

**VALUATION EFFECTS OF FOREIGN COMPANY LISTINGS  
ON U.S. EXCHANGES**

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**Abstract.** This study examines post-listing equity price performance of foreign firms which cross-listed sponsored American Depositary Receipts (ADRs) on the New York and the American Stock Exchanges during the period 1982-1992. We use three valuation metrics – price-to-book, price-to-cash-earnings, and price-to-earnings – which are adjusted for the home country and world industry indices to which the listing firm’s stock belongs. We find positive valuation effects associated with cross-listing for both country-benchmarked and industry-benchmarked price ratios. Variables that proxy for home country characteristics such as governance styles, disclosure quality, market liquidity, and so forth are unable to explain the cross-sectional variation in the data. Our results thus suggest that cross-listing in the U.S. enhances valuations for listing firms by simply reducing the overall effect of segmentation among different national securities markets.

**INTRODUCTION**

There has been considerable theoretical and empirical research on segmentation of international capital markets, its links to stock prices and expected returns in the context of international portfolio diversification, and the role of cross-border listings of company shares to overcome such segmentation. The theoretical underpinnings of the links between capital market segmentation, stock prices and expected returns, and cross-listing can be traced to Black [1974], Stapleton

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and Subrahmanyam [1977], Stulz [1981], Errunza and Losq [1985], and Alexander, Eun and Janakiraman [1988]. The essential argument is as follows: when capital markets are segmented, in the sense that expected returns on risk-equivalent securities can differ in different capital markets, firms will have the incentive to adopt operating and financial policies that can counter the negative effects of such segmentation. On the operating side, the firm can choose direct or portfolio investment, through either outright acquisition or through a merger; on the financial side, the firm could cross-list its stock in foreign equity markets to make its shares more easily available to a broader investor base. Our focus in this paper is on the valuation effects to home country investors from cross-listing in a stock market other than the home country market.

If markets are completely integrated, cross-listing a firm's stock in other markets should have no impact on stock prices, since investors could presumably undertake such financial market transactions directly and efficiently, without the firm acting on their behalf. Arbitrage, in short, will keep expected returns in line with risk. However, when barriers to investment exist – where such barriers would typically result from transaction and information-acquisition costs across borders, regulatory barriers and differential tax rules affecting transactions in securities and foreign exchange, ownership restrictions on foreign financial assets, and so forth – cross-listing the firm's equity in a foreign market would change the equilibrium asset prices for the firm. Stapleton and Subrahmanyam [1977] show through numerical analysis that stock prices of such firms should rise and their expected returns fall (a result later generalized in Alexander, Eun, and Janakiraman [1988]). Errunza and Losq [1985] argue a similar result: if investors are prohibited from owning assets in foreign countries, then, listing foreign stocks in their home capital markets expands their investment opportunity set, and thus reduces the “super risk premia” that they would have placed on the previously held (restricted) portfolio; in the process of reduction of such risk premia, expected returns to the cross-listed stock would fall, and stock prices rise. Moreover, it has been argued that cross-listing could cause a stock to migrate from “low information” settings to “high information” settings, thereby lowering risks and hence, expected returns (see Alexander, Eun, and Janakiraman [1988], *citing* Barry and Brown [1985]).

In this paper, we reexamine the stock price effects of cross-listings by foreign firms on US exchanges. We do so by adopting a methodology different from the traditional event study methodology that has been used in a fairly extensive empirical literature. While previous research has examined changes in *returns* to cross-listing using the traditional event study methodology (and, on balance, has produced mixed results; see below), our valuation measures attempt to examine the *price impact* directly.<sup>1</sup>

We examine price-to-book, price-to-earnings and price-to-cash earnings ratios of foreign firms listing their stocks in the U.S., where these ratios are bench-

marked by similar ratios for the firms in their home country, as well as by similar ratios for their worldwide industry counterparts. We examine the behavior of these ratios for periods of up to six months before and six months after the listing month, and find that the stock price effects of cross-listing are statistically and economically significant. Although we use a different methodology, our findings not only complement the conclusions of previous studies, but they also provide fairly strong support for the price increase (and hence, cost-of-equity reduction) resulting from cross-listing in the context of capital market segmentation. In summary, our reexamination of a well-researched question using an alternative methodology allows for increased confidence in the belief that cross-listing is beneficial. We also find that the beneficial effects persist for a period of at least six months following the listing month.

### ***Previous Empirical Research on the Valuation Impact of Cross-Listings***

The theoretical insights on links between segmentation, cross-listing and valuation have been subjected to considerable empirical testing using the event-study methodology. The empirical literature, taken in its totality, presents a mixed picture.

For instance, Howe and Kelm [1987] examined stockholder returns associated with the listing process for 165 U.S. firms that listed their stocks abroad: they found that the pre-listing period was associated with negative abnormal returns, and the post-listing period not consistently characterized by negative abnormal returns, suggesting that cross-listing by U.S. firms did not appear to lower expected returns. On the other hand, Alexander, Eun, and Janakiraman [1988] examined thirty-four non-U.S. firms that listed their stock on U.S. exchanges, and found that such cross-listing leads to significantly lower expected returns for non-Canadian firms in their sample (the effect for Canadian firms was weak, suggesting a greater degree of financial market integration between U.S. and Canadian markets). Lee [1991] analyzed returns from 141 U.S. firms that listed their stocks in London and Toronto, finding small average wealth impacts associated with listing.

Jayaraman, Shastri and Tandon [1993] studied ninety-five non-U.S. firms that listed their stock in a U.S. exchange (the New York Stock Exchange, the American Stock Exchange, or NASDAQ) during the period 1983 to 1988, and found positive and significant abnormal returns of .47% ( $z=2.21$ ) on the day of listing. However, the abnormal return on the day after listing was  $-.48\%$  ( $z=1.83$ ), suggesting that the beneficial effects seemed to all but disappear the day after listing. They also found that the positive effects basically came from forty-four Japanese firms in their sample (with a day-of-listing abnormal return of .8%), and that the abnormal returns for the firms from the rest of the world were negative (although nonsignificant). In a study of fifty-three Canadian firms that became cross-listed on U.S. exchanges between 1981 and 1990, Foerster and Karolyi [1993] found that the pre-listing period (including

the listing window) was characterized by significant positive abnormal returns, but the post-listing period by negative abnormal returns, suggesting financial market segmentation between the U.S. and Canadian markets (a result different from that in Alexander, Eun and Janakiraman [1988]).

In perhaps the most comprehensive study, Ting Lau, Diltz, and Apilado [1994] examined the wealth effects of 346 US firms listing their stock on ten different foreign exchanges by evaluating returns on their application dates for listing, acceptance dates for listing, and the actual listing dates.<sup>2</sup> They detected no abnormal returns on the *application date* (except for day -3); around the firms' *acceptance date*, they found nonsignificant daily abnormal returns in an eleven-day window (although they found significant cumulative abnormal returns during this period); around the firms' *actual listing date*, they found a negative abnormal return on the day of listing, and negative cumulative abnormal returns of 3.95% over 125 post-listing trading days.<sup>3</sup>

In a direct test of market segmentation/integration between the U.S. and Canadian markets, Mittoo [1992], analyzed the TSE thirty-five stocks of the Toronto Stock Exchange that cross-listed in the US, and found evidence consistent with segmentation for the period 1977-81, but consistent with integration for the period 1982-86. Evidence consistent with segmentation was also found in Marr, Trimble and Varma [1991] who showed that the negative announcement effects to Euroequity offerings are smaller than those for domestic equity offerings.

Previous research has also examined whether and how cross-listings lead to changes in variance, and in asset pricing factors. Howe and Madura [1990] found that cross-listing has nonsignificant impact on risks, a finding corroborated for the case of Canadian firms by Foerster and Karolyi [1993], and a larger sample of U.S. firms by Ting Lau, Diltz, and Apilado [1994]. Jayaraman, Shastri and Tandon [1993], however, found that cross-listing is accompanied by an *increase* in variance,<sup>4</sup> although they do not find evidence of a change in the return generating process (or asset pricing factors) for the underlying stocks.

In summary, the evidence from past event-study based empirical work on cross-listing tells us that: (i) There may be (weak) negative abnormal returns on the day of listing, and (weak) negative abnormal returns following the listing; (ii) The positive abnormal returns prior to the listing, if any, seem to be counterbalanced by negative abnormal returns soon after listing; (iii) The listing firms' stock variance may undergo a slight increase, but on the other hand, there is also evidence that it may decline slightly, or stay about the same; (iv) No clear picture emerges even when listing application dates and listing acceptance dates (as opposed to actual listing dates) are examined; and (v) The evidence is consistent with the presence of some degree of market segmentation, even across the most important and liquid equity markets in the world.

Thus, despite the evidence of capital market segmentation, the totality of previous research appears to present a somewhat mixed picture with respect to the beneficial effects of cross-listing.

## **MOTIVATION, METHODOLOGY AND DATA**

### ***Motivation***

Given the mixed evidence from event studies summarized above, it seems reasonable and worthwhile to verify the expectation that valuations are enhanced by cross-listing, particularly by: (i) Using a methodology that examines prices directly, rather than expected returns, and doing so by benchmarking the prices using some reasonable criteria; (ii) Considering windows around the listing event that are comparatively long, which can mitigate the problem of listing application and listing announcement dates being weeks apart from the actual listing dates; (iii) Considering whether the prices rise as a result of causative factors such as relative increases in, say, cash flow; and (iv) Considering benchmarks other than the traditional single-factor model such as CAPM.<sup>5</sup>

This study attempts to complement the results obtained using event studies. Specifically, for the universe of foreign firms which chose to list their “sponsored” American Depositary Receipts (ADRs)<sup>6</sup> on the New York Stock Exchange (NYSE) or the American Stock Exchange (ASE) over the period 1982-1992, we examine pre- and post-listing home country valuation relatives, using three specific measures: the price-to-book ratio, the price-to-cash earnings ratio, and the price-to-earnings ratio. As we explain in the next section, measures such as these allow us to assess price changes relative to factors that would be determinants (or at least correlates) of expected returns. As we shall describe, all three price-ratio measures are evaluated on a non-benchmarked, country-benchmarked, and world industry-benchmarked basis. We consider a period of up to six months surrounding the listing month, a period long enough to incorporate the announcement or information leakage period, and also one that would mitigate the effect of any price reversals (or possible overreaction) associated with listings. Book values, earnings and cash flow data are updated as new data become available.

We first discuss the basic institutional features of ADRs and their listing procedures on the NYSE and the ASE, following which we justify our use of price ratios for assessment of valuation effects and their link to cost of equity. We then discuss how we operationalize our valuation ratios.

### ***American Depositary Receipts (ADRs)***

American Depositary Receipts (ADR) are certificates issued by a U.S. bank that represent a certain number of shares of a particular foreign security on deposit with the bank, or a “custodian” bank in the foreign country. The U.S.

bank acts as a transfer agent for U.S. investors: it receives dividends, pays taxes, converts all amounts into dollars (usually at the wholesale exchange rates), and distributes them to U.S. shareholders. ADRs can be a fraction or multiple of each foreign share, so as to make its dollar price fit into the appropriate trading range typical for U.S. stocks.

Designed as an alternative to direct foreign ownership of shares in the foreign market, the ADR was first offered by Morgan Guaranty Bank in 1927. Relative to direct ownership of foreign securities through purchases in a foreign stock exchange, the attractive features of the ADR are the following: (i) Security transfer and settlement practices follow U.S. laws; (ii) Price quotations are in U.S. dollars; (iii) All currency conversions are done by the bank, and the ADR holder does not have to do them herself;<sup>7</sup> (iv) ADRs can be exchanged for actual underlying foreign shares (and vice versa), at any time; and (v) For “sponsored” ADRs (see below), the foreign firm has to disclose as much financial and other corporate information to U.S. investors as a typical U.S. firm would, since such disclosure rules are mandated by the SEC.

Other than to purchase the stocks directly in foreign markets, another alternative to ADR purchases is, of course, to invest in mutual funds that specialize in the stocks of a particular country. However, there are some disadvantages to mutual fund investments compared to ADR investments. These include mutual fund expenses and management fees, which can sometimes be higher than the transaction costs associated with ADRs, especially if the investor’s strategy is to “buy and hold.” Moreover, as Kao, Vu and Wei [1992] point out, closed-end funds sometimes tend to have high agency costs (as reflected by the fact that their market values often trade at a discount relative to net asset values), and since portfolio decisions are made by fund managers rather than individuals, it may be difficult for investors to obtain good hedges against their particular international consumption risks. ADRs help overcome these problems.

ADRs can be “sponsored” or “unsponsored.” Sponsored ADRs involve companies that register themselves with the SEC, and thus file financial information in conformity with generally accepted accounting principles in the U.S. Sponsored ADRs are also often listed on U.S. exchanges, and trade like any other U.S. stock – indeed, the NYSE and ASE will list only sponsored ADRs (while NASDAQ prefers sponsored ADRs, their listing policies do not require it). The company sponsoring the ADR permits only one U.S. bank to act as the custodian or transfer agent, and does not allow other banks to duplicate the program; moreover, the sponsoring company bears all the up-front costs and subsequent expenses associated with the management of ADRs.

With an unsponsored ADR program, the decision to introduce ADRs is usually made by the U.S. bank (although usually, but not necessarily always, with the permission of the foreign company in question), based on demand in

the U.S. for a particular foreign security. The company does not bear any of the costs associated with the ADR program, and the shares cannot be listed on either the NYSE or the ASE. Once an unsponsored ADR program has been established, it can be duplicated by other banks. Unsponsored ADRs trade only in the over-the-counter market, and mostly on the “pink sheets.” However, with both sponsored and unsponsored ADRs, investors bear the risks associated with foreign exchange movements, and thus, any costs associated with hedging these risks on their own.

Both the number and trading volume of ADRs grew dramatically during the past decade and a half: as of the end of 1993, there were over 1000 ADRs for forty countries (550 in 1984), and annual trading volume approached \$200 billion (about \$50 billion in 1984). However, only about one-quarter of these ADRs were actually listed on one of the three major U.S. exchanges: as of the end of 1992, there were eighty ADRs listed on either the NYSE or the ASE, and about one hundred twenty on NASDAQ. The rest traded over-the-counter as pink sheets.

In this study, we examine the price performance of firms which list *sponsored* ADRs – i.e., our intention is to examine whether the pre-listing shareholder constituency gained, retained, or lost value, when a foreign company made the *conscious decision* to list its ADRs in the U.S. We restrict our attention to the eighty NYSE and ASE issues that were listed as of the end of 1992, since only sponsored ADRs get traded on these two exchanges. For NASDAQ listers, it is hard to tell which ADRs are sponsored and which are not. To eliminate this difficulty, we concentrate on those companies that we know sponsored ADRs.<sup>8</sup>

### ***Methodology and Construction of Price Ratios***

We first motivate the reasons for the choice of the three price multiples that we use to measure valuation effects: price-to-book value (*PBV*), price-to-earnings (*PE*), and price-to-cash earnings (*PCE*).<sup>9</sup> Following the development in Fama and French [1995], consider the identity for an all-equity firm that finances its investments completely with retained earnings, where the dividends paid in year  $t$  ( $D_t$ ) equal earnings ( $ER_t$ ) *plus* depreciation ( $DEP_t$ ) *minus* any investment outlays ( $I_t$ ). Suppose the expected investment and depreciation for any year  $t+i$  are some constant proportion of the expected future earnings in that year, or

$$E_t(D_{t+i}) = E_t[ER_{t+i} + DEP_{t+i} - I_{t+i}] = E_t(ER_{t+i})(1 + k_1 - k_2), \quad (1)$$

where  $k_1$  and  $k_2$  are the proportionality factors. If the firm's expected return on equity is  $r$ , and if we assume that this discount rate is constant, then the market value (price) of equity is:

$$P_t = (1 + k_1 - k_2) \sum_{i=1}^{\infty} [E_t(ER_{t+i}) / (1 + r)^i]. \quad (2)$$

The ratio of price-to-book at time  $t$  is:

$$P_t/BV_t = (1 + k_1 - k_2) \sum_{i=1}^{\infty} [E_t(ER_{t+i})/BV_t] \div [(1+r)^i] \quad (3)$$

We can see from this specification that a firm with a *higher* stock price ( $P_t$ ) for the same book value ( $BV_t$ ) at time  $t$  will have *lower* required returns. Similarly, if we replace  $BV_t$  with  $ER_t$ , then a firm with higher prices for the same cash earnings ( $ER_t$ ) at time  $t$  will have lower required returns; if we assume in (1) that the firm annually invests an amount equal to its annual depreciation charges, then  $ER_t$  would equal earnings, and we would have the similar result that a firm with higher prices for the same earnings will have lower required returns. In summary, our price multiples  $PBV$ ,  $PCE$  and  $PE$  would be higher when expected returns are lower.

This observation is the basis for our use of the three multiples  $PBV$ ,  $PCE$  and  $PE$  in our tests. However, to examine these ratios on an unbenchmarked basis would not tell us how these firms performed relative to non-listing firms in their home markets or to their industry counterparts worldwide. Thus, in order to compare the relative performance of a listed firm against its home country or worldwide industry counterparts, we benchmark the firm's price multiples with respect to the firms in its home country market and its global industry counterparts.

Using monthly equity prices taken from the Morgan Stanley Capital International (MSCI) database, we first derive the monthly average ratios of post-listing equity price multiples to pre-listing equity price multiples, and then adjust these ratios by using similar monthly average ratios for the home country of the listing firm, and the global industry to which the listing firm belongs. We undertake this analysis for three sets of post- and pre-listing periods: one month after and prior to the listing month, three months after and prior to the listing month, and six months after and prior to the listing month. We evaluate each of these valuation relatives at various monthly intervals around the actual listing month. Specifically, for a firm that lists its ADR on the NYSE or the ASE in month  $t$ , we first compute the following three price ratios for each firm in our sample:

$$PBV \text{ Ratio} = \left\{ (1/i) \sum_{j=1}^i [Price_{t+j}/Book \text{ Value}_{t+j}] \right\} \div \left\{ (1/i) \sum_{j=1}^i [Price_{t-j}/Book \text{ Value}_{t-j}] \right\} \quad (4)$$

$$PCE \text{ Ratio} = \left\{ (1/i) \sum_{j=1}^i [Price_{t+j}/Cash \text{ Earnings}_{t+j}] \right\} \div \left\{ (1/i) \sum_{j=1}^i [Price_{t-j}/Cash \text{ Earnings}_{t-j}] \right\} \quad (5)$$

$$PE \text{ Ratio} = \left\{ (1/i) \sum_{j=1}^i [Price_{t+j}/Net \text{ Income}_{t+j}] \right\} \div \left\{ (1/i) \sum_{j=1}^i [Price_{t-j}/Net \text{ Income}_{t-j}] \right\} \quad (6)$$

where  $t$  is the month of listing,  $i = 1, 3, 6$  and all ratios represent monthly averages. We then compute analogous values for the relevant country indices



and industry indices for identical time periods after and prior to the listing month. Finally, the firm's price ratios are divided by the country or world industry price ratios, forming what we call "benchmarked valuation relatives:" country-benchmarked, and world industry-benchmarked valuation relatives, respectively.

For instance, if we call the six-month post-listing to pre-listing *PBV* ratio for an individual firm  $PBV_{F,6}$  and that for the country index  $PBV_{C,6}$  then the ratio  $PBV_{F,6}/PBV_{C,6}$  would be the country-adjusted six-month price-to-book valuation relative for firm *F* that belongs to country *C* (and similarly for the world industry-adjusted valuation relatives). If a company increases the market price of its stock with respect to the book value of its stock following cross-listing on a U.S. exchange, then its firm level post-to-pre-listing *PBV* ratio should exceed 1.0. However, if the post-to-pre-listing *PBV* ratio of the entire market on (or worldwide industry relative to) which it was originally traded rose even more, then the *benchmarked* valuation relative would be less than 1.0 – i.e., we would interpret this as the firm's equity *underperforming* the country- or industry-benchmarked valuation relative. Similarly, if a firm *outperformed* its country- or industry-benchmarked *PBV*, *PCE* or *PE*, then the resulting benchmarked valuation relative would have a value greater than unity.<sup>10</sup> We similarly examine the one-, three- and six-month ratios for not only *PBV*, but also *PCE* and *PE*. Our test of whether post-listing prices increased significantly relative to pre-listing prices is to examine whether the country-benchmarked and industry-benchmarked price ratios differ significantly from one. If the benchmarked ratios are significantly greater than one, we would conclude that listing created value, and if they are significantly less than one, that listing destroyed value.

### **Data**

The basic data consist of all foreign companies which chose to list on the New York Stock Exchange (NYSE) or the American Stock Exchange (ASE) over the period 1982-1992 (inclusive) using sponsored ADRs. The total number of sponsored ADRs listed on the NYSE during this period is seventy-two; the corresponding figure for the ASE is eight (however, these numbers may be an overestimate because they represent gross, and not net new listings; a few firms may have been subsequently delisted). Thus, the upper bound on the universe of ADR listings on these two exchanges is eighty. Imposing the additional criterion that home country stock price data on these companies had to be available on the MSCI database, there were sixty-eight NYSE companies and eight ASE companies (i.e., a total of seventy-six) in our final sample. The data represent companies from fourteen different countries and thirty different industries. All of these companies, however, could not be included in the final sample. To do the analysis described, accounting data were needed at observation points of up to six months prior to the listing month and six

months after the listing month. By imposing this further criterion, the usable sample is fifty-seven firms, or an overall coverage of over 70% of the universe of listings on NYSE and ASE (see Tables 1 and 2).<sup>11</sup>

In the computation of our price ratios, we do not run into problems of negative earnings, book values, or cash earnings during our time-window, since minimum listing requirements on both the NYSE and the ASE preclude that possibility (see Foerster and Karolyi [1993] for details of listing requirements on these exchanges).

The company valuation data are taken from various issues of MSCI, and from the Disclosure/Worldscope database. Observations are taken at the end-of-the-month prior to and after the month of listing for a period of up to six months both before and after the listing month. Prices are adjusted for post-listing stock splits and post-listing changes in dividends, if any, in the six-month period following the listing. In order to compute the benchmarks for deriving the country and industry price ratios, we use the listing firms' MSCI home country index for which similar aggregate valuation data are reported, and we use this publication's world industry indices for which analogous aggregate data for worldwide industries are reported. See Tables 1 and 2 for the country and industry representation in our sample.

**TABLE 1**  
**Country of Origin of ADRs Listed on the New York and**  
**American Stock Exchanges: 1982-1992**

Exchange	Country	Sample Size
<i>New York Stock Exchange</i>	Australia	9
	Br. West Indies	1
	Canada	11
	France	4
	Hong Kong	1
	Ireland	1
	Italy	3
	Japan	1
	Mexico	3
	Netherlands	3
	Norway	2
	New Zealand	1
	Spain	5
	United Kingdom	23
<i>American Stock Exchange</i>	Canada	5
	France	1
	Ireland	1
	United Kingdom	1

Source: New York Stock Exchange, American Stock Exchange, Morgan Stanley Capital International Perspectives.

**TABLE 2**  
**Industry Composition of ADRs Listed on the New York**  
**and American Stock Exchanges: 1982-1992**

Exchange	Industry	Sample Size
<i>New York Stock Exchange</i>	Auto	1 (1)
	Banking	10 (6)
	Beverage-Tobacco	1 (1)
	Broadcasting	1 (1)
	Chemicals	2 (2)
	Construction	1 (0)
	Durables	1 (1)
	Electricity	1 (0)
	Energy	7 (7)
	Forestry	2 (1)
	Gold-mining	4 (3)
	Health	4 (3)
	Industrial Components	2 (2)
	Insurance	3 (3)
	Leisure	1 (1)
	Merchandise	1 (1)
	Metals-Nonferrous	2 (1)
	Metals-Steel	1 (1)
	Miscellaneous-Commodities	1 (0)
	Miscellaneous-Material	1 (1)
	Mobile Telecom	1 (1)
	Multi-industry	4 (3)
	Public Services	2 (1)
	Recreation	1 (1)
	Telecommunications	6 (4)
	Textiles	1 (1)
	Transport-Air	1 (1)
	Transport-Rail	1 (0)
	Transport-Shipping	1 (1)
	Utility	3 (3)
<i>American Stock Exchange</i>	Chemicals	2 (1)
	Energy	3 (2)
	Health	1 (1)
	Metals-Nonferrous	1 (1)
	Multi-industry	1 (0)

Sample Distribution is by industry. Figures in parentheses indicate the usable number of firms in our sample).

Source: New York Stock Exchange, American Stock Exchange, Morgan Stanley *Capital International Perspectives*.

## EMPIRICAL RESULTS

### *Cross-Listing and Valuation: Unbenchmarked and Benchmarked Results*

We first examined the price ratios using unadjusted valuation relatives *not* benchmarked by the country or industry valuation changes (not reported as a table). Our basic finding is that cross-listing is associated with neither an increase nor a decrease in valuation. Using the unbenchmarked price-to-book (*PBV*) measure, the data suggest that listing on the NYSE or ASE corresponded to a slight *decline* in relative valuation (the ratios are .989, .984

and .978 for the one-month, three-month and six-month data, respectively; none of these ratios is significantly different from 1.0). Prima facie, the unbenchmarked *PBV* measure appears to suggest that cross-listing neither created nor destroyed value for home country shareholders. The results are similar using the two other unbenchmarked measures of valuation, *PCE* (1.000, 1.004 and .987, respectively) and *PE* (1.010, 1.024 and 1.034, respectively). None of the values is significantly different from 1.0. Thus, the unbenchmarked results suggest that even if stock prices rose for the average firm, they did not rise significantly more than the firm's book value, cash flow, or earnings – i.e., it would appear that nothing exceptional happened to these companies over the period of one, three, or six months after listing, compared to equivalent periods before listing.

However, the country-benchmarked and industry-benchmarked results are more revealing (Table 3). Panel 1, Table 3 holds constant the movements in the valuations of other companies in the listing firm's home country. In every measurement period, and in the case of each of the country-benchmarked price ratios (where *PBV*, *PCE* and *PE* are now called *CRTIOPBV*, *CRTIOPCE* and *CRTIOPE*, respectively), we observe that the value of cross-listed stocks rose. Many of the measures are statistically significant. For instance, using the country-benchmarked price-to-book valuation relative, the stock price of the NYSE and ASE listing companies rose by 4% to 10% more than the stocks in the home markets rose relative to their book values over similar periods. These percentages imply rather large changes in absolute magnitudes of value.

Panel 2, Table 3 is analogous to Panel 1 except that it adjusts for the MSCI worldwide *industry* index, rather than for home market factors (where *PBV*, *PCE* and *PE* are now called *IRTIOPBV*, *IRTIOPCE* and *IRTIOPPE*, respectively). These measures might be thought of as a crude attempt to adjust for the "global" business risk of the cross-listing firm.<sup>12</sup> We note from Panel 2, Table 3 that all of the industry-benchmarked valuation relatives exceed 1.0., and all of them are statistically significantly higher than 1.0 at satisfactory levels of significance (indeed, many are significant at the 1% level). Again, as in the case of the country-benchmarked valuation relatives, the average listing firm's stock price rises by between 4% and 10% relative to the stock prices of its global industry counterparts.

For a subset of our sample, we were able to obtain enough daily data on home country stock prices and home country market returns for twenty-one (out of the fifty-seven) companies to undertake an event study. While we do not present all the details here (since our focus in this paper is on the price ratios, and our event study sample size is admittedly small), our intention was to examine whether, for a small window around the listing date, we would find results similar to those found in previous studies, and whether our results on

**TABLE 3**  
**Mean Country-Adjusted (Panel 1) and Industry-Adjusted (Panel 2)**  
**One-Month, Three-Month and Six-Month Ratios of Post-Listing to**  
**Pre-Listing Price-to-Book Value, Price-to-Cash Earnings, and**  
**Price-to-Earnings for Foreign Firms Listing on the NYSE and ASE**  
**During the Period 1982-1992**

Panel 1			
# Months Pre- and Post-Listing	<i>CRTIOPBV</i> <sup>1</sup> (n = 57)	<i>CRTIOPCE</i> <sup>2</sup> (n = 42)	<i>CRTIOPE</i> <sup>3</sup> (n = 56)
1 Month	1.040 (1.60)*	1.037 (1.14)	1.020 (.82)
3 Months	1.065 (2.58)***	1.029 (1.20)	1.102 (1.36)
6 Months	1.102 (3.07)***	1.078 (2.32)**	1.083 (1.45)
Panel 2			
# Months Pre- and Post-Listing	<i>IRTIOPBV</i> <sup>4</sup> (n = 57)	<i>IRTIOPCE</i> <sup>5</sup> (n = 42)	<i>IRTIOPPE</i> <sup>6</sup> (n = 56)
1 Month	1.047 (2.28)**	1.066 (2.41)***	1.144 (1.67)*
3 Months	1.064 (2.32)***	1.049 (1.90)**	1.077 (1.77)*
6 Months	1.098 (3.06)***	1.098 (2.59)***	1.100 (2.08)**

<sup>1</sup>The ratio of post-listing months' price-to-book value to the pre-listing months' price-to-book value, adjusted for the post- and pre-listing price-to-book value of the firm's home country market index.

<sup>2</sup>The ratio of post-listing months' price-to-cash earnings to the pre-listing months' price-to-cash earnings, adjusted for the post- and pre-listing price-to-cash earnings of the firm's home country market index.

<sup>3</sup>The ratio of post-listing months' price-to-earnings to the pre-listing months' price-to-cash earnings, adjusted for the post- and pre-listing price-to-earnings of the firm's home country market index.

<sup>4</sup>The ratio of post-listing months' price-to-book value to the pre-listing months' price-to-book value, adjusted for the post- and pre-listing price-to-book value of the firm's industry.

<sup>5</sup>The ratio of post-listing months' price-to-cash earnings to the pre-listing months' price-to-cash earnings, adjusted for the post- and pre-listing price-to-cash earnings of the firm's industry.

<sup>6</sup> The ratio of post-listing months' price-to-earnings to the pre-listing months' price-to-cash earnings, adjusted for the post- and pre-listing price-to-earnings of the firm's industry.

The t-statistics in parentheses are for the test of whether the ratio is significantly different from 1.

\*significant at 10% in a two-tail test; \*\*significant at 5% in a two-tail test.; \*\*\*significant at 1% in a two-tail test.

price ratios would continue to hold for this subgroup. For this subgroup, we found the abnormal return for day  $-1 = .01\%$ , ( $t = 0$ ), for day  $0 = -.01\%$  ( $t = 0$ ), and for day  $+1 = -1.23\%$  ( $t = 2.21$ ). In other words, consistent with the findings in many of the previous studies, we find that the announcement effect of the listing decision in a subset of our sample is slightly negative on the day after listing. The cumulative abnormal return for the  $[-1, +1]$  window is not significant.<sup>13</sup> We then compared our results on country- and industry-adjusted

price ratios for this subgroup with our non-event study sample, and these results are shown in Table 4.<sup>14</sup> We note that out of the eighteen ratios, the event study sample has higher price ratios in twelve cases. However, the difference in the price ratios between the event-study sample and the non-event study sample is not significant at reasonable levels in fourteen out of the eighteen cells, suggesting that the price ratios in our event study subsample do not behave any differently from the rest of our sample.

In summary, our country-benchmarked and world industry-benchmarked analysis of the price-to-book, price-to-cash earnings, and price-to-earnings ratios of foreign firms cross-listing their ADRs on the NYSE and the ASE suggests that such listing is, on balance, associated with a rise in valuation, and hence, a reduction in expected returns. These results remain qualitatively the same in a small subsample on which listing-day abnormal returns are similar to those found in previous event studies. We also find that these valuation effects persist for at least up to six months after the cross-listing month.

**TABLE 4**  
**Mean Country-Adjusted and Industry-Adjusted One-Month, Three-Month and Six-Month Ratios of Post-Listing to Pre-Listing Price-to-Book Value, Price-to-Cash Earnings, and Price-to-Earnings for the Event Study Sample and Non-Event Study Sample for Foreign Firms Listing on the New York and American Stock Exchanges During the Period 1982-1992**

Period	Ratio <sup>1</sup>	Event Study Sample (N = 21) <sup>2</sup>	Non-Event Study Sample (N = 36) <sup>3</sup>	t
1-Month	<i>CRTIOPBV</i>	1.1103	1.0056	2.05**
	<i>CRTIOPCE</i>	1.0083	.9929	1.79*
	<i>CRTIOPE</i>	1.0742	.9888	1.88*
3-Month	<i>CRTIOPBV</i>	1.0729	1.0613	-.21
	<i>CRTIOPCE</i>	1.0204	1.0346	-.28
	<i>CRTIOPE</i>	1.0370	1.0865	-.30
6-Month	<i>CRTIOPBV</i>	1.1149	1.0828	.87
	<i>CRTIOPCE</i>	1.1426	1.0404	1.48
	<i>CRTIOPE</i>	1.2022	1.0256	1.48
1-Month	<i>IRTIOPBV</i>	1.1030	1.0197	1.97*
	<i>IRTIOPCE</i>	1.1022	1.0403	1.11
	<i>IRTIOPPE</i>	1.1018	1.1654	-.35
3-Month	<i>IRTIOPBV</i>	1.0956	1.0501	.76
	<i>IRTIOPCE</i>	1.0725	1.0340	.72
	<i>IRTIOPPE</i>	1.0715	1.0794	-.08
6-Month	<i>IRTIOPBV</i>	1.1303	1.0779	.82
	<i>IRTIOPCE</i>	1.0619	1.1533	-1.23
	<i>IRTIOPPE</i>	1.1165	1.0924	.25

<sup>1</sup>For definitions of these variables, see Table 3.

<sup>2</sup>For the PCE ratios, the event study sample size is only sixteen.

<sup>3</sup>For the PCE ratios, the non-event study sample size is only twenty-six.

The t-statistics are for the test of difference between the two samples.

\*\*significant at 5%; \*significant at 10%

**Robustness of Our Results<sup>15</sup>**

Next, we examine whether our results are robust to the time during the month at which the firm listed: for example, if the firm listed early on during the month, it would perhaps be more appropriate for us to consider the second month prior to the listing month as the first pre-listing month, and the month of the listing as the first post-listing month. In order to undertake this analysis, we reexamined the valuation effects separately for three subsets of the data: those that listed in the first week of the month ( $N=10$ ), those that listed in the last week of the month ( $N=14$ ), and those that listed in the two weeks in between ( $N=30$ ), for all three time periods: one month, three months and six months.

The results of this analysis are shown in Table 5. We note from Table 5 that there are only three instances in which there is a significant difference between

**TABLE 5**  
**Mean Country-Adjusted and Industry-Adjusted One-Month, Three-Month and Six-Month Ratios of Post-Listing to Pre-Listing Price-to-Book Value, Price-to-Cash Earnings, and Price-to-Earnings by Week of Listing During the Listing Month for Foreign Firms Listing on the New York and American Stock Exchanges During the Period 1982-1992**

Period	Ratio <sup>1</sup>	Firms Listing During		
		Week 1 ( $N = 12$ ) <sup>2</sup>	Week 4 ( $N = 14$ ) <sup>3</sup>	Weeks 2&3 ( $N = 31$ ) <sup>4</sup>
1-Month	<i>CRTIOPBV</i>	1.0955 (1.31)	1.0110 (.10)	1.0158
	<i>CRTIOPCE</i>	1.1145 (1.77)	1.0044 (.12)	.9976
	<i>CRTIOPE</i>	1.0651 (1.07)	1.0051 (.10)	.9989
3-Month	<i>CRTIOPBV</i>	1.0571 (.14)	1.0785 (.57)	1.0476
	<i>CRTIOPCE</i>	1.0600 (.66)	1.0020 (.11)	1.0153
	<i>CRTIOPE</i>	1.0320 (.23)	1.0275 (.27)	1.0067
6-Month	<i>CRTIOPBV</i>	1.0096 (.20)	1.1423 (.67)	1.0810
	<i>CRTIOPCE</i>	1.1380 (.84)	1.1049 (.55)	1.0531
	<i>CRTIOPE</i>	1.1685 (.48)	1.0001 (.48)	1.0896
1-Month	<i>IRTIOPBV</i>	1.0934 (1.33)	1.0818 (1.12)	1.0215
	<i>IRTIOPCE</i>	1.1629 (2.05)	1.1144 (1.35)	1.0205
	<i>IRTIOPPE</i>	1.2305 (1.55)	1.1670 (.09)	1.1511
3-Month	<i>IRTIOPBV</i>	1.0598 (.32)	1.1176 (1.13)	1.0360
	<i>IRTIOPCE</i>	1.0427 (.37)	1.1714 (2.40)**	1.0192
	<i>IRTIOPPE</i>	1.1862 (1.41)	1.2362 (1.91)*	1.0160
6-Month	<i>IRTIOPBV</i>	1.0944 (.35)	1.1903 (1.36)	1.0603
	<i>IRTIOPCE</i>	1.0641 (.99)	1.2341 (1.40)	1.1309
	<i>IRTIOPPE</i>	1.0384 (.13)	1.3412 (2.09)**	1.0512

<sup>1</sup>For definitions of these variables, see Table 3 and 4.

<sup>2</sup>For the PCE ratio, the Week 1 sample size is only 8.

<sup>3</sup>For the PCE ratio, the Week 4 sample size is only 10.

<sup>4</sup>For the PCE ratio, the Weeks 2&3 sample size is only 24.

The *t*-statistics in parentheses are for the difference between the Week 1 sample and Weeks 2&3 sample, and the Week 4 sample and Weeks 2&3 sample, respectively.

\*significant at 5%; \*\*significant at 10%.

those firms that listed in the middle of the month and those that listed either in the beginning or the end of the month: the industry-adjusted three-month *PCE* and *PE* and six-month *PE* for the “Week 4” firms. The remaining thirty-three ratios are not significantly different, suggesting that our results are fairly robust to the time during the month in which the firm listed.<sup>16</sup>

The one other issue that may potentially affect our results is the following: the listing firm may change its financial policies (e.g., payout and capital raising policies, capital structure, and so forth) following the listing so as to affect our ratios in a way that makes our results look favorable. We first compared the accounting values before and after listing: the average ratio of post-listing to pre-listing book values – at the end of six months after the listing month compared to the values six months prior to the listing month – for the firms in our sample is .98, cash earnings is 1.02, and earnings is .97, suggesting that there are no significant upward or downward revisions of key accounting numbers for at least up to six months following the listing.<sup>17</sup> We then examined the listing firms’ dividend payout ratios and debt-equity ratios for a similar period surrounding the listing month; again, we found no statistically significant changes. It would thus appear that the listing firms’ financial policies remained roughly the same, at least during a one-year window around the listing month (i.e., a six-month window on each side of the listing month).

### *Examination of the Cross-Sectional Variation in Price Ratios*

We attempted detailed cross-sectional analysis of possible sources of country-based variation in our data, using a set of plausible country-based explanatory variables. Specifically, we constructed country dummies to examine whether the following variables helped explain the differences in price ratios across listing firms: (i) The size of the home country market relative to home country GNP, as a proxy for the quality of home country market liquidity and volume of trading; (ii) The quality of home country financial reporting and disclosure rules (based on data provided by the International Organization of Securities Commissions on the frequency, timeliness, and breadth of coverage of accounting data relative to the U.S. GAAP) to examine whether migration from “low information” to “high information” contexts would enhance valuations; (iii) Whether the home country has investment-constraining taxes and regulation that could lead to potential overvaluation in the home market, and consequently lower beneficial valuation effects to listing abroad (i.e., the reverse of the “super risk premia” argument advanced by Errunza and Losq [1985]);<sup>18</sup> and (v) Whether the home country could be classified as having an Anglo-American style of corporate governance or non-Anglo-American style.

Our cross-sectional analysis reveals absolutely no patterns – essentially, we are unable to explain the cross-sectional variation using any of our chosen country-based indicators.<sup>19</sup> Since we did not find anything significant, we do not present the results here in the interest of brevity.



We expected that companies listed on comparatively underdeveloped financial markets with differences in governance systems from that of the U.S., or those from poor reporting environments, or those from countries with high regulation and taxation on outward investment flows (for instance, Spain) would have enjoyed more beneficial valuation effects from listing in the U.S. This is not the case. Similarly, we expected that companies from countries with well-developed financial markets, with governance systems similar to that of the U.S, strong disclosure requirements, and relatively low regulation and taxation on outward investment flows (for instance, the U.K), would not have substantially enhanced their valuations by cross-listing, but they do. The absence of any strong cross-sectional findings may reflect broader biases that we cannot control for in our sample: for example, during the period 1982-1992, no firms from countries with particularly weak disclosure environments and

**TABLE 6**  
**Mean Country-Adjusted One-Month, Three-Month and**  
**Six-Month Ratios of Post-Listing to Pre-Listing Price-to-Book**  
**Value (*CRTIOPBV*), and Price-to-Earnings (*CRTIOPE*) for**  
**Foreign Firms Listing on the New York and American**  
**Stock Exchanges During the Period 1982-1992, by**  
**Home Country of Listing**

Country		1-Month	3-Month	6-Month
Australia (n = 8)	<i>CRTIOPBV</i>	1.071	1.123	1.162
	<i>CRTIOPE</i>	1.079	1.049	1.057
British W. Indies (n = 1)	<i>CRTIOPBV</i>	.899	.922	.936
	<i>CRTIOPE</i>	.902	.611	.327
Canada (n = 11)	<i>CRTIOPBV</i>	1.069	1.155	1.251
	<i>CRTIOPE</i>	.956	.922	.975
France (n = 4)	<i>CRTIOPBV</i>	1.111	1.048	1.062
	<i>CRTIOPE</i>	.891	1.647	1.205
Hong Kong (n = 1)	<i>CRTIOPBV</i>	.887	1.111	.953
	<i>CRTIOPE</i>	.886	1.111	1.115
Ireland (n = 1)	<i>CRTIOPBV</i>	.902	.763	.668
	<i>CRTIOPE</i>	.902	.845	.780
Italy (n = 3)	<i>CRTIOPBV</i>	1.094	1.106	1.164
	<i>CRTIOPE</i>	1.062	1.072	1.083
Japan (n = 1)	<i>CRTIOPBV</i>	.997	1.147	1.172
	<i>CRTIOPE</i>	.996	1.012	1.114
Mexico (n = 2)	<i>CRTIOPBV</i>	.955	.973	1.037
	<i>CRTIOPE</i>	.868	.921	.880
Netherlands (n = 2)	<i>CRTIOPBV</i>	.967	.955	.998
	<i>CRTIOPE</i>	.969	.961	1.013
Norway (n = 2)	<i>CRTIOPBV</i>	1.065	1.012	1.051
	<i>CRTIOPE</i>	.870	2.167	2.086
Spain (n = 4)	<i>CRTIOPBV</i>	.965	1.116	1.155
	<i>CRTIOPE</i>	.943	1.033	1.007
U.K. (n = 15)	<i>CRTIOPBV</i>	1.035	1.011	1.035
	<i>CRTIOPE</i>	1.064	1.052	1.111

**TABLE 7**  
**Mean Industry-Adjusted One-Month, Three-Month and Six-Month**  
**Ratios of Post-Listing to Pre-Listing Price-to-Book Value (*IRTIOBPV*),**  
**and Price-to-Earnings (*IRTIOPE*) for Foreign Firms Listing on the**  
**New York and American Stock Exchanges During the**  
**Period 1982-1992, by Home Country of Listing**

Country		1-Month	3-Month	6-Month
Australia (n = 8)	<i>IRTIOBPV</i>	1.089	1.136	1.178
	<i>IRTIOPE</i>	1.061	1.063	1.072
British W. Indies (n = 1)	<i>IRTIOBPV</i>	.917	.917	.960
	<i>IRTIOPE</i>	.920	.913	.952
Canada (n = 11)	<i>IRTIOBPV</i>	1.088	1.175	1.258
	<i>IRTIOPE</i>	.991	.950	1.005
France (n = 4)	<i>IRTIOBPV</i>	1.044	1.063	1.018
	<i>IRTIOPE</i>	1.107	1.137	1.097
Hong Kong (n = 1)	<i>IRTIOBPV</i>	.951	1.035	1.111
	<i>IRTIOPE</i>	.953	1.021	1.212
Ireland (n = 1)	<i>IRTIOBPV</i>	.854	.779	.630
	<i>IRTIOPE</i>	1.028	1.121	1.035
Italy (n = 3)	<i>IRTIOBPV</i>	1.115	1.169	1.261
	<i>IRTIOPE</i>	1.067	1.127	1.148
Japan (n = 1)	<i>IRTIOBPV</i>	.944	1.147	1.210
	<i>IRTIOPE</i>	1.133	1.229	1.606
Mexico (n = 2)	<i>IRTIOBPV</i>	.898	.764	.780
	<i>IRTIOPE</i>	.850	.876	.958
Netherlands (n = 2)	<i>IRTIOBPV</i>	1.031	.896	.921
	<i>IRTIOPE</i>	1.050	1.044	1.204
Norway (n = 2)	<i>IRTIOBPV</i>	1.044	1.070	1.124
	<i>IRTIOPE</i>	.920	.901	.838
Spain (n = 4)	<i>IRTIOBPV</i>	.970	.982	1.040
	<i>IRTIOPE</i>	1.225	1.174	1.221
U.K. (n = 15)	<i>IRTIOBPV</i>	1.053	1.038	1.051
	<i>IRTIOPE</i>	1.371	1.170	1.180

dramatically different governance systems (e.g., Germany or Switzerland) listed their stocks on the NYSE and ASE.

For the sake of completeness, Tables 6 and 7 show benchmarked valuation relatives by home country of the cross-listing company. Table 6 shows country-benchmarked valuation relatives and Table 7 shows industry-benchmarked valuation relatives. A casual examination of these two tables appears to suggest no *prima facie* cross-sectional patterns.<sup>20</sup>

A simple interpretation of the absence of any findings of note in explaining the cross-sectional variation in our data is the following: cross-listing has beneficial effects by reducing the deleterious effects of international capital market segmentation, regardless of where the listing firm originated.

## CONCLUSION

This study's findings are consistent with those of past analyses, although it departs from the customary event study methodology. It complements the assessment of short-term abnormal stock returns as metrics of wealth changes by instead considering *price* changes relative to accounting foundations such as book value, cash earnings, and earnings that are benchmarked by the home country stock market and stocks in the listing firm's global industry. We ask if the "same" financial value is worth more to home country investors due to cross-listing, and the answer is "yes, on balance, for at least up to six months after such listing." In summary, our results suggest that cross-listing tends to enhance corporate valuations, by up to 10% relative to country and world industry benchmarks of the listing firms. Interestingly, we are unable to explain the cross-sectional variation in the valuation increases using a set of plausible country-based indicators such as quality of home market disclosure, home market size, style of home market corporate governance, tax and regulatory restrictiveness of the home market, etc.

Thus, we interpret our results to suggest that cross-listing by foreign firms using sponsored ADRs on the New York Stock Exchange and the American Stock Exchange increases the firms' equity values and thereby lowers their cost of capital by simply mitigating the adverse effects of international capital market segmentation.

## NOTES

1. Of course, the inverse relationship between prices and expected returns would imply that an increase in prices should be, *ceteris paribus*, consistent with a decrease in expected returns. See pages 73-75.
2. Although their total sample of firms for the analysis of first trading day and on is 346, it falls to 153 firms for the analysis of listing acceptance day, and to 42 firms for the listing application day.
3. However, they note that these negative returns were driven by two of the ten exchanges in their sample – Tokyo and Basel.
4. See also Howe, Madura and Tucker [1993], who found an increase in the implied volatility of the stock around the time of cross-listing. They found, however, that the effect was more pronounced for the earlier period in their sample (1973-78).
5. We do, however, examine the single-factor model too, for a subset of twenty-one firms in our sample for which we could obtain daily foreign stock price data. We also compare our results on price-ratios in the non-event study sample to those from the event study sample of twenty-one firms, and find little difference between the two samples in the results based on our price ratio methodology (see page 79 and Table 4).
6. See below for a detailed discussion of the institutional features of ADRs, including "sponsored" versus "unsponsored" ADRs.
7. Transaction costs associated with ADRs can be non-trivial. Depository banks typically collect fees of 1¢ per share for dividends of 25¢ or less, 2¢ for dividends over 25¢ per share, and charge between \$3.00 and \$5.00 per hundred shares to exchange ADRs for underlying shares [Officer and Hoffmeister 1987].

8. For a detailed description of the different listing requirements on the three exchanges, see Foerster and Karolyi [1993].

9. That is, earnings plus depreciation and amortization.

10. An example would perhaps make this discussion clearer. Consider a pre- and post- one-month window. Suppose a listing firm's one-month price-to-book prior to listing is 1.5, and its one-month price-to-book in the month after listing is 1.8. Suppose similar values for the month before and the month after for the listing firm's home country stock market were 1.5 and 2.0. The *unbenchmarked PBV* ratio for the listing firm would be  $1.8/1.5 = 1.2$  (or, greater than one), seemingly suggesting that the firm's price performance improved after cross-listing; however, from our perspective, its *country-benchmarked PBV* ratio would be  $1.2/(2/1.5)$ , or less than one, suggesting that the firm's price performance actually worsened (i.e., its cost of equity became higher) after the listing when the firm is compared to all the firms in its home country stock market. The analysis with respect to the world industry benchmark is similar.

11. Cash flow data were available for fewer firms. Accordingly, the sample size for the analysis of *PCE* price ratios is lower, at 42 (i.e., about a 50% coverage).

12. Ideally, we would have liked to compare the performance of the listed firm against firms in the same industry in the listing firm's home country stock market; however, given the imperatives of hand collection of data, this was difficult to do. Since most of the cross-listing companies on the NYSE and ASE are fairly large multinational firms, we made the assumption that their cash flows are likely to be as sensitive to global industry conditions as they are to their home country economic conditions. The names of our sample firms will be provided upon request.

13. We examined a slightly longer window of up to ten days before and after the listing day and did not find abnormal returns that were consistently significant before or after the listing.

14. We are grateful to the referees for directing our analysis to this comparison.

15. We are grateful to the referees for raising this issue.

16. To take another cut at this issue, we reexamined the valuation effects for a period of plus or minus *five* months surrounding the listing month (since we had collected data for only plus or minus six months) for all the firms, by categorizing the firms as follows: a) For those firms listing in the first week of the month, we chose the listing month as the first post-listing month, and the second month prior to the listing month as the last pre-listing month; b) For those firms listing in the last week of the month, we chose the second month after the listing month as the first post-listing month, and the listing month as the last pre-listing month; c) For those firms listing in the two weeks in between, we took the months before and after the listing month as the last pre- and first post-listing months (i.e., as we do with our standard analysis, except that we look at five-month windows instead of six-month windows). Here again, we found that our results did not change. We do not present these results here in the interest of brevity.

17. Indeed, we also reanalyzed the data by adjusting prices for only *pre-listing* (rather than both pre- and post-listing) book values, cash earnings, and earnings (and similarly for the home country and industry indices), and found results that are nearly identical to those reported in Table 3. Again, we do not report the details here, but shall be happy to provide them upon request.

18. We are grateful to the referees for directing our analysis to this issue. The dummy for the tax variable was constructed using the sum of the corporate and interest/dividend income tax rate, with countries above the median being classified as "high tax" countries and the rest "low tax." The dummy for high or low regulation was constructed using two factors: (i) whether rules for equity investment differ substantially between foreign and domestic investors; and (ii) whether all home country investors are allowed to open a bank account abroad (these data were drawn from various issues of Price Waterhouse country information guides). If the answer to the first criterion was "yes" and the second criterion "no," then the

country was classified as “high regulation.” We also tried alternate categorizations, the details of which we do not report since none were significant.

19. Following the referees’ suggestion, we examined whether countries with a preponderance of cyclical stocks had different valuation effects compared to those with less cyclical stocks. We found no cross-sectional effects that were able to explain the variation in the data. We also examined whether the fact that some of the ADRs traded as “pink sheets” prior to listing made any difference to the valuation ratios – one may have expected that the cost of capital benefits to those ADRs that were already traded in the U.S. would be lower than those that were not. Again, no significant effects were found.

20. However, as one of the referees pointed out, the one-month results for countries with just one or two firms represented in the sample appear to show no positive valuation effects. We are unable to explain this result.

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