(2.42)
Rule 144a * Investable	-0.017	-0.126
	(0.05)	(1.09)
Investable	0.176**	0.012
	(2.36)	(0.25)
Firm Size	-0.029	-0.129***
	(1.16)	(5.39)
Firm Growth	0.784***	0.918***
	(6.72)	(10.17)
Global Industry Q	0.634***	1.100***
	(3.54)	(4.62)
Time Dummies	Yes	Yes
# Obs	14,740	14,765
R-Squared	0.017	0.010

Value of cross-listing firms in event time

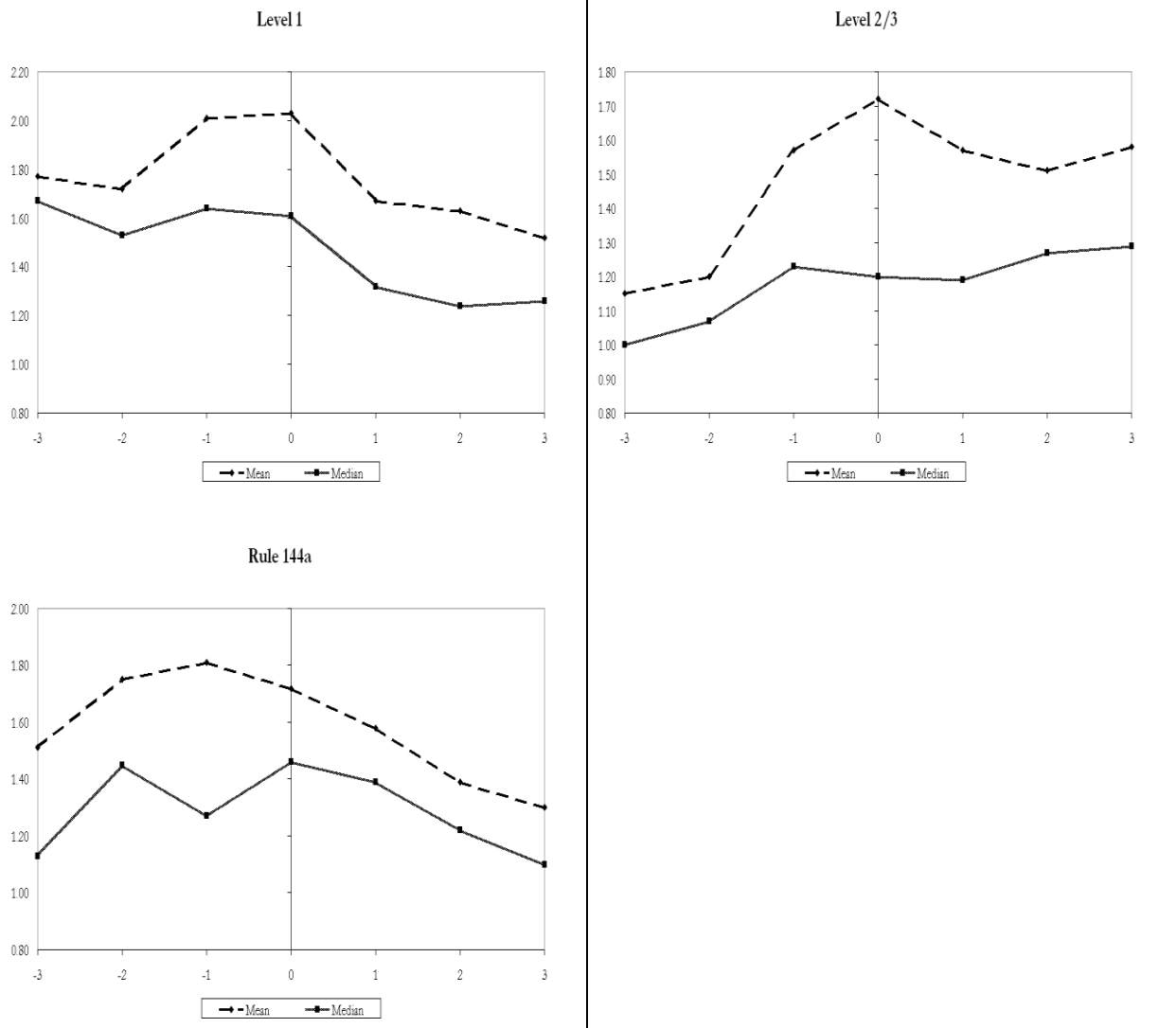

Figure 1: The figure displays the mean and median value of Level 1, Level 2/3, and Rule 144a firms in event (cross-listing) time. The event period ranges from three years prior to three years post-listing. Year "0" is the cross-listing year. Tobin's *q* is used to measure firm value, where Tobin's *q* is defined as the book value of debt plus market capitalization divided by the book value of assets. Market value of debt is proxied using its book value counterpart, and the replacement cost of assets as the book value of assets. Book value of debt is calculated as the book value of total assets less the book value of equity. All information on cross-listed firms is sourced from the Bank of New York, and cross-referenced with information from Deutsche Bank, JP Morgan, the New York Stock Exchange, and NASDAQ.