

Coming to America: IPOs from emerging market issuers[☆]

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Abstract

We compare the issue costs of 299 companies from emerging and developed market countries making initial public offerings (IPOs) in the United States between 1991 and 2001. Our results indicate that IPOs from emerging markets experience the same costs on average as IPOs from developed market countries. Although there is a large gap between the country risk ratings of the emerging and developed market countries, IPO issuers from emerging markets appear to bridge that gap by being large issuers in their respective home countries, listing more frequently on the NYSE, and having a greater proportion of activity in manufacture and infrastructure segments, and a lower proportion in high-tech segments. These issues occur following periods of strong U.S. and home market equity performance which helps to alleviate country risk. In comparison to their developed market peers, emerging market issuers are a select group of higher-quality firms.

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1. Introduction

Since 1990, a number of companies from emerging countries have gone public — raising equity for the first time anywhere — by issuing in the United States. The sheer volume of these initial public offers (IPOs) invites an examination of foreign entry into U.S. capital markets: Is entry frictionless for all foreign entrants, or do the U.S. equity markets impose barriers to entrants from emerging market countries in the form of higher issue costs or entry requirements? While the entry of foreign issuers into the U.S. equity market has garnered research attention, no study has examined the characteristics and costs of firms from emerging markets raising capital for the first time in the U.S. as compared to those from developed countries. Studies to date have examined the effect of a U.S. listing or a U.S. capital-raising event on an international firm's stock returns (e.g., [Foerster and Karolyi, 1999](#); [Karolyi, 1998](#); [Miller, 1999](#); [Errunza and Miller, 2000](#)). These studies have compared the costs and benefits of foreign firms raising capital in the U.S. relative to raising capital in their home markets.³ [Bruner et al. \(2004\)](#) (BCR) compared the costs and benefits of foreign firms' going public in the U.S. to domestic U.S. firms going public. They found that foreign issuers experience equivalent issue costs compared to U.S. IPO issuers. Though this might seem consistent with the ideal of a frictionless market for global capital, BCR found that foreign issuers were of higher quality than U.S. domestic issuers on a number of dimensions, suggesting highly selective entry into U.S. capital markets.

In this regard, issuers from emerging markets merit particular attention. A combination of information asymmetry (e.g., perhaps due to greater cultural differences or less analyst following) and higher country risk (observed in higher volatilities and yield premiums for emerging market securities) are at least two explanations why U.S. investors might discriminate among issuers from emerging and developed markets. [Merton \(1987\)](#) argues that markets can be segmented by information if investors purchase only the securities of firms they know. If firms from emerging markets are less well known to U.S. investors, all else equal, theory would suggest they face increased capital raising costs. Forty-six percent of the foreign U.S. IPOs originate from emerging market countries that are associated with high country risk. High country risk is symptomatic of differences in language, culture, and institutions that contribute to a lack of familiarity on the part of U.S. investors (see [Coval and Moskowitz, 2001](#); [Grinblatt and Keloharju, 2001](#); [Sarkissian and Schill, 2004](#)). Further, the same factors could also hinder the efforts of emerging market IPO issuers to generate institutional following and comparable analyst coverage relative to developed market IPOs.

The extent to which emerging market IPO issuers are less well known and possibly face higher issue costs relative to developed market IPO issuers is the central focus of our investigation. Are the entrants from emerging markets different from those from developed markets? In particular, is it more costly for emerging market issuers to enter the U.S.? This study extends findings of [Bruner et al. \(2004\)](#) in at least two dimensions. First, it profiles the emerging market IPO issues and issuers — these have not previously been described in the literature and offer important insights on the “carriage trade” of the U.S. equity markets in financing emerging market firms. Second, it compares the costs of equity issuance between samples of emerging market and developed market issuers. In equilibrium, emerging market firms will come to the U.S. only if the costs of issuing in the U.S. are equal to or less than the

³ The studies examining listings typically find that the shares of international firms trading in their home market experience positive valuation effects as a result of a U.S. listing. The positive valuation effect is consistent with [Lins et al. \(2005\)](#) finding that after U.S. listing, firms improve their access to capital.

costs of issuing in their respective home markets. However, especially among the least developed emerging markets, one suspects that issuers will find access to capital severely limited in their home markets, and therefore prohibitively expensive. Hence, issuers from these countries likely have incentives to issue in the U.S.

Existing studies of U.S. investors' reaction to issuances by foreign firms are primarily based on studies of American Depositary Receipt (ADR) issues (for a review see Miller, 1999; Foerster and Karolyi, 1999; Karolyi, 1998). A key difference between our study and earlier studies is that our foreign issuers are not listed on any exchange prior to their U.S. IPO. For our sample firms, the U.S. IPO is their first public issue in any market. By contrast, the samples used in previous studies that examine ADR issues or U.S. exchange listings by foreign firms typically include a significant portion of firms already listed in their home market. Because our firms are not listed on any exchange prior to their U.S. IPO, they have neither an established investor following in their home market nor a prior trading history to facilitate the pricing of the U.S. offer. Relative to previous studies, our sample represents purer-plays with respect to U.S. investors' lack of familiarity with an issuer. Accordingly, first time IPOs by emerging market firms should be particularly revealing of the entry costs into new markets and the possibility of market segmentation.

A total of 299 foreign firms from 40 countries made first time IPOs in the U.S. over the period 1991 to 2001. Emerging market IPOs grew from two offers in 1991 to a high of 34 offers in 1996. Over the entire period, issuers from emerging market countries raised \$10.4 billion compared to \$18.6 billion raised by issuers from developed market countries. This suggests the emerging market issuers account for a sizeable portion – approximately 36% – of the total volume of capital raised by foreign firms through IPOs in the U.S.

On a univariate basis, we find that IPOs from emerging market countries have similar underpricing (i.e., the percentage difference between the first day closing price and the offer price) and gross spreads on average relative to developed market IPOs. Similarly, regression analysis confirms, when all factors are held constant, IPOs from emerging markets experience underpricing that is insignificantly different compared to IPOs from developed markets. Given the evidence in previous studies showing that underpricing and underwriting fees are positively related to risk and information asymmetry, the absence of differences in underpricing between emerging and developed market IPOs is surprising.

Yet when we compare the characteristics of emerging and developed market IPOs, we find that they differ on six dimensions that compensate for information asymmetry and risk. First, emerging market issues are significantly smaller than their developed market peers. Second, relative to the average capitalization of firms in their home country, emerging market issuers are significantly larger than those from developed countries. Third, IPOs from emerging markets are more likely to be listed on the New York Stock Exchange (NYSE) compared to developed market IPOs in the U.S. Baker et al. (1999) argue that the choice to list on the NYSE signals higher quality due to its stricter listing requirements. Fourth, the home equity market conditions for issuers from emerging markets are more buoyant than for those from developed markets. Fifth, emerging market issuers in general have more tangible “assets in place” than developed market issuers. Finally, the correlation of home market equity returns with U.S. equity returns is significantly lower for emerging market issuers than for developed market issuers. This last factor could boost demand for the shares owing to attractive portfolio diversification attributes, thereby increasing investors' interest in the issue.

From a wider perspective, entry by foreign firms into the U.S. equity markets foreshadows growing global capital market integration. In a frictionless world, easy entry would result in a

wide diversity of issuers on many dimensions such as size and risk. Emerging market IPOs exhibit limited diversity on a number of dimensions noted above. The selectivity that drives this lack of diversity illustrates how emerging market IPOs attempt to bridge the gap with developed market IPOs and become more broadly appealing to U.S. investors. Discussed elsewhere in the literature is the tendency of the highest-quality entities (such as sovereign borrowers) to pioneer in the integration of emerging markets into the global capital market; similarly, we see pioneering entry by higher-quality equity issuers from high risk countries.⁴

The remainder of this paper is organized as follows: Section 2 describes the sample data and presents information on the issue volume of first time IPOs into the U.S. originating from emerging and developed countries. Section 3 provides evidence on the country risk of the issuers and how it relates to direct and indirect issue costs. Section 4 compares the firm and issue characteristics, market conditions, analyst coverage, and industry distribution of U.S. IPOs from emerging and developed markets that have the potential to influence issue costs. Section 5 gives our conclusions.

2. The sample of first time IPOs into the U.S. from emerging and developed countries

Using the *Security Data Corporation (SDC) New Issues* database, we identified all foreign firms that made first time firm commitment initial public offerings in the U.S. between January 1, 1990 and December 31, 2001.⁵ After eliminating financials and utilities, and firms with equity trading in a non-U.S. market prior to the U.S. IPO, the sample was reduced to 344 IPOs. Additionally, we require that U.S. stock prices be available from the *Center in Research in Security Prices (CRSP)* and that financial statement data be available from *Standard and Poor's Research Insight, Inc.* for each IPO.⁶ These additional data requirements reduced the final sample to 299 foreign IPOs.

To determine emerging and developed market status, we use two survey-based measures of country risk (CR) ratings from *Euromoney* and *Institutional Investor*. *Institutional Investor, Inc. (II)* is the publisher of both sets of ratings. The *II* rating is a country credit risk rating (essentially, sovereign risk) whereas the *Euromoney* rating is a broader measure that incorporates political, economic, and financial risk. While political risk is assessed using qualitative factors based on surveys of experts, economic and financial risk are primarily assessed using quantitative information such as *Moody's* and *S and P's Credit Ratings*, access to bond markets, and other economic and financial indicators. Both ratings provide an ordinal measure of country risk. For the sake of brevity, we rely generally on the broader-based *Euromoney* ratings in reporting our results. Rating levels below 85 are used as the cut-off for emerging markets, because this cut-off results in all G-8 countries being included in the developed market group.⁷ (By comparison, the *Euromoney* country risk rating for the United States ranges from 97.2 to 99.5 over the sample period.) Based on this cut-off rating of 85, we net a final sample of 137 IPOs out of 152 possible IPOs from emerging market countries and 162 IPOs out of a possible 192 from developed market

⁴ See, for instance, Bekaert and Harvey (1995), Bekaert et al. (2002), and Wurgler (2000).

⁵ No issues were made in 1990, so henceforth we report results for 1991–2001.

⁶ Our final sample of IPOs results after checking the *SDC* data and verifying the existence of the firm on *CRSP* and *Research Insight*. Our underpricing measure is based on the first day price reported by *CRSP*.

⁷ We set the cutoff at 85 to include Italy in the developed market group. Italy has a country risk rating of 85.16 at the time of its first IPO and of 87.54 in 2001. Our results are not sensitive to this choice.

Table 1
Sample of emerging and developed market IPOs into the U.S. from 1991 to 2001

Year	Number of IPOs from emerging countries	Issue volume from emerging countries (\$ millions)	Number of IPOs from developed countries	Issue volume from developed countries (\$ millions)
1991	2	22.4	6	778.7
1992	11	42.8	11	1461.1
1993	18	2836.8	12	642.9
1994	16	1655.0	15	2817.3
1995	8	473.6	20	2680.7
1996	34	2360.3	30	2547.1
1997	24	1419.3	37	3128.2
1998	5	365.9	10	1546.8
1999	6	356.1	14	1781.9
2000	10	729.1	4	1117.7
2001	3	180.3	3	123.6
Total	137	10,441.6	162	18,626.0

This table reports the number of initial public offers and the issue volume (amount raised) in the U.S. market. The sample of firm commitment IPOs from emerging and developed markets in the U.S. is obtained from *Securities Data Corporation* New Issues database.

countries.⁸ Our results are robust to other classifications of country risk, such as those based on *International Country Risk Guide* (ICRG) ratings and sovereign debt ratings. This is consistent with the findings of Erb et al. (1996) that compares country risk ratings from several providers and reports high correlation among them.

Before turning to the empirical results, it is important to note some of the differences between our sample and those used in previous work. First, the criterion we impose to eliminate firms with equity trading in a non-U.S. market prior to the U.S. IPO is important methodologically in isolating the set of issuers that are “most unknown” in the U.S. market. By comparison, the samples of depositary receipts used in previous studies (Foerster and Karolyi, 1999; Miller, 1999) typically include issues by firms that are cross-listed in their home market. Because these firms have equity trading on other exchanges prior to their U.S. issuance, they are seasoned issuers with some degree of investor following. Our offers are first time issues in *any* market. A second difference with previous studies is that our sample includes both ADRs and ordinary share listings. Specifically, 70% of the issues are ADRs and the remainder are direct placements of ordinary shares.⁹ Third, all of the ADRs in our sample involve capital-raising and are therefore Level III ADRs. Level III ADRs require the issuer to meet all of the requirements of the U.S. Security Exchange Commission (SEC) and the listing exchange. These are the equivalent requirements of a direct placement of ordinary shares. Previous studies include Level-I depositary receipts that do not require listing and compliance with exchange requirements and Rule 144A offerings that allow the firm to raise capital from institutional investors without having to meet

⁸ Of the 152 U.S. IPOs originating from emerging countries, we lose 15 observations because of lack of data on asset size. Of 192 IPOs originating from developed countries, we lose 27 observations because of lack of data on asset size and 3 due to lack of price information the day after the offer.

⁹ The non-ADRs come from predominantly two countries: Canada and Israel. The non-ADRs are issues of ordinary shares by foreign firms. These shares are generally offered on the local domestic market and in the U.S. The issuing firm files SEC form F-1 which is equivalent to the S-1 filed by U.S. firms that raise capital. In the case of Level III ADRs, the issuing firm also files SEC form F-1. In both cases the firms register on Form 20-F. Given that we consider only capital-raising issues and all our ADRs are Level III ADRs, there is essentially little difference in the reporting and listing requirements of the ADRs and ordinary share listings in our sample.

SEC disclosure requirements. Our criteria afford a more uniform basis to examine the differences between IPOs from emerging and developed market countries.

Table 1 reports the number of IPOs from emerging and developed markets occurring over the sample years and reveals several important characteristics. First, IPOs into the U.S. from emerging markets account for 46% of total foreign U.S. IPOs, a material component of foreign entry. Second, emerging market firms raised \$10.4 billion in the U.S. equity markets from 1991 to 2001, accounting for 36% of the total IPO volume by foreign firms in the U.S. Accordingly, the data suggest that cross-border IPOs are an important source of capital to emerging market firms. Third, one observes sharp fluctuations in issue volume. IPOs from emerging markets grew from a low of two offers in 1991 to a peak of 34 offers in 1996. Following the Mexican Peso crisis in December 1994, the number of offers and issue volume fall by over 50% in 1995. Relative to 1996, a pronounced drop-off in issue volume is observed in 1998 and 1999, following the Asian currency crisis that began in the summer of 1997 and the Russian Bond Default in 1998. By comparison, the issue volume from developed countries is somewhat less sensitive to the effects of international crises, particularly to the Peso crisis.

3. The effects of country risk on issue costs

In this section we assess the gap that emerging market IPOs have to bridge in coming to the U.S. market by examining their country risk. Then we relate it to the direct and indirect costs of issue.

3.1. Range of country risks

Table 2 gives the number of IPOs by emerging market country, the date of the first IPO originating from each country, and the country risk ratings and per capita GDP for the year of the first IPO and the final year of the sample, 2001.¹⁰ We show the IPO classifications based on the *Euromoney* country risk rating gathered from annual surveys and we also report the *Institutional Investor* rating gathered from semi-annual surveys.

Issuers come from 22 emerging market countries and 18 developed market countries. At the time of the first IPO, the *Euromoney* country risk ratings range from 29.1 (Panama) to 84.3 (South Korea) and the *II* ratings range from 18.5 (Panama) to Hong Kong (82.4). Based on the *Euromoney* rating, the issue volume weighted country risk rating is 67.6 for emerging market IPOs compared to 96.0 for their developed market peers (and is 82.4 for all foreign U.S. IPOs). Fig. 1 presents the proportions of volume issued at different country risk ratings. Note the disparity in risk ratings between the two groups: the largest dollar-volume of issues comes from very high-rated developed countries (such as U.K. and Canada) and the mid-rated emerging countries (such as Israel, Mexico, and China).

In general, there is a strong consistency between the *Euromoney* and *Institutional Investor* country risk ratings, which is consistent with the 89% correlation between the two ratings. The *II* ratings tend to run lower than the *Euromoney* ratings so that a cutoff lower than 85 is necessary to classify the same firms as emerging at the time of the first IPO. There is one country, Hong Kong, whose *Euromoney* country risk rating moves above the 85 cutoff and IPOs occurring at this time

¹⁰ We include the country risk measure in the last sample year rather than at the last IPO because a number of countries have only one IPO.

Table 2

IPOs from emerging market countries ranked by the country risk rating at the time of the first IPO originating from the country

Country	N	First IPO offer date	<i>Euromoney</i> country rating at first IPO	<i>Institutional Investor</i> country rating at first IPO	<i>Euromoney</i> rating for country in 2001	GDP per capita at first IPO	GDP per capita in 2001
Panama	1	8/06/1992	29.1	18.5	52.7	\$1980	\$5900
Brazil	4	5/27/1992	37.2	46.8	46.4	\$2540	\$7400
Russian Federation	3	11/15/1996	42.6	23.0	37.3	\$5200	\$8300
Papua New Guinea	1	10/06/1995	47.3	33.9	37.5	\$2300	\$2400
Venezuela	1	11/21/1996	47.5	32.0	44.7	\$9000	\$6100
Peru	1	05/14/1996	47.6	27.2	46.5	\$3800	\$4800
Argentina	5	5/4/1993	50.5	43.4	43.4	\$3100	\$12,000
Hungary	2	12/24/1992	54.5	70.8	70.2	\$5800	\$12,000
India	1	12/24/1992	51.8	37.5	54.9	\$300	\$2500
Philippines	1	3/15/2000	52.8	46.7	53.0	\$3800	\$4000
British Virgin Isles	3	12/16/1994	54.0	72.8	70.9	\$10,600	\$16,000
Bermuda	10	11/24/1993	57.0	73.7	81.0	\$22,400	\$34,800
Bahamas	2	7/19/1995	57.5	54.3	70.9	\$15,900	\$16,800
Jordan	1	1/13/1997	58.4	34.9	46.2	\$4800	\$4200
Mexico	14	4/8/1992	59.4	60.3	60.3	\$2680	\$9000
Indonesia	5	10/18/1999	68.0	65.4	33.3	\$2800	\$3000
Chile	6	9/23/1992	69.6	78.0	64.5	\$2130	\$10,000
China	7	7/23/1993	71.5	48.0	60.7	\$2200	\$4300
Israel	60	8/28/1991	72.6	72.0	72.0	\$10,500	\$20,000
Greece	3	06/02/1998	79.6	82.0	82.0	\$13,400	\$17,900
Hong Kong	5	6/13/1996	82.4	82.4	80.3	\$26,000	\$25,000
South Korea	1	6/27/1996	84.3	72.0	62.3	\$14,200	\$18,000

This table reports the number, the offer date of the first IPO originating from that country, and the country risk rating and the GDP per capita in the year of the first IPO and in 2001 for each emerging market country. Country Risk Ratings are obtained from *Euromoney's* annual surveys and *Institutional Investor's* semi-annual surveys. GDP data are from *Datastream, Inc.* Emerging markets are countries with *Euromoney* country risk ratings less than 85. The IPOs are ranked by *Euromoney's* country risk rating at the time of the first IPO originating from that country.

Developed Market IPOs come from 18 countries: Australia, Belgium, Canada, Cayman Islands, Denmark, France, Germany, Hong Kong (at certain points in the sample period), Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Singapore, Sweden, Switzerland, and the United Kingdom.

are classified as developed market IPOs.¹¹ Although much has been written about developing economies over the past decade, all of the countries remain firmly in the emerging group in 2001. The median *Euromoney* country risk rating is virtually unchanged from the time of the first IPO (55.8) to 57.6 in 2001. Twelve countries lose ground with respect to country risk relative to the time of the first IPO, and ten gain ground. All of which underscores the large uncertainties associated with the development processes in these countries.

One also observes in Table 2 that Israel has, by far, the largest number of U.S. IPOs. Although the measures of country risk clearly classify Israel in the emerging market group, the World Bank classifies it as a high income country and a recent study by Yehezkel (2005) finds no significant differences in securities law and investor protections between Israel and the U.S. The World Bank

¹¹ In Table 1, the ratings correspond to the year of the first issue from that country. In the subsequent regression analysis, the country risk rating is updated to correspond to the date of each foreign IPO. Our definition permits countries that are classified as emerging at one point to be reclassified as developed at another, when appropriate.

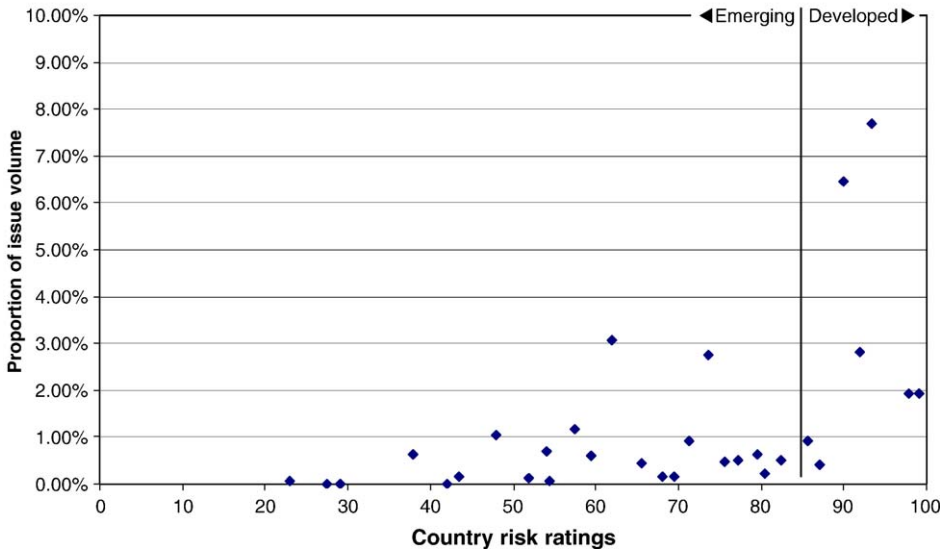


Fig. 1. Issue volume of IPOs from emerging and developed market countries over 1991–2001. Emerging Market IPOs are issues with a *Euromoney* Country Risk Rating less than 85. Issue volume is reported for intervals of country risk such as 30–31.99, 32–33.99, and such as, a point on the figure can represent more than one country.

also classifies Hong Kong, Greece, Bermuda, Bahamas, and the Virgin Islands as high income countries. This is consistent in Table 2 with the relatively high values of per capita GDP reported for each of these countries in 2001. (For comparative purposes, the per capita GDP of the U.S. was \$35,506 in 2001). While the foregoing suggests there is no single means of classifying countries as low or high risk, later analyses will show that the results are not sensitive to how Israel and the other high income countries are classified.

Previous studies show that country risk, particularly economic and financial risk, affect the cross-section of future equity returns (Erb et al., 1996) and credit spreads on sovereign and foreign corporate debt. Given the substantially higher levels of country risk associated with emerging market IPOs, all else equal, one would expect investors to demand some premium above the developed market risk premium to hold these assets.

3.2. Univariate analysis of direct and indirect issue costs

Rock (1986) and Beatty and Ritter (1986), among others, use underpricing as an indicator of the *ex ante* uncertainty associated with an issue, and similar arguments apply to gross spread. If emerging market issues present greater uncertainties to U.S. investors, *ceteris paribus*, they should have higher underpricing and gross spreads compared to developed market IPOs.

In Table 3 we examine the direct and indirect costs of equity issuance. Direct issue costs are measured by the gross spread, which is the sum of the management fee, underwriting fee, and selling concession as a percentage of the amount offered. Indirect costs are measured by initial returns or underpricing. “Day 1 Initial Return (IR)” is the first day close price divided by the offer price minus one. Given the large difference in size between the groups, we create control samples of the IPOs from developed market countries that are closer in size (and therefore risk) to the emerging market IPOs. For the control samples, we match an equal number of emerging and

Table 3
First day initial returns and gross spreads of emerging and developed market IPOs

	All emerging market IPOs	All developed market IPOs	Asset size matched control sample of developed market IPOs	Emerging market IPOs CR < 73 Group 1	Emerging market IPOs 73 < CR < 85 Group 2	Developed market IPOs 85 < CR < 96 Group 3	Developed market IPOs with CR > 96 Group 4
Day 1 IR (%)	12.52	13.76	13.70	8.76	17.80	15.03	12.53
	3.84	4.58	4.54	3.88	3.12	5.43	3.80
<i>t</i> -statistics		0.39	0.34		-1.72*	-1.91*	-0.99
						0.47	0.87
							0.59
Gross Spread (%)	7.06	8.88	7.27	6.19	8.24	7.82	6.79
	7.00	7.00	7.00	6.25	7.00	7.00	7.00
<i>t</i> -statistics		1.12	0.35		-2.57***	-1.63	-1.93*
						0.29	1.84*
							1.02
Number of observations	137	162	137	80	57	64	73

Indirect issue costs are reflected in the Initial Returns (IR) to investors. “Day 1 IR” is the initial return to investors calculated as the closing price on the first day of trading divided by the offer price minus one. “Gross Spread” is the sum of the management fee, the underwriting fee, and the selling concession as a proportion of the offer proceeds. “CR” indicates the *Eurromoney* country risk rating. The first row in each cell gives the mean of the distribution; the second row gives the median. In the four right-most columns, the first row of *t* statistics compares the group indicated at the head of the column with Group 1, the second row compares the group indicated at the head of the column with Group 2 and the third row compares the group indicated at the head of the column with Group 3. The *t*-statistic tests the difference in means between the emerging and developed market groups. The non-parametric Wilcoxon signed-ranks tests yield similar results and are not reported here. *** Indicates significance at the 1% level, ** at 5%, and * at 10% for *t*-test of differences of means.

developed market IPOs based on three different criteria: asset size, issue size, and industry.¹² The results are not sensitive to which control sample is used so in subsequent analyses we report the results only for the asset size matched control sample.

In Table 3, the first day initial returns of emerging market IPOs are not statistically different from their developed markets peers for the full sample and asset matched control sample. Further, the average gross spread for the emerging market IPOs of 7.06% is insignificantly lower than 8.88% shown for the developed market IPOs. The median gross spreads in all samples are equal to the seven percent level reported in Chen and Ritter (2000). Hence, the full sample and control sample results reveal no significant differences in issue costs between the groups.

Because Fig. 1 revealed a wide range of country risks, in Table 3 we further break down the sample into quartiles based on country risk. The average underpricing of group 1 IPOs from countries with the lowest country risk ratings (8.76%) is significantly lower at the 10% level compared to the underpricing of group 2 (17.80%) and group 3 (15.03%) and insignificantly lower than the underpricing of group 4 (12.53%). While the relationship is not monotonic, we

¹² The asset size-matched control sample is constructed as follows. For each of the emerging market IPOs we identify a developed market IPO offered within one month (or closest month to) the emerging market IPO offer date. We then choose the developed issuer that is closest in pre-issue asset size to the emerging issuer. The issue size-matched sample is constructed analogously. For the industry control group, we repeat step 1 to find the offers occurring closest in time. From these, we choose a developed issuer that matches the three-digit SIC code of the emerging issuer (two digit if there is not a match for three digit codes). If more than one match is available, we choose the developed market firm that is closest in pre-issue asset size to the emerging market firm.

Table 4
The effects of file price revisions and correlations on first day initial returns

	Emerging	Asset size	Emerging	Asset size
	market IPOs	matched developed market IPOs	market IPOs	matched developed market IPOs
	Upward revisions		Low correlation	
Day 1 IR% mean	23.46	18.74	12.14	16.49
Day 1 IR% median	12.20	15.15	4.12	7.37
Number	57	53	82	58
Percent of sample	42	39	68	42
<i>t</i> -statistic (emerging vs. developed)		-0.74		1.30
Wilcoxon test statistic		0.44		1.84**
	Downward revisions		High correlation	
Day 1 IR% mean	4.73	10.52	13.09	11.65
Day 1 IR% median	1.21	1.30	3.47	1.30
Number	80	84	55	79
Percent of sample	58	61	40	58
<i>t</i> -statistic (emerging vs. developed)		1.62		-0.24
Wilcoxon test statistic		1.22		0.31
<i>t</i> -statistic (Upward revisions versus Downward revisions)	3.72***	1.94**	0.17	-1.14
Wilcoxon test statistic	4.80***	3.70***	-1.36	2.65***
Total number of observations	137	137	137	137

Day 1 Initial Returns (IR) in IPOs are shown by the direction of revision in pricing and by the correlation of returns between the home and the U.S. equity markets. Upward (downward) revision offers are those IPOs where the offer price is above (below) the expected price defined as the midpoint of the preliminary file range. High (low) correlation refers to issues where the correlation between the home country equity market and the U.S. is above (below) the median correlation in the sample. The median correlation in the sample based on day -60 to day -2 trading days prior to the issue is 18.82%. Data on home market equity returns are from *Datastream, Inc.* *** indicates significance at the 1% level, ** at 5%, and * at 10% for a *t*-test of differences of means (emerging vs. developed control samples).

find, contrary to expectations, that IPOs originating from the riskiest countries (lowest country ratings) are associated with the lowest underpricing.

3.3. Fluctuations in demand for IPOs

Underpricing has been associated in prior studies with strong investor demand for an IPO. In Table 4 we investigate two factors that potentially relate to the demand for IPOs: file price revisions and the correlation between equity returns in the issuer's home market and the U.S. market.¹³ Hanley (1993) finds that underwriters fail to adjust the offer price of an IPO high enough when they encounter unexpectedly strong demand for an issue on the road show. As a result, in her study, offers that are priced "above the file range" experience two times the underpricing of a typical (within the file range) IPO. Most studies focus on the underpricing

¹³ Ritter (1984) associates the demand for IPOs and underpricing with an absence of issue volume. High underpricing signals strong investor demand and stimulates other firms to subsequently enter the market. We also examined the extent to which emerging market IPOs occur in periods of high IPO issue volume and how volume relates to underpricing. Fifty-one percent of emerging markets IPOs occur in high-volume (above median) months, slightly higher than the 45% for the developed market IPOs. For emerging market IPOs, underpricing is not significantly different on average between high- and low-volume months nor is it significantly different from the underpricing of the developed market IPOs.

between upwardly and downwardly revised IPOs but the frequency and extent of file price revisions also offers an indication of the uncertainty associated with marketing the issue. If underwriters have more difficulty estimating the ultimate end-market demand for emerging market IPOs compared to developed market IPOs, we should observe more frequent and larger revisions in the emerging market group. Consistent with this, the following table shows that a significantly lower proportion of emerging market IPOs are issued with offer prices at or between the high and low price of the preliminary file range (“within the file range”) or at the midpoint of the preliminary file range.

	Emerging market IPOs	Developed market IPOs	<i>t</i> -statistic of difference
Within the file range	38.00%	55.00%	2.63
Equal to the midpoint of the file range	5.00%	20.00%	3.61
Extent of revision (offer price relative to midpoint of the file range)	1.08%	0.99%	-1.34

Qualitatively, larger file price revisions are also observed for emerging market IPOs. This is consistent with underwriters having to adjust the preliminary file range more frequently and to a greater extent to account for investors’ lack of familiarity with emerging market issuers.

Table 4 reports the underpricing associated with offers that occur above or below the midpoint of the preliminary file range. An upward revision (downward revision) occurs when the offer price of the IPO exceeds (is equal to or less than) the midpoint of the preliminary file range (expected price).¹⁴ Upwardly revised emerging market IPOs experience average underpricing of 23.46% compared to 18.74% for the asset size matched developed market IPOs, but the difference is not significant. In terms of underpricing, we find as other studies have that upward revisions have significantly higher underpricing than downward revisions — but this does not distinguish emerging market IPOs from developed market IPOs.

Securities from countries with lower correlations with the U.S. markets may be more attractive to investors for diversification purposes. As the demand for these issues may be higher due to their desirable properties, all else equal, investors may be willing to pay a higher offer price for them (i.e., they could be less underpriced). In Table 4 emerging market IPOs with correlations between the issuer’s home market and the U.S. equity market below the median of 18.8% show average underpricing of 12.14% versus 16.48% for developed market IPOs, but the difference is not significant. Low (high) correlation IPOs from emerging countries show significantly lower (higher) median Day 1 IRs than their developed country peers (based on the Wilcoxon test statistic). While there is some evidence that low correlation emerging market IPOs have less underpricing than developed market IPOs, the differences for the most part are insignificant.

Despite the wide range of country risks, we find no evidence that direct or indirect issue costs differ significantly between emerging and developed markets IPOs. Country risk presents investors with real and substantial risks and is shown in previous studies to affect the price of securities, so the question we turn to next is why it does not appear to affect issue costs.

¹⁴ Similar results occur if revisions are measured relative to the high and low price of the preliminary file range rather than to the mid-point.

4. Characteristics of IPOs from emerging and developed countries

4.1. Firm and issue characteristics

In this section, we investigate the characteristics of the issuers, issue, and markets that previous studies have shown to influence issue costs. IPOs originating from emerging and developed countries can experience different issue costs for many reasons, including asymmetric information (Myers and Majluf, 1984), differences in the underlying quality and risk of the issuers, market conditions, and the demand for new issues. To examine these differences, we compare IPOs originating from emerging market countries to a sample of IPOs originating from developed market countries.

4.1.1. Characteristics of quality

Previous studies of IPOs use firm size and issue size to gauge the quality and risk of an issuer (Ritter, 1984; Dunbar, 2000). Due to the high frequency of simultaneous offers (e.g., offers sold in one or more non-U.S. market), in Table 5 we report results for issue size based on the amount of

Table 5
Selected characteristics of emerging and developed country IPOs

	IPOs from emerging countries <i>N</i> =137	IPOs from developed countries <i>N</i> =162	<i>t</i> -statistic (difference of means)
<i>Firm and issue characteristics</i>			
Assets (\$ millions) mean/median	405/52	1300/55	1.78*
Issue size in U.S. market (\$ millions) mean/median	79/44	115/49	1.88*
Issue size in all markets (\$ millions) mean/median	145/54	333/62	2.55***
Relative size in home market mean/median	4.4%/0.6%	1.3%/0.1%	-2.55***
Age of the firm (years)* mean/median	9/6	9/8	-0.10
Percent of offers listed on NYSE	36%	24%	-2.35***
Percent of simultaneous offers	61%	59%	-0.33
Percent of offer sold in U.S.	78%	77%	-0.47
Percent of primary shares	83%	81%	-0.93
Percent of offers which are privatizations	6%	5%	-0.16
Percent of offers with a U.S. connection	18%	23%	1.26
Length of time (days) between registration and issue	73/43	60/35	0.85
<i>Analyst coverage</i>			
Percent of IPOs with coverage in less than 2 months (# of analysts in 2 months – mean/median)	4% (1/0)	6% (1/0)	1.20
Percent of IPOs with coverage in less than 6 months (# of analysts in 6 months – mean/median)	33% (4/0)	46% (6/0)	0.62

Emerging (developed) markets are countries with *Euromoney* Country Risk Ratings less than 85 (greater than or equal to 85). Relative Size in Home Market is the issuer's asset size divided by the market capitalization of its home country stock exchange in the month prior to issue. Percent of offers listed on NYSE are IPOs listed on the New York Stock Exchange. Simultaneous Offers are offers sold in the U.S. and one or more non-U.S. markets. For simultaneous offers, the percent of offer sold in U.S. is the amount of proceeds targeted for sale in the U.S. Privatization is an IPO that involves the privatization of a state-owned enterprise. U.S. Connection signifies firms with connections to U.S. firms or investors via licensing agreements, subsidiaries and the like. Number of analysts is obtained from *IBES*. The *t*-statistic of difference in means tests if the mean values of the variables (or of the percentages of the sample where relevant) across the emerging and developed groups are significantly different. Age data from date of incorporation to IPO date is available for 25 emerging market and 37 developed market firms only. *** Indicates significance at the 1% level, ** at 5%, and * at 10%.

capital raised in the U.S. and the amount of capital raised in all markets. We find that the average issue size of emerging markets IPOs in all markets is significantly smaller (\$145 million) in comparison to IPOs from developed markets (\$333 million). However, the assets of issuers from emerging countries are *relatively* larger compared to the market capitalization of all listed stocks in their home equity markets: 4.4% for emerging market issuers versus 1.3% for developed market issuers. In unreported results, we find further differences in the distribution of relative size. Thirty-five percent of the emerging market issuers have relative size that exceeds 1% of their home market's capitalization compared to 13% of the developed market sample. At the higher end, while 6% of the emerging market IPOs have a relative size in excess of 20% of capitalization, the same is true for less than 1% of the developed market sample. A chi-square test of the differences is significant at the 1% level. Hence, the emerging market issuers are significantly more prominent firms in their respective home equity markets.

The emerging markets issuers list significantly more often on the NYSE than do issuers from developed markets — the NYSE has the strictest listing, financial reporting, and governance requirements of all the U.S. stock exchanges. Baker et al. (1999) suggest that greater visibility and quality are signaled by listing on the NYSE relative to other U.S. exchanges.

Also shown in Table 5, 6% of the emerging markets IPOs involve privatizations, insignificantly different from 5% of the developed markets IPOs. These IPOs tend to be large transactions compared to nonprivatizations (Megginson and Netter, 2000; Megginson et al., 1994). Excluding privatizations, in unreported results, we find the mean (median) issue size in the U.S. market is \$64 (\$42) million for emerging market IPOs versus \$99 (\$46) million for developed market IPOs, and issue size in all markets is \$105 (\$53) million and \$255 (\$61) million for emerging and developed market IPOs. The average issue sizes are significantly different at the 5% significance level. Thus, after excluding privatizations, we continue to find that emerging market IPOs are smaller than developed market IPOs.

Viewing all characteristics together, on balance emerging markets issuers and issues seem no worse in quality compared to their developed markets peers, and in some ways, better.

4.1.2. *Factors associated with investor familiarity*

While no formal definition exists for familiarity, previous studies suggest it can arise from circumstances where investors possess superior information about firm risk (Merton, 1987) or profits (Coval and Moskowitz, 2001). These studies posit a particular form to the asymmetry of information, but the term has also been more broadly defined to include other attributes of “investor sophistication” such as geographic proximity, language, and culture (Grinblatt and Keloharju, 2001), and industry structure (Kang and Stulz, 1997).

Table 5 provides evidence on analyst coverage, an indicator of investors' familiarity with an international issuer.¹⁵ The data on analyst coverage for IPOs from emerging and developed countries are from the *Institutional Broker Estimates System (IBES)* database. Since IPOs do not have analyst coverage before the IPO, we assume that the post-issue analyst coverage is positively correlated to investor interest and information at the time of the IPO. In general, the evidence is that emerging market issues experience somewhat lower analyst following and more delay in the inception of analyst coverage than do their developed market peers. Within two months following the issue, coverage is initiated for 4% of emerging market IPOs, compared to 6% of developed

¹⁵ Brennan and Subramanian (1995) and Brennan et al. (1993) find that greater analyst coverage is associated with reductions in adverse selection costs, thereby increasing the depth of the market. Baker et al. (1999) report increases in analyst and media coverage when foreign firms cross-list on the NYSE.

market IPOs.¹⁶ At six months, a similar pattern is observed: 33% of emerging market issuers have analyst coverage compared to 46% of developed market issuers. Although the results qualitatively show less analyst coverage for emerging market issuers, the extent and timing of the initiation of coverage do not differ significantly between the two groups.

International issuers with connections to U.S. firms or investors likely have some previously established standing in the U.S. financial community. We searched *Dow-Jones News Retrieval Service* to determine if an international firm has a product, licensing, franchising relationship, or an equity interest with a U.S. company prior to the IPO. For example, Coca-Cola FEMSA is the Mexican franchise distributor for a U.S.-based firm, Coca-Cola. We found that 18% of emerging market IPOs have a formal connection to a U.S. firm or investor versus 23% for developed market IPOs. Of the emerging market issuers with U.S. connections, the large majority come from Israel (9), Bermuda (5) and Mexico (3). However, the relatively low frequency of U.S. connections for both groups suggests that foreign issuers have few formal links to the U.S. prior to their IPO.

Sarkissian and Schill (2004) find that geographic proximity, common language, and cultural ties are important factors influencing the choice of overseas listing markets. These factors can improve investors' sense of familiarity with the issuer and, as such, potentially reduce the costs of asymmetric information. To examine this issue, we compare the percentages of emerging and developed market IPOs that originate from countries with a common language, common border, or cultural affinity with the U.S. A large percentage of emerging market IPOs share a common language, common border, or cultural affinity with the U.S. — these include the IPOs from Israel (60), Mexico (14), Hong Kong (5), Bermuda (10), British Virgin Islands (3) and the Bahamas (2). Together, these issues account for 68% of all emerging market issues. By comparison, a lower, but still sizeable percentage (41%) of the developed market IPOs from Canada (36) and the United Kingdom (30) exhibit similar attributes. The difference in percentages is not significant. As geographic proximity, shared language, or culture facilitate greater information flow between countries, these traits can reduce the risk that U.S. investors perceive to be associated with IPOs by foreign firms.

Kang and Stulz (1997) find that investors' foreign portfolio holdings reflect preferences for larger manufacturing firms and further suggest that similarities in industry structure can increase familiarity. BCR (2004) compared the industry distributions and asset composition of foreign and domestic IPO issuers and reported significant differences in the two groups. The same is true of the comparison of IPOs from emerging and developed markets. In unreported results, we find that emerging market issuers are significantly more represented in industries such as homes and construction, foods, and telecommunications and media. Developed market issuers are significantly more represented in services industries. Considering the entry by high technology firms from Israel and East Asia, we checked for significant differences in the proportion of issuers in selected technology industries and found none. Generally, the results for emerging markets IPOs are consistent with Kang and Stulz's (1997) finding that investors are more accepting of foreign issuers from manufacturing and other industries characterized by greater "assets in place" (Myers, 1977).

In sum, the evidence of firm and issue characteristics suggests that emerging market IPOs have characteristics consistent with higher quality or lower risk, such as smaller issue sizes, larger relative size in their home market, and greater frequency of NYSE listings. In addition, the issuers

¹⁶ According to *IBES*, as a general rule, the analysts providing earnings estimates in U.S. dollars that are reported by *IBES* tend to be U.S.-based analysts. Canadian firms are the one exception to this. Hence, our analysis primarily captures the increase in analyst following by U.S.-based analysts, which is our intention.

from emerging countries tend to have more tangible assets. On the other hand, emerging market IPOs are smaller firms on an absolute basis than developed market issuers. Overall one observes that emerging market IPOs have more factors that reduce information asymmetry than increase it relative to developed market IPOs.

4.2. Market conditions

Market conditions at the time of issue can also affect the costs of issue by altering the perceptions of country risk and the demand for foreign shares by U.S. investors. Prior studies document that seasoned equity issues typically follow strong performance by the issuer's stock and the broader equity markets (see, among others, Asquith and Mullins, 1986; Masulis and Korwar, 1986; Mikkelsen and Partch, 1986; Korajczyk et al., 1990). Cross-border issues, however, may not follow this pattern. For instance, international portfolio diversification arguments can support a scenario in which foreign firms are more likely to issue under relatively weak U.S. market conditions and relatively strong home market performance. Also, a weakening of the home currency vis-à-vis the dollar can, by reducing the dollar cost of investment, increase U.S. demand for foreign shares.

To judge the effects of economic conditions, we compared the recent performance and correlations of the U.S. market to the home equity and currency markets prior to the IPO announcement in Table 6. The market variables are the cumulative returns (sum) of the CRSP value-weighted returns, USMKT(-60,-2), and the issuer's home market country index, HMKT(-60,-2), over the period day -60 to day -2 relative to the announcement date of the IPO in the U.S. (trading day 0). CURR(-60,-2) is the percentage change in the exchange rate defined in units of foreign currency per U.S. dollar. Positive values of CURR(-60,-2) imply a strengthening of the U.S. dollar vis-à-vis the home country's exchange rate. AVGCORR(91,01) is the annual correlation of returns between the issuer's home equity market and the U.S. equity market averaged over 1991–2000. CORR(-60,-2) is the same correlation computed in the

Table 6
Financial market conditions for IPOs from emerging and developed markets

Mean/median	Emerging market IPOs $N=137$	Developed market IPOs $N=162$	t -statistic (difference of means)
USMKT(-60,-2)	7.76%/8.06%	7.18%/7.85%	-0.77
HMKT(-60,-2)	7.07%/6.04%	4.95%/5.12%	-1.36
CURR(-60,-2)	-0.80%/-0.05%	0.38%/0.07%	3.37***
AVGCORR(91,01)	29.2%/2.5%	49.5%/46%	7.56***
CORR(-60,-2)	18%/10%	27%/26%	3.01***

This table reports conditions in the issuer's home financial market from which the U.S. IPO is originating. USMKT(-60,-2) is the percentage price change in the CRSP value weighted index for a 58 day period prior to the announcement date of the offer; HMKT(-60,-2) is the percentage price change in the index of the home market for a 58 day period prior to the announcement date of the offer; and CURR(-60,-2) is the percentage change in the exchange rate (Foreign currency per U.S. Dollar) for a 58 day period prior to the announcement of the offer. Positive values imply that the currency has depreciated vis-à-vis the dollar and vice versa. AVGCORR(91,01) is the annual correlation of the home country stock market versus the U.S. market averaged over 1991 to 2001. CORR(-60,-2) is the correlation between the home market and U.S. in a 58 day period prior to the announcement date. The t -statistic of difference in means tests whether the mean values of the variables (or of the percentages of the sample where relevant) between the emerging and developed groups are significantly different. *** Indicates significance at the 1% level, ** at 5%, and * at 10%.

period immediately preceding the offer. Home equity market and currency returns are collected from *Datastream, Inc.*

The results in [Table 6](#) reveal that both emerging and developed market IPOs occur after relatively strong U.S. equity market performance (USMKT of about 8%). Emerging market issues occur after stronger home market run-up (HMKT of 7.07% on average) than their developed market peers (4.95%), but the difference is not significant. The pre-IPO exchange rate movements (CURR) for the two groups differ significantly: -0.80% for the emerging market issuers suggests appreciation against the dollar versus $+0.38\%$ depreciation for developed market issuers. All else equal, depreciating currencies make it is less expensive for U.S. investors to purchase emerging market securities but the small magnitude of the change is unlikely to be a major factor influencing investors' demand. Finally correlations of home market returns with the U.S. market differ significantly. The average correlation of emerging markets with the U.S. over the entire sample period is 29.2% in contrast to 49.5% for developed markets — this is consistent with previous research that finds typically low rates of correlation between emerging market and U.S. returns.¹⁷ This low correlation could augment diversification based demand for emerging market issues.

4.3. *Summary of characteristics for finer breakdowns of country risk*

Given the wide range of country risks embodied in the emerging market sample – from 29 to 84 – one concern is whether simple averages and medians fully capture the degree of compensation among the highest risk firms. Compensating differentials ought to be greater for emerging market firms from countries with greater country risk. Therefore in [Table 7](#) we compare the quartile of emerging market IPOs originating from the highest risk countries (those with country risk ratings less than 73) to the quartile of developed market IPOs from the least risky countries (those with CR ratings above 96) to see if compensating differentials work in the direction we expect. We find that IPOs from the lowest-rated countries are larger firms on an absolute basis and relative to their home country's market capitalization, list significantly more often on the NYSE, make more simultaneous offers (thereby distributing the demand for shares to more markets), and are less likely to be high-tech firms than the highest-rated peers. Highest risk emerging market IPOs have a significantly higher percentage of file price revisions, only 6% have offer prices equal to their expected offer price and a larger price adjustment (extent of file price revision) than the lowest risk developed market IPOs. These findings highlight the adjustments underwriters make to successfully float the IPO once the road show begins. Both groups of issuers issue in periods of strong U.S. and home equity market performance, which is important in reducing concerns about country risk. The consistency of these risk reducing features for the highest risk emerging market IPOs is striking. In general, these findings suggest that the highest risk emerging market issuers compensate on firm, issue, and market-specific dimensions that facilitate their acceptance by U.S. investors.¹⁸ All else being equal, these characteristics reduce some of the uncertainty and the informational asymmetry associated with emerging market IPOs. For the highest risk emerging market issuers, a U.S. IPO appears to depend on “clicking on all dimensions.”

¹⁷ See, for instance, [Bekaert and Harvey \(1995, 1997\)](#), [Bekaert et al. \(1997\)](#), [Bekaert et al. \(2002\)](#), [Wurgler \(2000\)](#), and [Errunza and Miller \(2000\)](#).

¹⁸ If we eliminate IPOs from Israel and the other countries designated by the World Bank as high income countries and redo the analysis in [Table 7](#), the results are similar to those reported.

Table 7

Characteristics of foreign U.S. IPOs for highest and lowest quartiles of country risk

Mean/median	Highest risk country risk ratings below 73	Lowest risk country risk ratings above 96	Significance tests first row: <i>t</i> -statistic Second row: Wilcoxon test
<i>Firm and issue characteristics</i>			
Assets (\$ millions)	564/143	380/84	1.21 1.43*
Issue size in this market (\$ millions)	101/58	80/50	0.99 0.73
Issue size in all markets (\$ millions)	194/75	125/57	1.55 1.35
Relative size in home market	10.01%/0.81%	0.20%/0.04%	3.18*** 4.88***
Percent of offers on NYSE	46%	22%	3.24***
Percent of simultaneous offers	68%	53%	1.79*
Percent of offer sold in U.S.	73%	82%	-2.41**
Percent of primary shares	81%	84%	-0.66
Percent of offers with a U.S. connection	21%	27%	-0.88
Percent of high-tech offers	32%	44%	-1.44
Proportion with offer price > expected price	44%	34%	2.45**
Proportion with offer price = expected price	6%	19%	-2.45**
Extent of file price revision	1.17%	0.93	1.87*
Day 1 initial returns	8.76%/3.88%	12.53%/3.80%	-0.99 -0.10
<i>Analyst coverage</i>			
Percent of IPOs with coverage in less than 6 months	33%	52%	2.45**
<i>Market conditions</i>			
USMKT(-60,-2)	7.02%/7.92%	8.36%/10.34%	-1.55 -1.72*
HMKT(-60,-2)	6.27%/6.17%	5.57%/5.98%	1.07 1.28
CURR(-60,-2)	-0.2%/0.00%	-0.20%/-0.06%	-0.72 -0.82
CORR(-60,-2)	22%/17%	26%/18%	-1.01 -1.74*

*** indicates significance at the 1% level, ** at 5%, and * at 10%.

4.4. Regression analysis of initial returns

In Table 8 we report pooled cross-sectional regressions of the emerging and developed markets U.S. IPOs where the dependent variable is the first day initial return. We estimate regressions for the asset size-matched sample between the emerging market and developed market IPOs for samples that include and exclude privatizations.¹⁹ The independent variables control for firm-specific factors, market conditions, and other factors associated with familiarity. A dummy variable “EM” is equal to one if the issue is an emerging market IPO and is zero for a developed

¹⁹ A matched sample regression can result in biased *t* statistics due to over-sampling of the same observation. To control for this, we run the regressions using a Newey–West correction, where the estimator is corrected for autocorrelated disturbances. In addition we also run regressions for the full sample and the results are similar to those of the matched samples, thereby reducing this concern.

Table 8
Pooled cross sectional regressions of first day initial returns

Dependent variable: first day initial returns					
Explanatory variables	Privatizations included	Privatizations excluded			
	(1)	(2)	(3)	(4)	(5)
Constant	37.786 (0.08)	33.553 (0.14)	36.907 (0.19)	44.986 (0.11)	79.183 (0.01)
EM dummy	1.572 (0.69)	2.174 (0.63)			
Country Risk Rating			0.0001 (0.99)	0.046 (0.60)	0.059 (0.43)
Asset Size	-1.146 (0.43)	-1.225 (0.40)	-1.180 (0.42)	-1.303 (0.36)	-1.146 (0.37)
Issue Size	-0.118 (0.96)	0.068 (0.97)	-0.102 (0.96)	-1.153 (0.67)	-3.165 (0.09)
Relative Size	-14.997 (<0.01)	-13.712 (<0.01)	-13.487 (<0.01)	-3.584 (0.46)	1.057 (0.85)
Offer Price > Expected Price Dummy				13.571 (<0.01)	13.587 (<0.01)
U.S. Market Run-up	-0.609 (0.20)	-0.488 (0.33)	-0.486 (0.32)	-0.529 (0.28)	-0.359 (0.25)
Simultaneous Offer Privatization Dummy	1.623 (0.73)	1.549 (0.75)	1.808 (0.72)	1.322 (0.79)	1.239 (0.72)
U.S. Connections Dummy	3.997 (0.27)	5.384 (0.15)	5.202 (0.15)	3.336 (0.34)	-2.039 (0.50)
Hi-Tech Dummy	10.922 (0.02)	10.084 (0.04)	9.907 (0.05)	8.745 (0.07)	-1.537 (0.68)
High Volume Dummy	3.816 (0.27)	4.575 (0.21)	4.638 (0.22)	5.216 (0.17)	3.119 (0.31)
CORR(-60,-2)	5.043 (0.72)	3.822 (0.79)	3.013 (0.82)	3.953 (0.77)	-6.102 (0.33)
N (emerging/developed)	274 (137/137)	260 (130/130)	260 (130/130)	260 (130/130)	108 (54/54)
Adjusted R ²	0.104	0.087	0.085	0.090	0.13

Model (5) eliminates from the emerging market group IPOs from Israel, Bahamas, Bermuda, Greece, and the British Virgin Islands (countries classified by the World Bank as high income). “EM dummy” equals one for emerging market IPOs and zero for others. “Country Risk Rating” is the rating assigned to the country by *Euromoney* magazine. “Asset Size” is the logarithm of the firm’s assets measured in millions of U.S. dollars. “Issue Size” is the logarithm of issue size offered in all markets in millions of U.S. dollars. “Relative Size” is total assets of the firm at the time of the IPO / total market capitalization of the home market in the month prior to issue. “U.S. Market Run-up” is the cumulative return of the CRSP value-weighted index starting 60 days prior to the offer and ending two days prior to the offer. “CORR(-60,-2)” is the correlation between the home market and the U.S. Zero–one dichotomous variables are assigned as follows. “Offer Price > Expected Price Dummy” equals one if the offer price exceeds the expected price defined as mid-point of the file price range. “Simultaneous Offer” is a dummy variable equal to one if the offer is sold in the U.S. and one or more foreign markets. “Privatization Dummy” equals one if the issue is a privatization. “U.S. Connections Dummy” equals one if the firm has a U.S. connection. “Hi-tech Dummy” equals one if the offer is a high-tech offer based on *SDC* high-tech codes. “High Volume Dummy” equals one if the issue is offered in a month with high volume (i.e., those where the ratio of monthly to total volume is greater than the median monthly to total volume ratio). The table presents in parentheses *p*-values computed from heteroscedasticity consistent *t*-tests.

market IPO. With other control variables in the regression, the coefficient of the emerging market dummy captures the relative difference in underpricing between emerging market and developed market IPOs. In place of the emerging market dummy variable, we also consider the effect of the country risk rating, a continuous variable.²⁰

²⁰ As further robustness checks, we also tried specifications where we formed dummy variables based on the quartiles of country rating shown in Table 3. The dummy variables are not significantly different from zero and neither are they different from each other.

Asset and issue size are meant to control for the size and quality of the issue and U.S. market run-up captures U.S. market conditions at the time of the issue. The correlation of the home market with the U.S. market is included to capture portfolio diversification effects. We control for other factors discussed earlier with several dichotomous 0–1 variables: “Offer Price > Expected Price” is equal to one for issues that sold at offer prices above the midpoint of the file range and is zero otherwise. “High Volume” is equal to one for issues that are offered in high-volume (above median) months, and is zero otherwise. In addition, a “High-Tech” dummy that is equal to one for high-tech issues and is zero otherwise is also included based on earlier findings that emerging and developed market IPOs differ with respect to the level of tangible assets. “Simultaneous Offer” is a dummy variable equal to one if the issue is sold in the U.S. market and other markets and is zero otherwise. “U.S. Connection” is a dummy variable equal to one if the firm has a connection with a U.S. firm or investor prior to the IPO and is zero otherwise. This variable controls for familiarity related factors that reduce information asymmetry.

Relative Size in the Home Market has surfaced in our previous analysis as a significant factor differentiating the emerging and developed market issuers. By the same token, BCR (2004) found that upward revisions were highly significant in explaining the underpricing of IPOs. Upward revisions allow investor bankers to compensate for unexpectedly strong demand once the road show begins. Models (3) and (4) examine the relative influence of these two forces.

Regardless of the specification, the coefficient of the emerging market dummy variable is not significantly different from zero, suggesting that emerging market origin is not a significant factor explaining the variation in IPO initial returns. Similarly, the effect of the country risk rating is insignificant. Relative Size is significantly negative suggesting that prominent issuers in their respective home markets have less underpricing, which would be consistent with higher quality. In Model (4) when we include both variables, the coefficient of the “Offer Price > Expected Price” dummy is positive and significant, supporting Hanley’s (1993) finding that upwardly revised have a higher degree of underpricing. However, the coefficient of Relative Size remains negative but loses significance. The correlation between Relative Size and the Offer Price > Expected Price Dummy is –77% so that part of the loss of significance could be due to the high correlation between the two variables. Note that the negative correlation implies that larger relative size issuers are less likely to be upwardly revised. This is consistent with higher quality issuers having less *ex ante* uncertainty about them which facilitates the pre-market appraisal of value. If we include interaction terms of these variables with the emerging market dummy (or the high-tech and high-volume dummy), the coefficients of the interaction terms are not significant. In model (5), as a robustness check we exclude the IPOs from Israel and other high income countries. While this restriction reduces the emerging market sample by 76 IPOs, the results mirror those for the larger sample.

The regression results show that two factors mainly explain the variation in initial returns: unexpectedly strong demand on the road show and industry, and specifically, high-tech origin. However, these factors do not differentiate emerging market IPOs from developed market IPOs. Overall we find no difference in underpricing which suggests that emerging market IPOs have effectively bridged the gap with developed market IPOs.

4.5. Analysis of direct issue costs

We also conduct regression analysis of the cross-sectional determinants of direct issue costs or gross spread (for brevity, the results are not reported here in detail). We draw on previous studies

such as and Booth and Smith (1986) and Altinkilic and Hansen (2000) for our specifications and control variables. The results are similar in spirit to the results on underpricing — there is no evidence that direct costs vary significantly between emerging and developed market IPOs.

5. Conclusions

Both the univariate and regression results suggest no significant difference in the underpricing and direct costs between emerging and developed market IPOs. Given the evidence in previous studies showing that underpricing and underwriting fees are positively related to risk and information asymmetry, the absence of differences in underpricing between emerging and developed market IPOs is surprising — particularly in light of the large difference in country risk between the samples. However, it is important to note that issuance in the U.S. is the *end* of the entry process into the U.S. At the beginning is a selection process by issuers and underwriters that must assess how successful an offering will be in the U.S. market. The finding of no difference in issue costs raises the possibility that emerging market IPOs have firm, issue, and market characteristics that compensate in other ways for their greater country risk.

The results we report in this paper are consistent with research comparing U.S. and foreign IPOs (BCR, 2004). In that paper we found evidence that foreign U.S. IPOs had characteristics that helped them bridge the gap with domestic U.S. IPOs so that when all factors were held constant there were no significant differences in issue costs between the groups. In that setting we examined foreign IPOs as a group without regard to whether they were from emerging or developed market countries. The evidence we provide here shows a more discernable degree of compensation, especially when one examines the lowest rated emerging market firms in relation to others.

Since emerging market IPOs are likely to be riskier (judged by higher country risk ratings), we conclude that the lack of differences in issue costs derives from compensating features or characteristics of the firm, issue, or market that lessen investors' concerns about country risk. Emerging market IPOs have characteristics consistent with higher quality or lower risk, such as smaller issue sizes, larger relative size in their home market, and greater frequency of NYSE listings. In addition, the issuers from emerging markets tend to have more tangible assets and are less likely to be high-tech ventures which also entail greater product risk. Both emerging and developed market issuers enter the U.S. market after strong domestic and home market equity performance. This suggests that equity issuance — whether U.S., foreign, emerging or developed market — is highly dependent on strong equity market conditions.

Earlier we noted that, in a frictionless world, easy entry would result in a wide diversity of issuers on many dimensions such as size and risk. But in a world of capital market friction, only those firms able to overcome these frictions find their way to new markets. Our findings are not consistent with a hypothesis of frictionless entry, but one of selective entry. Emerging market IPO issuers exhibit less diversity on the dimensions noted above that effectively compensate for their risks. Viewed from another perspective, this selectivity speaks indirectly to high costs of capital raising and barriers to entry. Many emerging market firms have incentives to issue in the U.S. but only a select few find it feasible to do so.

References

- Altinkilic, O., Hansen, R.S., 2000. Are there economies of scale in underwriting fees? Evidence of rising external financing costs. *Review of Financial Studies* 13, 191–218.

- Asquith, P., Mullins, D., 1986. Equity issues and offering dilution. *Journal of Financial Economics* 15, 61–89.
- Baker, K.H., Powell, G., Weaver, D., 1999. Does NYSE listing affect visibility? *Financial Management* 28, 46–54.
- Beatty, R.P., Ritter, J.R., 1986. Investment banking, reputation, and the underpricing of initial public offerings. *Journal of Financial Economics* 15, 213–232.
- Bekaert, G., Harvey, C.R., 1995. Time-varying world market integration. *Journal of Finance* 50, 403–443.
- Bekaert, G., Harvey, C.R., 1997. Emerging equity market volatility. *Journal of Financial Economics* 43, 29–77.
- Bekaert, G., Erb, C., Harvey, C.R., Viskanta, T., 1997. What matters for emerging equity market investments. *Emerging Markets Quarterly* 1, 14–19.
- Bekaert, G., Harvey, C.R., Lumsdaine, R., 2002. Dating the integration of world equity markets. *Journal of Financial Economics* 65, 203–247.
- Booth, J.R., Smith II, R.L., 1986. Capital raising, underwriting and the certification hypothesis. *Journal of Financial Economics* 15, 261–281.
- Brennan, M.J., Subramanian, A., 1995. Investment analysis and price formation in securities markets. *Journal of Financial Economics* 38, 361–381.
- Brennan, M.J., Jegadeesh, N., Swaminathan, B., 1993. Investment analysis and the adjustment of stock prices to common information. *Review of Financial Studies* 6, 799–824.
- Bruner, R.F., Chaplinsky, S., Ramchand, L., 2004. U.S.-bound IPOs: issue costs and selective entry. *Financial Management* 33, 39–60.
- Chen, H., Ritter, J.R., 2000. The seven percent solution. *Journal of Finance* 55, 1105–1132.
- Coval, J., Moskowitz, T., 2001. The geography of investment: informed trading and asset prices. *Journal of Political Economy* 109, 811–841.
- Dunbar, C., 2000. Factors affecting investment banks initial public offering market share. *Journal of Financial Economics* 55, 3–41.
- Erb, C., Harvey, C.R., Viskanta, T., 1996. Political risk, economic risk, and financial risk. *Financial Analysts Journal* 52, 28–46.
- Errunza, V., Miller, D.P., 2000. Market segmentation and the cost of capital in international markets. *Journal of Financial and Quantitative Analysis* 35, 577–600.
- Foerster, S., Karolyi, G.A., 1999. The effects of market segmentation and investor recognition on asset prices: evidence of foreign stock listings in the U.S. *Journal of Finance* 54, 981–1014.
- Grinblatt, M., Keloharju, M., 2001. Distance, language, and cultural bias: the role of investor sophistication. *Journal of Finance* 56, 1053–1073.
- Hanley, K.W., 1993. The underpricing of initial public offerings and the partial adjustment phenomena. *Journal of Financial Economics* 34, 177–198.
- Kang, J.K., Stulz, R., 1997. Why is there a home bias? An analysis of foreign portfolio equity ownership in Japan. *Journal of Financial Economics* 46, 3–28.
- Karolyi, G.A., 1998. What happens to stocks that list shares abroad? A survey of evidence and its managerial implications. *NYU Salomon Brothers Center Monograph Series* 7, 1–60.
- Korajczyk, R., Lucas, D., McDonald, R., 1990. Understanding stock price behavior around the time of equity issues. In Hubbard, G., (Ed.), *Asymmetric Information, Corporate Finance and Investment*, NBER: University of Chicago Press, 257–278.
- Lins, K., Strickland, D., Zenner, M., 2005. Do non-U.S. firms issue stock on U.S. equity markets to relax capital constraints? *Journal of Financial and Quantitative Analysis* 40, 109–133.
- Masulis, R., Korwar, A., 1986. Seasoned equity offerings: an empirical investigation. *Journal of Financial Economics* 15, 91–118.
- Megginson, W., Netter, J., 2000. From state to market: a survey of empirical studies on privatization. Working Paper 98-05, New York Stock Exchange.
- Megginson, W., Nash, R.C., van Randenborgh, M., 1994. The financial and operating performance of newly privatized firms: an international empirical analysis. *Journal of Finance* 49, 403–452.
- Merton, R., 1987. A simple model of capital market equilibrium with incomplete information. *Journal of Finance* 42, 483–510.
- Mikkelson, W., Partch, M., 1986. Valuation effects of security offerings and the issuance process. *Journal of Financial Economics* 15, 30–31.
- Miller, D.P., 1999. The market reaction to international cross-listing: evidence from depositary receipts. *Journal of Financial Economics* 51, 103–124.
- Myers, S., 1977. Determinants of corporate borrowing. *Journal of Financial Economics* 5, 147–175.

- Myers, S., Majluf, N., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13, 187–222.
- Ritter, J.R., 1984. The “hot issue” market of 1980. *Journal of Business* 32, 215–240.
- Rock, K., 1986. Why new issues are underpriced. *Journal of Financial Economics* 15, 187–212.
- Sarkissian, S., Schill, M.J., 2004. The overseas listing decision: new evidence of proximity preference. *Review of Financial Studies* 17, 769–809.
- Wurgler, J., 2000. Financial markets and the allocation of capital. *Journal of Financial Economics* 58, 187–214.
- Yehezkel, A., 2005. Foreign corporations listing in the United States — does law matter? Testing the Israeli phenomenon, Working Paper, University of Illinois College of Law.