



The pricing of U.S. IPOs by seasoned foreign firms

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Abstract

We examine the pricing of U.S. initial public offerings (IPOs) by foreign firms that are already seasoned in their domestic countries. Presumably, these equity offers have less downside risk for investors than typical IPOs since domestic share prices can be used to help establish a preoffer value for the firm's equity. In spite of the presumed diminished downside risk, we find that offers by firms from countries that impose foreign ownership restrictions and capital controls are on average underpriced, experiencing an average first-day return in the United States of 12.7%. This result stems in part from the underwriter's failure to price the issue to fully reflect the postoffer premium that often arises for the U.S. shares. In contrast, offers by firms from countries without ownership restrictions have an average first-day return of 0.0%.

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1. Introduction

In recent years, an increasing number of seasoned foreign firms have employed U.S. underwriters to simultaneously sell equity in the United States for the first time and initiate an American Depository Receipt (ADR) program. This coincides with the increasing integration of primary equity markets and the popularity of U.S. underwriting methods (Ljungqvist, Jenkinson, & Wilhelm, 2003), and the growing use of ADR programs (e.g.,

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Karolyi, 1998; Miller, 1999). U.S. initial public offerings (IPOs) by seasoned foreign firms are institutionally similar to typical U.S. IPOs in that equity shares are offered and traded in the United States for the first time. Uncertainty regarding the firm's quality (particularly given its foreign nature) has the potential to induce underwriters to underprice these offers according to the intuition by Benveniste and Spindt (1989) and Rock (1986).² Offsetting this uncertainty, however, is the fact that these firms already have common stock trading in their domestic country's stock market prior to the U.S. IPO. As is the case for seasoned equity offers (SEOs) by U.S. firms, the existence of a preoffer price based on secondary market trading reduces uncertainty and the need for underpricing according to traditional underpricing models.

How are U.S. IPOs of seasoned foreign firms priced? To investigate this question, we examine a sample of these offers during 1989–2001, and find that a predictable subsample of firms has significant underpricing on average. Specifically, the governments of some countries impose capital controls, limits on the overall percentage of a firm's stock that can be owned collectively and usually also individually by foreign investors, and barriers to converting domestic shares to ADR shares and vice versa. We find that the U.S. offers by these *ownership-restricted* firms have an average first-day return of 12.7% and an average U.S. index-adjusted return from the offer price through the 25th trading day of 7.5%.³ In contrast, offers by firms from other countries have an average first-day return of 0.0% and an average return from the offer price through the 25th trading day of –7.5%. To a large extent, the underpricing of ownership-restricted firms is due to the postoffer premium at which the U.S. shares trade (relative to the prices of the domestic country shares).⁴ Underwriters fail to fully set the offer price in anticipation of this premium, perhaps due to uncertainty over its value and, hence, the risk of overpricing an issue that can be interpreted in many ways as an SEO.

Given the emerging nature of the economies in which these firms operate and the less developed nature of the domestic stock markets in which they trade, there may also be concerns over whether the shares in the domestic market are overvalued. However, we do not find that the average domestic return around the offer, which should be influenced by any new valuation information revealed in U.S. prices, warrants serious concern about mispricing in the domestic market of firms with ownership restrictions.

² Rock offers a model in which new issues are underpriced to compensate less informed investors for the “winner's curse” they face when subscribing to offered shares. Benveniste and Spindt present a model in which new issues are underpriced to compensate more informed investors for revealing their information about the value of shares to be offered. See Ritter and Welch (2002) for a review of these and other theories of IPO underpricing.

³ The precise nature of the restrictions for these firms varies. In all cases, however, there are government-imposed limits on foreign ownership of domestic shares and barriers to engaging in cross-market transactions between ADR and domestic country shares. We use the term *ownership-restricted* to distinguish these firms and broadly capture the barriers that exist.

⁴ As we discuss later, when firms in segmented markets have a share class that is relatively unrestricted compared to its domestic shares, the shares with fewer restrictions have been found to trade at premiums to the more restricted shares. For example, the data in Domowitz, Glen, and Madhavan (1997) imply an average premium for unrestricted shares of around 8% for 21 Mexican firms during 1990–1993.

From the investor perspective, our findings suggest that potential subscribers to these issues should pay close attention to whether the offering firm has foreign ownership restrictions and indications from the investment bank as to how the offer will be priced. Attractively priced offers by firms with foreign ownership restrictions appear to be particularly appealing investments, at least in the short run. We believe these offers will become more common as firms in emerging economies look to access capital markets outside their own countries.

The remainder of the paper is organized as follows. Section 2 describes the sample. Section 3 reviews the institutional features of our offers and Section 4 discusses offer characteristics. Section 5 presents regression analysis and Section 6 concludes.

2. Sample

Our sample consists of offers during 1989–2001 and is constructed by searching equity offers in the Securities Data Corporation (SDC) database and prospectuses compiled by IPO Data Systems, Inc. Firms only nominally foreign due to their incorporation in tax-haven countries such as Bermuda are eliminated. Our goal is to identify offers in which the investment bank can use the preoffer, domestic country price (converted to U.S. dollars) for guidance when pricing the U.S. offer. We therefore check the trading history of each firm’s stock using Bloomberg and eliminate those not listed and traded in their domestic country before the U.S. offer. We also eliminate firms that offer securities in the U.S. that are not comparable to the common shares trading in their domestic countries. This can occur if the securities underlying the ADRs offered in the United States are units, for example. We also confirm that the firm does not have common stock in the United States prior to the offer, which includes “pink sheet” listings. This ensures that

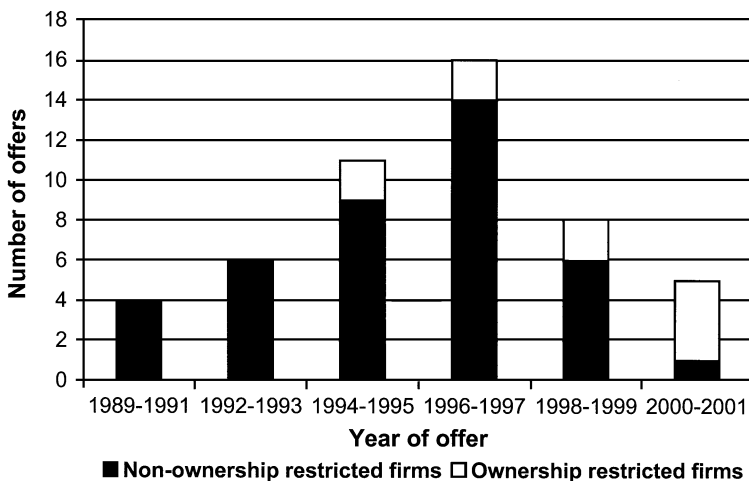


Fig. 1. U.S. IPOs by seasoned foreign firms through time.

Table 1
Fifty U.S. IPOs by seasoned foreign firms, 1989–2001

Name of firm	Country of origin	Offer date	Foreign ownership restriction
ActivCard	France	03/15/2000	None
Administradora de Fondos de Pensiones Provida	Chile	11/16/1994	None
AXA	France	06/24/1996	None
Banco de A. Edwards	Chile	11/02/1995	None
Benetton Group	Italy	06/08/1989	None
Cable and Wireless	United Kingdom	09/26/1989	None
Chilgener	Chile	07/19/1994	None
Compagnie Generale de Geophysique	France	05/07/1997	None
Delta Galil Industries	Israel	03/25/1999	None
Distribucion y Servicio D&S	Chile	10/07/1997	None
Dr. Reddy's Laboratories	India	04/11/2001	74%
Eidos	United Kingdom	12/12/1996	None
Enterprise Oil	United Kingdom	10/16/1992	None
Espirito Santo Financial Holding	Luxembourg	06/29/1993	None
Freepages Group	United Kingdom	03/03/1997	None
Great Wall Electronic International	Hong Kong	08/25/1993	None
Hafslund Nycomed	Norway	06/23/1992	None
Hellenic Telecommunications Organization	Greece	11/02/1998	None
ICICI Bank	India	03/11/2000	40%
Independent Energy Holdings	United Kingdom	07/24/1998	None
Infosys Technologies	India	03/11/1999	51%
ISS International Service System	Denmark	10/26/1994	None
Koor Industries	Israel	11/13/1995	None
Korea Electric Power	Korea	10/27/1994	8%
Korea Telecom	Korea	05/25/1999	33%
Laboratoria Chile	Chile	06/28/1994	None
Linea Aerea Nacional Chile (LanChile)	Chile	11/06/1997	None
Logitech International	Switzerland	03/27/1997	None
M.A.I.D.	United Kingdom	11/22/1995	None
Macronix International	Taiwan	05/09/1996	20%
Matav-Cable Systems Media	Israel	06/12/1996	None
Nera	Norway	06/27/1995	None
Peace Arch Entertainment Group	Canada	07/28/1999	None
Petroleum Geo-Services	Norway	05/18/1993	None
Pharmacia	Sweden	06/16/1994	None
Pohang Iron and Steel	Korea	10/14/1994	8%
Point of Sale	Israel	07/10/1998	None
Precision Drilling	Canada	11/14/1996	None
Ramco Energy	United Kingdom	03/10/1997	None
SAES Getters	Italy	05/22/1996	None
Select Appointments (Holdings) Public	United Kingdom	11/25/1996	None
Silverline Technologies	India	06/19/2000	24%
Skyepharma	United Kingdom	07/17/1998	None

Table 1 (continued)

Name of firm	Country of origin	Offer date	Foreign ownership restriction
Smedvig	Norway	11/07/1996	None
Societe Nationale Elf Aquitaine	France	06/13/1991	None
Taiwan Semiconductor Manufacturing	Taiwan	10/07/1997	25%
Total	France	10/24/1991	None
Valmet	Russia	05/30/1996	None
Wellcome	United Kingdom	07/27/1992	None
Wipro	India	10/18/2000	24%

Firm names are taken from the offer prospectus filed in the United States. Country of origin, offer date, and foreign ownership restriction are also taken from the offer prospectus.

the offer is truly an IPO (in the United States). We examine information disclosed in the prospectus to identify which firms have foreign ownership restrictions (10 have them and 40 do not). To construct return data, we use Bloomberg and the Center for Research in Securities Prices (CRSP). Finally, in many cases, one ADR share represents a claim on more or less than one domestic share. Where appropriate, we adjust our calculations to reflect the ADR share ratio involved (e.g., when comparing the U.S. offer price to the preoffer domestic share price).

Fig. 1 graphs the frequency of the offers in our sample by year. The increase in the number of offers through 1997 and the decrease through 2001 roughly coincide with the number of U.S. IPOs by firms in the United States. For example, Ritter and Welch (2002) report 482 IPOs by U.S. firms in the 1989–1991 period, 1053 during 1996–1997, and 426 during 2000–2001. This coincides with 4, 16, and 5 offers during these three periods for our sample. Another pattern is the *relative* increasing frequency of offers by firms with foreign ownership restrictions. As Fig. 1 shows, none of the 10 offers during 1989–1993 are made by such firms, compared to 6 (46%) of the 13 offers during 1998–2001. The overall pattern suggests that the frequency of U.S. IPOs by foreign firms follow “hot” and “cold” U.S. IPO markets, and that in recent years, higher proportions of U.S. IPOs by seasoned foreign firms are made by ownership-restricted firms. We believe that the percentage of offers by ownership-restricted firms will continue to increase as firms in segmented, emerging markets look to compete globally and access the capital needed to do so.

Table 1 lists the offers included in our sample. The firms represent a wide variety of countries, including highly developed countries such as France and the United Kingdom and emerging market countries such as India and Greece. Five of the 10 firms with ownership restrictions are from India, three are from Korea, and two are from Taiwan. One common feature of these firms is that due to regulations in the domestic country, equity ownership of the overall firm by foreign investors is capped by the government. Another is that due to capital flow and trade restrictions, it is not generally possible, or is at least very difficult, to convert the offered ADR shares into domestic, common shares. Regulations typically require specific government approval for cross-market transactions. For example, foreign investors wishing to convert the ADR shares of the ICICI Bank (of India) to

common shares in India must obtain approval from the Reserve Bank of India. The offer prospectus for this firm notes that “we cannot guarantee that any approval will be obtained in a timely manner or at all.” Such restrictions are common, and they act as a further barrier to integration between the domestic shares and the ADRs. As seen in [Table 1](#), the total allowable foreign ownership ranges between 8% and 51% for nine of the ownership-restricted firms, with the 10th (Dr. Reddy’s Laboratories) having a limit of 74%. These restrictions are disclosed in the offer prospectuses, and hence they are publicly observable before the offer is made.

3. A review of institutional features

Except for two Canadian firms who can directly list in the United States by virtue of their country of origin, the firms in our sample use the ADR structure for their U.S. listings. These are “Level III” ADRs since capital is raised, and the firms are required to comply with full SEC disclosure, GAAP accounting, and exchange listing requirements (NYSE or Nasdaq).⁵ This provides investors with added information relative to foreign investments that do not meet such requirements. Yet, the diversification benefits that come from investing internationally can still be achieved even though the ADRs trade and list in the United States ([Errunza, Hogan, & Hung, 1999](#)). All firms in our sample employ U.S. investment banks to underwrite their offers using the firm commitment method. Just as in traditional U.S. equity offers, an offer prospectus is filed with the SEC and the investment bank sets the final offer price the day before the offer is declared effective and trading begins.

Firms that operate in countries whose governments impose foreign ownership restrictions and barriers to international capital flows are said to operate in segmented markets. Numerous studies show that when such firms have one share class that is relatively unrestricted and open to foreign investors, these shares can trade at premiums to the more restricted shares that trade domestically. For example, [Domowitz et al. \(1997\)](#) show that shares of Mexican firms that are open to all investors trade at premiums to those restricted to being owned by only Mexicans or Mexican-controlled institutions. [Bailey and Jagtiani \(1994\)](#) find a similar result for firms in Thailand.⁶ Due to market segmentation, these premiums do not present an arbitrage opportunity and can persist indefinitely. For the 10 ownership-restricted firms in our sample, the ADR shares in the United States, which are less restricted, trade at a mean premium of 18.5% above the firm’s domestic share price by the end of the first trading month (as discussed below).

⁵ See [Miller \(1999\)](#) for a review of the institutional features of ADRs.

⁶ [Gande and Puri \(2002\)](#) examine bond issues by two Indian companies that are marketed exclusively to Indian citizens living abroad, and for which the secondary market is restricted to Indian citizens. They find that firms are able to sell the bonds at lower yields to maturities. The context we examine differs in several respects, including that the securities sold are not marketed to citizens of the firm’s country in particular, nor do the firms choose to restrict the ownership of the securities being sold.

4. Offer characteristics

Table 2 presents summary statistics for various offer characteristics, both for the overall sample and for the subsamples of firms with and without foreign ownership restrictions. Offers by firms with foreign ownership restrictions are more recent, as the mean (median) offer year is 1998 (1999) compared with 1995 (1996) for firms without restrictions. As shown by the P values, these differences are significant. As can be seen in Fig. 1, only 2, or 9.5%, of the 21 offers made in 1994 or earlier are by firms with ownership restrictions, compared with 8, or 27.6%, of the 29 offers made after.

Returning to Table 2, the mean fraction of the overall firm offered in the United States (based on the firm's total number of shares outstanding after the offer) is 5.3% for firms with ownership restrictions and 11.3% for firms without. The P value for a differences in means test shows that this difference is significant ($P=0.020$). The fraction of the firm offered globally for firms with and without ownership restrictions, however, is not significantly different between the two groups. With respect to absolute magnitudes, the mean (median) gross U.S. proceeds is US\$466.1 million (US\$177.3 million) for firms with ownership restrictions and US\$307.2 million (US\$91.6 million) for firms without them. The medians are significantly different with a P value of .038, suggesting that although ownership-restricted firms make smaller offers on a percentage basis, they actually tend to make larger offers in terms of dollars. We note that the mean gross U.S. proceeds, however, is not statistically different between the two groups. Ownership-restricted firms are also more than twice as likely to be in the technology sector, consistent with what is typical of the late 1990s offer period during which these firms tended to make their offers. As reported, the P value suggests that the two subsamples are significantly different in this respect ($P=0.083$). We also report the percentages of firms that list on Nasdaq, but the difference between the two groups is not significant.

For the overall sample, the U.S. offer price is an average 2.4% less than the domestic preoffer price (converted to U.S. dollars on the day of the offer). This offer price discount is statistically significant and is consistent with what Altinkilic and Hansen (2003) find for SEOs by U.S. firms during the 1990s. The results are quite different in each subsample, however. The offer price premium has a mean (median) of 3.6% (0.8%) for firms with ownership restrictions, versus -3.9% (-3.9%) for firms without restrictions. Although the premium for ownership-restricted firms is not statistically different from zero, we do find that the mean and median are statistically different from those of non-ownership-restricted firms ($P=0.007$ for means and $P=0.067$ for medians). We note that the mean for firms with ownership restrictions is skewed by two Korean firm offers with offer prices set 20% and 29% above the preoffer prices (not reported in table). Due to the postoffer premium of the U.S. shares, however, these two offers were still underpriced relative to the first day's closing price.

Although the offer prices of some ownership-restricted firms appear to be set with a recognition that the ADRs will trade at a postoffer premium to the domestic country ordinary shares, underpricing still occurs. This can be seen by the U.S. return from the offer price to the first day's close, which has a mean (median) of 12.7% (7.7%) for firms with foreign

ownership restrictions (the mean is significant). This compares to both a mean and median of 0.0% for the firms without ownership restrictions, and the difference between the two groups is significant ($P < 0.001$ for means and $P = 0.009$ for medians). This is several times the level of average underpricing that has been documented for typical U.S. SEOs, and is in fact more similar to that documented for IPOs in the United States prior to 1999 (see Ritter & Welch, 2002). The underpricing of the offers from ownership-restricted firms is also economically meaningful. On average, each of these offers left US\$39.4 million on the table. In contrast,

Table 2
Characteristics of 50 U.S. IPOs by seasoned foreign firms, 1989–2001

	All firms ($n=50$)	Firms with foreign ownership restrictions ($n=10$)	Firms without foreign ownership restrictions ($n=40$)	P value for difference
Offer year	1995.7 (1996.0)	1998.0 (1999.0)	1995.1 (1996.0)	0.003** (0.006**)
Fraction of firm offered in United States (%)	10.1 (9.2)	5.3 (4.1)	11.3 (10.3)	0.020** (0.009**)
Fraction of firm offered globally (%)	12.4 (10.3)	8.4 (5.4)	13.4 (10.6)	0.195 (0.280)
Gross U.S. proceeds (U.S.\$ million)	339.0 (105.2)	466.1 (177.3)	307.2 (91.6)	0.585 (0.038**)
Offers in technology sector (%)	28.0 (NA)	50.0 (NA)	22.5 (NA)	0.083 (NA)*
Offers on Nasdaq (%)	34.0 (NA)	20.0 (NA)	37.5 (NA)	0.410 (NA)
Offer price premium to domestic price (%)	-2.4** (-3.5)**	3.6 (0.8)	-3.9** (-3.9)**	0.007** (0.067*)
U.S. return from offer price to first day's close (%)	2.5* (0.0)	12.7** (7.7)	0.0 (0.0)	<0.001** (0.009**)
Amount left on the table in U.S. offer (U.S.\$ million)	8.3 (0.0)	39.4 (22.4)	0.5 (0.0)	0.003** (0.013**)
Domestic share return around offer (%)	-2.8** (-2.4)**	2.9 (2.2)	-4.2** (-2.8)**	0.006** (0.060*)
U.S. return from first day's close to Day 25 (%)	-2.6 (-1.3)	-0.6 (4.5)	-3.2 (-2.1)	0.688 (0.460)
U.S. market-adjusted return from first day's close to Day 25 (%)	-6.6** (-7.2)**	-3.7 (1.7)	-7.3** (-8.0)**	0.598 (0.484)
U.S. return from offer price to Day 25 (%)	-0.5 (0.0)	10.6 (12.5)	-3.3 (-0.4)	0.065* (0.102)
U.S. market-adjusted return from offer price to day 25 (%)	-4.5 (-4.9)	7.5 (11.1)	-7.5** (-6.8)**	0.056* (0.054*)
Premium of U.S. shares to domestic shares 1 month after offer (%)	4.4** (0.3)	18.5** (11.7)	0.9 (0.0)	<0.001** (0.022**)

the non-ownership-restricted offers left an average US\$0.5 million on the table, and the difference in the means of the two groups is significant ($P=0.003$).

As discussed previously, the offers in our sample are different from typical IPOs because a preoffer price exists for largely comparable shares (in each firm's domestic country). Assuming that preoffer domestic prices can be trusted, there is little short-term downside risk for investors in these offers compared to typical IPOs. It is possible, however, that U.S. investors have reason for concern that the preoffer domestic shares of firms with foreign ownership restrictions have higher degrees of mispricing and are more likely to be overpriced prior to the firm's equity offer. These firms are from emerging economy countries with capital markets that are less developed and subject to less oversight. This could lead to greater opportunities to stock price manipulation. One way to investigate this issue is to examine the domestic share return from before the offer to the day after the ADR shares finish their first day of trading in the United States. Presumably, the U.S. ADR shares would be more efficiently priced, and the information conveyed in the U.S. prices would translate into more efficient postoffer domestic share prices in the domestic country. In other words, any domestic share mispricing should at least be somewhat corrected by investors trading in the domestic country shares after they observe the secondary market prices of the U.S. ADR shares. As Table 2 reports, we find that the mean (median) domestic share return around the U.S. offer is 2.9% (2.2%) for ownership-restricted firms, versus -4.2% (-2.8%) for non-ownership-restricted firms. The returns for the non-ownership-restricted firms are significantly negative while those of the ownership-restricted firms are not, and the differences between the two groups of firms are statistically significant ($P=0.006$ for means and $P=0.060$ for medians). The variance of the domestic share return (not reported in the table) is also less for the ownership-restricted firms. Hence, if anything, there should be *less* concern about preoffer mispricing for ownership-restricted firms.

Notes to Table 2:

Means and medians are shown, with medians in parentheses.

Mean and median characteristics are shown, with the exception of the percent of offers in tech sector and on Nasdaq. Fraction of firm offered in the United States (or globally) is defined as the fraction of the total equity offered in the United States (or globally) based on the total global shares outstanding after the offer. Gross U.S. proceeds are in 2001 dollars. Offers in tech sector and Nasdaq are simply the number of offers in the tech sector and Nasdaq, respectively, divided by the number of offers. Offer price premium to domestic price is the ratio of the offer price to the domestic share price (in U.S. dollars) the day before the offer, minus 1. The U.S. return from offer price to first day's close is the return from the offer price to the first day's close. The domestic return around offer is the domestic price return from the last closing price prior to the offer to the second closing price after the offer commences. Amount left on the table is the number of U.S. shares times the difference between the first day's closing price and the offer price, in 2001 dollars. The U.S. return from the first day's close to day 25 is the log return starting with the first closing price and ending with the 25th trading day. The adjusted return subtracts the return on the equally weighted NYSE/AMEX/Nasdaq index from the CRSP. The returns from the offer price through day 25 are similarly constructed. P values for differences in means are from a standard t test, those for medians are from a Wilcoxon rank sums test, and those for percent of offers in tech sector or on Nasdaq are from a contingency table chi-square test.

* Denotes significance at the 10% level, from a t test for means or a sign test for medians.

** Denotes significance at the 5% level, from a t test for means or a sign test for medians.

We now examine slightly longer range returns for the ADR shares trading in the United States. For both subsamples of firms, [Table 2](#) reports that the mean return (both unadjusted and adjusted by the market) from the first day's close in the United States through the 25th trading day is negative. However, only the mean and median non-market-adjusted returns for the non-ownership-restricted firms are statistically significant. If returns are calculated from the offer price, however, the mean (median) 25-day unadjusted return for firms with ownership-restricted firms is 10.6% (12.5%) compared with -3.3% (-0.4%) for firms without them. None of these returns are statistically different than zero, but the means are significantly different between the two groups. If market-adjusted returns from the offer price are considered, the mean and median for ownership-restricted firms are 7.5% and 11.1%, respectively (although these are not significant). In contrast, the mean and median for the non-ownership-restricted firms are -7.5% and -6.8% , respectively, and both are statistically significant. The P value for the difference in means (medians) is .056 (.054). These results imply that the two types of offers translate into significantly different short-term investment opportunities for those that subscribe to the offering.

Finally, [Table 2](#) reports the postoffer premium of the ADR shares to the domestic shares 1 month after the offer. The mean (median) postoffer premium is 18.5% (11.7%) for the ownership-restricted firms, and the mean is statistically significant. By comparison, the mean (median) postoffer premium for the firms without ownership restrictions is 0.9% (0.0%). Both the means and medians are statistically different between the two groups. Hence, there are significant differences in the levels at which the ADR shares for the two groups trade in the secondary market after the offers take place.

5. Regression analysis

To better understand the pricing of the offers we examine, we turn to regression analysis. In [Table 3](#) we first present regressions to explain first-day returns (from the offer price to the first day's close in the United States). To begin, Model 1 is a baseline regression similar to that used in the study of SEOs by U.S. firms by [Altinkilic and Hansen \(in press\)](#). Altinkilic and Hansen use "discounting" as the dependent variable, which measures the extent to which the offer price differs from the share price existing prior to the offer. In contrast, we use first-day returns (from the offer price to the first day's close) as the dependent variable. Altinkilic and Hansen motivate their choice of explanatory variables, however, by drawing on various studies of first-day returns for IPOs. Briefly, the variables we use are as follows: (1) gross proceeds to control the absolute offer size; (2) relative amount (the number of shares offered globally divided by the total number of shares outstanding before the offer) to control the relative size of offer compared to the firm's total equity; (3) the inverse of the stock price (calculated using the domestic country price 5 days before the offer converted to U.S. dollars) to control prior findings that lower priced stocks are more underpriced; (4) volatility (the sample variance of monthly domestic returns over the year before the offer) to control the finding that more volatile stocks are more underpriced; (5) Nasdaq (an indicator variable equaling one if the U.S. shares will be listed on Nasdaq) to control the listing choice; and (6)

underwriter reputation (a one to nine ranking, nine being the highest reputation) to control the traditional finding that higher reputation underwriters have offers that are less underpriced. Some added detail on how these variables are constructed is noted in Table 3, but for brevity we do not discuss the motivations for these variables in detail since they are control variables that are not generally significant in our analysis (see Altinkilic & Hansen, 2003 for more extensive motivations). Our goal is not to test the significance of these variables, but rather to control for various factors motivated by prior studies.

Model 1 shows that none of the control variables are significant, suggesting they are of limited use in explaining the variability in underpricing for our particular sample. Model 2 includes an indicator variable for whether or not there are foreign ownership restrictions. This variable is positive and significant ($t=2.19$), showing that firms with ownership restrictions have higher first-day returns. Model 3 adds the offer price premium, which measures the offer price relative to the preoffer domestic price (converted to U.S. dollars). This variable will be positive if the offer is priced above the domestic share price, and negative if the offer is priced at a discount. We also add an interaction term between the foreign ownership-restriction indicator and the offer price premium. This is motivated by the finding in Table 2 that offers appear to be priced differently depending on whether there are ownership restrictions. Although the offer price premium is not by itself significantly related to the first day's return, the interaction term is weakly significant ($t=-1.89$). This implies that, not surprisingly, first-day returns are decreasing in the offer price premium for the ownership-restricted firms. Model 4 adds an indicator variable set to one for the offer by Dr. Reddy's Laboratories. As reported in Table 1, this firm has an unusually high foreign ownership restriction (74%) compared to the other ownership-restricted firms, and we wish to make sure this firm's offer does not unduly influence the results. This variable is negative and significant, implying that this firm has less underpricing. The other variables that are significant in earlier models remain so (the foreign ownership-restriction variable is positive and significant with $t=3.01$, and the interaction capturing the offer price premium for the ownership-restricted firms remains negative and significant, with $t=-2.76$).

It is possible that the results are driven by control issues. The postoffer premium of the U.S. shares to the domestic shares and, hence underpricing, may be affected by the extent to which it would be difficult for an investor to gain a controlling majority of the firm. The ease of gaining control of the firm should not only be affected by ownership restrictions on foreign investors, but also by characteristics such as antitakeover measures or other attributes that may serve as a deterrent to bidders (whether foreign or domestic). If characteristics that serve to deter takeovers are more common in ownership-restricted firms, then our inferences regarding ownership restrictions may be incorrect due to an omitted variables bias. To see whether this is the case, we code several variables. First, we search each prospectus to identify any antitakeover devices. Although we do not find evidence of poison pills, we do find that 16 firms have staggered board of director elections (six of these firms are foreign ownership restricted). We also code an indicator variable for whether the firm is domiciled in an emerging market country [most codings are obvious but we also refer to classifications by Morgan Stanley Capital International (MSCI)]. All of the ownership-restricted firms are coded as emerging market firms, and 12 of the 40 firms without ownership restrictions are

Table 3
Regressions explaining return from offer price to first day's close or 25th trading day

Model number	1	2	3	4	5	6	7	8	9
Dependent variable:	First day U.S. return						Postoffer U.S. premium		
Constant	0.096 (1.42)	0.112 (1.80)*	0.100 (2.08)**	0.092 (1.81)*	0.086 (2.50)**	-0.227 (-2.48)**	1.032 (14.64)**	1.073 (20.33)**	1.062 (21.78)**
Log (Gross proceeds)	-0.002 (-0.16)	-0.010 (-0.99)	-0.002 (-0.22)	-0.003 (-0.41)	-0.002 (-0.27)	0.001 (0.12)	0.008 (0.73)	-0.010 (-1.14)	-0.011 (-0.97)
Relative amount	-0.047 (-0.33)	-0.039 (-0.35)	-0.041 (-0.37)	0.012 (0.13)	0.001 (0.00)	-0.030 (-0.38)	-0.045 (-0.26)	0.051 (0.28)	0.104 (0.59)
1/stock price	-0.009 (-1.61)	-0.003 (-0.53)	-0.002 (-0.34)	-0.001 (-0.26)	0.001 (0.08)	0.001 (0.03)	-0.009 (-0.94)	-0.010 (-0.01)	0.001 (0.11)
Volatility	0.831 (1.54)	0.262 (0.51)	0.047 (0.09)	-0.212 (-0.40)	-0.429 (-0.93)	-0.410 (-0.76)	0.913 (1.01)	0.320 (0.37)	-0.062 (-0.08)
Nasdaq	-0.029 (-0.66)	-0.025 (-0.74)	-0.022 (-0.70)	-0.033 (-1.17)	-0.043 (-1.63)	-0.036 (-1.55)	0.001 (0.03)	-0.008 (-0.22)	-0.025 (-0.68)
Underwriter reputation	-0.007 (-1.05)	-0.006 (-0.98)	-0.009 (-1.59)	-0.007 (-1.17)	-0.009 (-1.71)*	-0.009 (-1.83)*	-0.005 (-0.57)	-0.001 (-0.15)	-0.001 (-0.01)
Foreign ownership-restriction indicator	-	0.122 (2.19)**	0.149 (2.52)**	0.184 (3.01)**	0.154 (2.77)**	0.106 (2.30)**	-	0.143 (1.97)**	0.161 (2.11)**
Offer price premium	-	-	-0.095 (-0.80)	-0.069 (-0.69)	-0.059 (-0.50)	-0.207 (-1.55)	-	0.460 (2.09)**	0.500 (2.30)**

Foreign ownership-restriction indicator×Offer price premium	–	–	–0.494 (–1.89)*	–0.663 (–2.76)**	–0.611 (–2.52)**	–0.551 (–3.40)**	–	–0.041 (–0.08)	–0.201 (–0.37)
Dr. Reddy’s Laboratories indicator	–	–	–	–0.216 (–3.19)**	–0.250 (–4.26)**	–0.177 (–3.22)**	–	–	–0.246 (–2.49)**
Staggered board	–	–	–	–	0.065 (2.78)**	0.054 (2.65)**	–	–	0.034 (1.10)
Emerging market indicator	–	–	–	–	0.019 (1.14)	0.015 (0.92)	–	–	0.014 (0.74)
Postoffer U.S. premium	–	–	–	–	–	0.295 (3.49)**	–	–	–
Adjusted R^2	.013	.242	.327	.414	.486	.596	–.046	.232	.252

Heteroscedasticity-consistent t statistics in parentheses.

All models have 50 observations.

The dependent variable in Models 1–6 is the log return from the offer price to the closing price on the first day of U.S. trading, and in Models 7–9 it is the postoffer U.S. premium. Postoffer U.S. premium is the ratio of the U.S. share price to the domestic share price (in U.S. dollars), minus 1, calculated one month after the offer. Gross proceeds are in 2001 dollars. Relative amount is the ratio of shares offered globally to the number of shares outstanding prior to the offer. 1/U.S. stock price is defined using the domestic country stock price 5 days before the offer (in U.S. dollars). Volatility is the sample variance of monthly log domestic market returns over the year prior to the offer. Nasdaq is an indicator variable set to one for offers listed on Nasdaq. Underwriter reputation is from <http://bear.cba.ufl.edu/ritter/ipodata.htm>, Jay Ritter’s IPO data website. Foreign ownership limit restriction indicator is an indicator variable set to one if foreign ownership restrictions are present according to the prospectus. Offer price premium is ratio of the offer price to the domestic share price (in U.S. dollars) the day before the offer, minus 1. Foreign ownership-restriction indicator×Offer price premium is an indicator variable set to one if there are foreign ownership restrictions times the offer price premium. Dr. Reddy’s Laboratories indicator is set to one if the offering firm is Dr. Reddy’s. *Staggered board* is an indicator variable set to one for offers by firms that have staggered boards of directors. Emerging market indicator is set to one if the offering firm is from an emerging market country.

* Denotes significance at the 10% (two-tailed) level.

** Denotes significance at the 5% (two-tailed) level.

thus coded. Emerging market countries tend to have less efficient markets, a less developed securities law code, poorer disclosure requirements, and arguably higher degrees of corruption that might make it easier for management to entrench itself. Of course, as alluded to earlier, for all of these reasons firms in emerging markets are also more difficult to value and hence may be subject to higher degrees of underpricing due to the greater uncertainty involved. We do not attempt to disentangle these two reasons for potentially greater underpricing of firms from emerging market countries. Model 5 adds both of these indicator variables and we find that only the staggered board indicator is significantly positive ($t=2.78$ for staggered board and 1.14 for emerging market).⁷ We continue to find that the ownership-restriction variables are significant. The coefficient (t value) on the foreign ownership-restriction indicator variable is 0.154 (2.77) and that on foreign ownership restriction interacted with offer price premium is -0.611 (-2.52).

In regressions not reported in Table 3, we also try several variables related to share ownership, since the ease of gaining control of the firm and managerial entrenchment are affected by the firm's ownership structure. These variables include managerial ownership, outside block shareholder ownership, the sum of the two, and the foreign ownership limit interacted with the percent of shares not owned by block shareholders (or management). Whether tried in combination or one at the time, none of these variables are significant and the ownership variables are not qualitatively affected. We have also tried a variable designed to capture the percent of shares available for foreign ownership, taking into account managerial ownership and ownership restrictions (if any). An alternative variable is also constructed that treats block shareholder ownership as being controlled by management, under the assumption that block shareholder ownership is economically similar to management's in helping to deter takeovers. We try both approaches because although some studies suggest block shareholders can increase the probability of a takeover (e.g., Shleifer & Vishny, 1986), for most of the firms we study block shareholders appear to have ties to management.⁸ Neither of these two alternative variables is significant and the results regarding the ownership variables continue to hold. The significance of the staggered board indicator variable, however, does suggest that there is more underpricing of firms in which transfer of control is more difficult.

As is the case in other studies (e.g., Bailey & Jagtiani, 1994; Domowitz et al., 1997), for the ownership-restricted firms in our sample, the shares with fewer restrictions (the U.S.

⁷ In terms of valuation uncertainty, one variable we try in the analysis is an indicator variable for whether the offer is by a technology firm. This variable is not significant and its inclusion does not materially affect ownership-restriction inferences.

⁸ As is common for non-U.S. firms, the firms in our sample tend to be closely held. We also find that block shareholders often appear to have ties to management, or sometimes the major block shareholder is the government, which may be uncooperative with hostile takeover attempts. To illustrate how we define the shares available for foreign ownership, if the foreign ownership limit is 40% and management owns 55%, we set the shares available for foreign ownership to 40% (because the ownership limit is the binding constraint if 45% of the shares are not owned by management). If the foreign ownership limit is 40% and management owns 70%, however, then we set the shares available to 30%. In the alternative variable that assumes block shareholders help deter takeovers, we simply add block shareholder ownership to managerial holdings in the calculation.

ADRs) trade at a premium on average. We refer to this as the “postoffer U.S. premium” for convenience.⁹ The mean postoffer U.S. premium for the 10 ownership-restricted firms in our sample on the first trading day is 18.5% by the end of the first month (as reported in Table 2, this premium is statistically significant). It is possible that offers by ownership-restricted firms are priced higher than the preoffer domestic prices would dictate, in anticipation of the postoffer U.S. premium that will materialize. Indeed, as mentioned previously (but not reported in a table), two firms seem to be priced in anticipation since their offer prices are 20% and 29%, respectively, above the preoffer domestic prices. The extent to which an offer is priced to anticipate the postoffer U.S. premium should obviously affect first-day returns. Therefore, in Model 6 we include the postoffer U.S. premium. Clearly, this premium cannot “predict” first-day returns since it is not known ahead of time. Rather, this variable should be interpreted as a rough estimate of the postoffer U.S. premium that might have been forecasted before the offer. As one might expect, this variable is positive and significant ($t=3.49$). The foreign ownership-restriction indicator remains significantly positive ($t=2.30$), and the interaction between the foreign ownership-restriction indicator and the offer price remains negative and significant ($t=-3.40$). Hence, underpricing is indeed more severe in ownership-restricted firms, even after controlling for a staggered board and expectations about the postoffer premium.

We have also tried re-estimating the models using the actual foreign ownership limit (e.g., 0.40 for a firm with a 40% cap, 1.00 for a firm with no limit, etc.) instead of an indicator variable. Obviously, these two variables are highly correlated and we find that the limit variable is significant although weaker than when the indicator variable is used. The implication is that simply whether a firm’s shares have ownership restrictions or not is a better predictor of first-day returns than the level of the restrictions itself. This may be because the presence of ownership restrictions proxies for whether or not there are capital flow restrictions and limits on the ability to arbitrage discrepancies between ADR shares and the domestic ordinary shares. In terms of economic significance, the regression models indicate that after controlling for other factors, the first-day returns are greater for ownership-restricted firms by at least 10% (as is indicated in Model 6 by the coefficient on the ownership indicator).

To the extent that the offer is not priced to reflect the potential premium at which the ADR shares trade after the offer, the postoffer premium will affect first-day returns. To determine the extent to which the factors in our analysis can predict the postoffer premium, we report three models where the postissue premium (a month after the offer) is the dependent variable. Model 7 repeats the baseline specification in Model 1, and again we find that none of the control variables are significant. Model 8 is analogous to Model 3, which adds the foreign ownership-restriction indicator, the offer price premium, and the interaction between the offer price premium and an ownership-restriction indicator variable. Here, the offer price premium is positive and significant ($t=2.09$), suggesting that to some extent offers are priced in

⁹ We do not mean to imply that the premium is due to the shares being traded in the United States, in particular. Rather, the literature suggests premiums can exist for shares with fewer restrictions regardless of where they are listed.

anticipation of how the ADRs will be priced in the secondary market relative to the domestic shares. As earlier results indicate, however, the postoffer premium is not fully priced for ownership-restricted firms, since these offers are underpriced on average. Finally, Model 9 adds the indicator variables for Dr. Reddy's Laboratories, a staggered board, and an emerging market firm. In both Models 8 and 9, we find that the ownership-restriction indicator variable is positive and significant, suggesting that a firm's ownership-restriction status helps to predict the postoffer premium.

Although many of the offers by ownership-restricted firms take place during the technology boom, this does not appear to drive our results. Only 5 of the 10 are technology firms. In results not reported in a table, we find the mean (median) postoffer premium is 24.1% (13.1%) for the nontech firms, and 12.9% (10.8%) for the tech firms. In both cases, the mean is statistically different from zero while the median is not, and differences between the two groups are not significant. Hence, postoffer premiums are not higher for the technology firms. Furthermore, the postoffer premiums for the tech firms do not dissipate after the technology boom ends. Although the premiums are volatile, we find that their average premium over the first 6 months of 2001 is higher than the premium 1 month after the offer for four of the five tech firms. As footnoted earlier, we have also included a technology firm indicator variable in the regressions. It is not significant and the other results are qualitatively similar.

Table 2 shows that the average return from the offer price through the 25th trading day is significantly different for the firms with ownership restrictions than for those without them. To investigate whether this holds after controlling for other factors, we repeat the regression Models 7–9, setting the dependent variable to the price return from the offer price through Day 25 (adjusted by subtracting the return on the equally weighted NYSE/AMEX/Nasdaq index from the CRSP). We do not find that any of the variables are significant. In results not reported in the table, however, if we repeat Model 7 and add *only* an indicator variable for whether ownership restrictions are present, this variable is positive and weakly significant ($t=1.80$). Thus, we do find evidence that ownership restrictions can help predict returns through the 25th day, but these results are weak. In concert with the results in Models 2 through 6, the results suggest that the ownership-restriction status is more useful in predicting very short-term returns—its predictive power begins to dissipate once returns over a few weeks are calculated. We do not extend our return analysis to longer periods because of the continuing debate over how long-run returns should be measured on a risk-adjusted basis.¹⁰ From the investor perspective, the first-day returns alone are sufficiently large to warrant interest.

6. Conclusion

A unique type of equity offer is a U.S. IPO by a foreign firm that already has stock trading in its domestic country. On the one hand, uncertainty regarding the issuing firm's

¹⁰ For example, Loughran and Ritter (1995) conclude that U.S. SEOs experience negative postoffer performance over the long run, but Eckbo, Masulis, and Norli (2000) suggest this is due to a failure to properly control for the risk characteristics of the offering firms.

value, particularly given the foreign nature of the firm, may cause underwriters to underprice these offers to attract uninformed investors (Rock, 1986) or to compensate informed investors for revealing information (Benveniste & Spindt, 1989). On the other hand, in some ways, these offers are like U.S. SEOs in that a preoffer price albeit one in a foreign market, provides information regarding the firm's value. Presumably, this reduces uncertainty and the need for underpricing due to the traditional arguments by Benveniste and Spindt (1989) and Rock (1986). In this paper, we set out to examine how U.S. IPOs by seasoned, foreign firms are priced.

We find that offers by firms from countries that do not impose foreign ownership restrictions and capital controls are priced, on average, at 3.9% below the preoffer price (U.S. dollar-converted) of the domestic shares. The first-day returns for these firms average zero. Offers by firms from countries that *do* impose ownership restrictions and capital controls are priced at an average premium of 3.6% above the domestic country preoffer shares. Strikingly, however, these firms also have first-day returns averaging 12.7%. Although on average, the U.S. share prices of these firms trade at substantial premiums to the domestic shares after the offer is completed due to market segmentation, these premiums are not fully incorporated into the offer price. Because there is uncertainty as to the magnitude of the premium that will ensue, it may be that underwriters are willing to underprice an issue rather than risk overpricing an offer that can be regarded as a secondary offering.

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