

## **Initial Public Offerings: International Insights**

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published in the June 1994 *Pacific-Basin Finance Journal*  
Vol. 2, pp. 165-199  
Updated November 18, 2008

### **ABSTRACT OF ARTICLE**

This paper discusses evidence on the short-run and long-run performance of companies going public in many countries. Differences in average initial returns are analyzed in terms of binding regulations, contractual mechanisms, and the characteristics of the firms going public. The evidence suggests that the move in recent years by most East Asian countries to reduce regulatory interference in the setting of offering prices should result in less short-run underpricing in the 1990s than in the 1980s. Evidence is presented that companies successfully time their offerings for periods when valuations are high, with investors receiving low returns in the long-run. Implications for investors, issuers, and regulators are discussed.

**The following table updates Table 1 of the *Pacific-Basin Finance Journal* article, with the inclusion of data from Argentina, Austria, Bulgaria, China, Cyprus, Denmark, Greece, India, Indonesia, Iran, Ireland, Israel, Nigeria, Norway, the Philippines, Poland, Russia, South Africa, Sri Lanka, and Turkey, and updated information from all of the original 25 countries. For recent years, Dealogic is the source of most of the data.**

**Table 1**  
**Equally weighted average initial returns for 45 countries**

<b>Country</b>	<b>Source</b>	<b>Sample Size</b>	<b>Time Period</b>	<b>Avg. Initial Return</b>
Argentina	Eijgenhuijsen & van der Valk	20	1991-1994	4.4%
Australia	Lee, Taylor & Walter; Woo; Pham; Ritter	1,103	1976-2006	19.8%
Austria	Aussenegg	96	1971-2006	6.5%
Belgium	Rogiers, Manigart & Ooghe; Manigart DuMortier; Ritter	114	1984-2006	13.5%
Brazil	Aggarwal, Leal & Hernandez; Saito	180	1979-2006	48.7%
Bulgaria	Nikolov	9	2004-2007	36.5%
Canada	Jog & Riding; Jog & Srivastava; Kryzanowski, Lazrak & Rakita; Ritter	635	1971-2006	7.1%
Chile	Aggarwal, Leal & Hernandez; Celis & Maturana; Ritter	65	1982-2006	8.4%
China	Chen, Choi, and Jiang (A shares)	1,394	1990-2005	164.5%
Cyprus	Gounopoulos, Nounis, and Stylianides	51	1999-2002	23.7%
Denmark	Jakobsen & Sorensen; Ritter	145	1984-2006	8.1%
Finland	Keloharju	162	1971-2006	17.2%
France	Husson & Jacquillat; Leleux & Muzyka; Paliard & Belletante; Derrien & Womack; Chahine; Ritter	686	1983-2006	10.7%
Germany	Ljungqvist; Rocholl; Ritter	652	1978-2006	26.9%
Greece	Nounis, Kazantzis & Thomas	363	1976-2005	25.1%
Hong Kong	McGuinness; Zhao & Wu; Ljungqvist & Yu; Fung, Gul, and Radhakrishnan; Ritter	1,008	1980-2006	15.9%
India	Marisetty and Subrahmanyam	2,811	1990-2007	92.7%
Indonesia	Hanafi; Ljungqvist & Yu; Danny; Suherman	321	1989-2007	21.1%
Iran	Bagherzadeh	279	1991-2004	22.4%
Ireland	Ritter	31	1999-2006	23.7%
Israel	Kandel, Sarig & Wohl; Amihud & Hauser; Ritter	348	1990-2006	13.8%
Italy	Arosio, Giudici & Paleari; Cassia, Paleari & Redondi; Vismara	233	1985-2006	18.2%
Japan	Fukuda; Dawson & Hiraki; Hebner & Hiraki; Pettway & Kaneko; Hamao, Packer, & Ritter; Kaneko & Pettway; Ritter; TokyoIPO.com	2,579	1970-2007	40.5%
Korea	Dhatt, Kim & Lim; Ihm; Choi & Heo; Ng; Cho; Ritter	1,417	1980-2007	57.4%
Malaysia	Isa; Isa & Yong; Yong	350	1980-2006	69.6%
Mexico	Aggarwal, Leal & Hernandez; Eijgenhuijsen & van der Valk	88	1987-1994	15.9%
Netherlands	Wessels; Eijgenhuijsen & Buijs; Jenkinson, Ljungqvist, & Wilhelm; Ritter	181	1982-2006	10.2%

Country	Source	Sample Size	Time Period	Avg. Initial Return
New Zealand	Vos & Cheung; Camp & Munro; Ritter	214	1979-2006	20.3%
Nigeria	Ikoku; Achua	114	1989-2006	12.7%
Norway	Emilsen, Pedersen & Sættem; Liden; Ritter	153	1984-2006	9.6%
Philippines	Sullivan & Unite; Ritter	123	1987-2006	21.2%
Poland	Jelic & Briston; Ritter	224	1991-2006	22.9%
Portugal	Almeida & Duque; Ritter	28	1992-2006	11.6%
Russia	Ritter	40	1999-2006	4.2%
Singapore	Lee, Taylor & Walter; Dawson; Ritter	441	1973-2006	28.3%
South Africa	Page & Reyneke	118	1980-1991	32.7%
Spain	Ansotegui & Fabregat; Alvarez Otera	128	1986-2006	10.9%
Sri Lanka	Samarakoon	115	1987-2007	48.9%
Sweden	Rydqvist; Schuster; Simonov; Ritter	406	1980-2006	27.3%
Switzerland	Kunz, Drobetz, Kammermann & Walchli; Ritter	147	1983-2006	29.3%
Taiwan	Chen	1,312	1980-2006	37.2%
Thailand	Wethyavivorn & Koo-smith; Lonkani & Tirapat; Ekkayokkaya and Pengniti	459	1987-2007	36.6%
Turkey	Kiyamaz; Durukan; Ince	282	1990-2004	10.8%
United Kingdom	Dimson; Levis	3,986	1959-2006	16.8%
United States	Ibbotson, Sindelar & Ritter; Ritter	12,007	1960-2007	16.9%

Sources: See references listed in the published article. Where more than one set of authors is listed as a source of information, combined sample sizes have been constructed. Average initial returns are constructed in different manners from study to study. In general, in countries where market prices are available immediately after offerings, the one-day raw return is reported. In countries where there is a delay before unconstrained market prices are reported, market-adjusted returns over an interval of several weeks are reported. All of the averages weight each IPO equally.

The Argentine numbers are from Hans Eijgenhuijsen and Rob van der Valk. The Australian numbers for 1990-95 are from Li-Anne Woo's University of New South Wales (UNSW) dissertation. The 1996-2005 Australian numbers are from Peter Pham at the UNSW. The 2006 numbers are from Dealogic. The Austrian numbers are from Wolfgang Aussenegg's Vienna University of Technology working paper. The updated Belgian numbers come from Sophie Manigart of the University of Ghent, with assistance from Alexander Ljungqvist of NYU. For 2000-2004, the Belgian numbers are from Christophe DuMortier. For 2005-2006, the Belgian numbers are from Dealogic. The Brazilian numbers (62 IPOs with 78.5% underpricing) from 1979-1990 are from Aggarwal, Leal, & Hernandez, and (44 IPOs with 6.7% underpricing) from 2004-2006 are from Dealogic. There are also 74 IPOs from 1995-2003 with unknown underpricing. Richard Saito has also provided numbers from 2004-2006. The 1997-2006 volume numbers are from Emerson Faria, based on information at [www.boverspa.com.br](http://www.boverspa.com.br). The Bulgarian numbers for 2004-January 2007 are from von Georgi Nikolov's University of Innsbruck dissertation. The updated Canadian numbers are from Lawrence Kryzanowski, Skander Lazrak, and Ian Rakita's 2006 *Multinational Finance Journal* article "The Behavior of Prices, Trades and Spreads for Canadian IPOs." For 2003-2006, I have used numbers calculated from Dealogic. The updated Chilean numbers are from Cristian Celis and Gustavo Maturana's 1998 *Revista ABANTE* article. The Chinese numbers are Zhaohui Chen, Jongmoo Jay Choi, and Cao Jiang's 2007 Temple University working paper "Corruption in State Owned Firms: Evidence from China's IPOs." Their numbers are consistent with Lihui Tian and William Megginson's 2006 Peking University and University of Oklahoma working paper "Extreme Underpricing: Determinants of Chinese IPO Initial Returns" for 1992-2000 and Shiguang Ma and Robert Faff's April 2007 *Pacific-Basin Finance Journal* article "Market Conditions and the Optimal IPO Allocation Mechanism in China" for 1994-2003, with all three studies using A shares traded domestically.

Data from Cyprus is provided by Dimitrios Gounopoulos, Christos Nounis, and Paris Stylianides for 1999-2002, whose 2007 forthcoming *Journal of Financial Decision Making* article "The Short and Long Term Performance of Initial Public Offerings in the Cyprus Stock Exchange" reports numbers for 75 IPOs. The numbers for 51 IPOs reported here exclude 24 IPOs that raised less than U.S.\$1 million (2007 purchasing power). The Danish numbers are from Jan Jacobsen and Ole Sorensen at Copenhagen Business School for 1984-1998, with Dealogic being the source for 1999-2006 (with confirmation from Christian Nielsen). The Finnish numbers are from Matti Keloharju. The French numbers from 1993-98 are from Francois Derrien and Kent Womack. The French numbers from 1999-2000 are from Salim Chahine. The French numbers from 2001-2006 are for 115 IPOs from Dealogic, and exclude Marché Libre IPOs. The German numbers are a weighted average of 27.7% for 407 IPOs from 1978-1999 from Alexander Ljungqvist and 41.0% for 138 Neuer Market IPOs from 2000-2001, with the latter numbers from Jorg Rocholl's 2005 University of North Carolina working paper. For 2002-2006, data on the 107 IPOs comes from Dealogic. The Greek numbers for 1987-1994 can be found in a chapter in Mario Levis' 1996 book *Empirical Issues in Raising Equity Capital*, but the reported numbers for 1976-2005 are from a working paper by Christos Nounis of the National and Kapodistrian University of Athens. Zhao and Wu's Hong Kong numbers are from a City University of Hong Kong working paper. For 1997-2001, the Hong Kong numbers are from Alexander Ljungqvist and Xiaoyun Yu's 2003 working paper "Stock market development, liquidity, and corporate governance." For 2002-2003, the Hong Kong numbers are from Simon Yu Kit Fung, Ferdinand A. Gul, and Suresh Radhakrishnan's "Investment Banks' Repeated IPO Business Opportunities and IPO Underpricing." For 2004-2006, the Hong Kong numbers are from Dealogic. Steve Dawson of the University of Hawaii has confirmed the Hong Kong numbers for most years. The average initial return for India from 1990-2004 is from the NYU working paper "Group Affiliation and the Performance of Initial Public Offerings in the Indian Stock Market," by Vijaya B Marisetty and Marti G. Subrahmanyam. The average initial return for 1992-93 would be only 35.3% based upon IPOs with an offer price of above 10 Rupees, with the data coming from the 2002 *Managerial Finance* article by Chandra Krishnamurti and Pradeep Kumar. This is only about one-third of the unconditional average for these two years. Indian data for 2005-2007 has been supplied by Vijayi Marisetty. The Indonesian numbers for 1989-1994 are from Arosio, Giudici and Paleiri's Italian working paper, in which they cite Hanafi's (1997) working paper "Efisiensi Emisi Saham Baru di Bursa Efek Jakarta (1989-1994)." The Indonesian numbers from 1995-2001 are from Ljungqvist and Yu's working paper, and the 2002-2003 numbers are from Freddy Danny. For 2004-2007, the numbers are from Suherman of the State University of Jakarta. The Iranian numbers from 1991-2004 are from Saeed Bagherzadeh's 2006 University of Tehran working paper "The Initial Public Offerings Underpricing and Long-Run Underperformance in the Iranian Emerging Stock Market: Some Empirical Evidence." The Irish numbers are from Dealogic. The Israeli numbers are from Yakov Amihud and Shmuel Hauser's 2001 NYU working paper. Kandel, Sarig, and Wohl's *Review of Financial Studies* article covers the period after Israeli auctions with no price limits became mandatory. For 1999-2006, the numbers for 63 Israeli IPOs are from Dealogic. The updated Italian numbers are from a working paper by Arosio, Giudici and Paleari of Politecnico di Milano and Università degli Studi di Bergamo through 2000, and from Cassia, Paleari & Redondi for 2001. For 2002-2006, the numbers have been supplied by Silvio Vismara.

The updated Japanese numbers are from Hamao, Packer and Ritter's 2000 *Pacific-Basin Finance Journal* article for 1989-1995 OTC firms, and from Takashi Kaneko and Richard Pettway's "Auctions versus Book-Building Underwriting of Japanese IPOs: OTC, Mothers, and Nasdaq-Japan Issues" for 1996-2001. Takashi Kaneko also supplied numbers on TSE-listed IPOs from 1992-2000. Numbers from 2002-2006 are from Dealogic. It should be noted that the Japanese average initial returns are sensitive to whether some very small issues are included, and whether the first trading day close is used or the close on the first day that price limits are not a binding constraint. For example, in December 2006, Piped Bits raised ¥420 million (about \$4 million) by selling 2,000 shares at an offer price of ¥210,000 per share, with a first-day close of ¥430,000 (probably constrained by price limits) and a one-week close of ¥1,200,000 (up 471%). Also in December 2006, eBase sold 1,000 shares at ¥185,000 per share, raising less than \$2 million. The stock closed at ¥428,000 on the first day and ¥890,000 after one week (up 381%). Another December 2006 IPO was that of Advantage Risk Management, which sold 25,000 shares at ¥20,000 per share, raising about \$5 million. The stock closed at ¥47,000 after one day, and ¥55,000 after one week, up 175%. For 2007, data from [www.TokyoIPO.com](http://www.TokyoIPO.com) is used.

The updated Korean numbers are from Byung Kyun Ihm's 1997 *Korean Journal of Financial Management* and Choi and Heo's 2000 *Korean Journal of Finance* articles, for years through 1996. For 1997-1999, David Ng has supplied the data. For 2000-2007, 883 IPOs from the Korean Stock Exchange are used, with Dealogic returns for 2000-2003 and KSE returns for 2004-2007 supplied by Sungil Cho of Chung-Ang University. The numbers for Malaysia come from several sources: Isa, Isa and Yong, and Othman Yong. The numbers for most years have been confirmed by Steve Dawson of the University of Hawaii. In general, only Main Board IPOs are included for 1993 and later. There is a 2007

*Journal of Business Finance & Accounting* article by Ahmad, Cambell, and Goodacre that covers 1990-2000. Numbers for several European countries for the 1992-99 period are supplied by Jenkinson, Ljungqvist, and Wilhelm, who compiled data for their 2003 *Review of Financial Studies* article. The Mexican numbers for 1991-1994 (51 IPOs with 3.45% underpricing) are from Hans Eijgenhuijsen and Rob van der Valk. The New Zealand numbers for 1992-99 are from a University of Auckland and University of Melbourne working paper by Graeme Camp and Robert Munro. Data for 2005-2006 come from Dealogic. For the Netherlands, the 2000-2006 numbers are from Dealogic and Silvio Vismara, and 1983-1999 numbers have been supplied by Tjalling van der Goot of the University of Amsterdam. The 2000-2004 numbers for New Zealand have been supplied by Graeme Camp. The Nigerian numbers for 61 IPOs from 1989-1993 are from a University of Southern California working paper by Ikoku. For the 51 IPOs from 1995-2006, the source is Joseph Achua's 2007 University of Nigeria dissertation "Price Performance of Initial Public Offerings: Empirical Evidence from Deregulated Nigerian Capital Market." Data for 1994 is missing. The Norwegian numbers for 1984-1996 are from N. Haug Emilsen, K. Pedersen, and Frode Saettem, 1997, *Børsintroduksjoner, BETA - Tidsskrift for bedriftsøkonomi* 11, 1-13 (in Norwegian). For 1997-2001, they are from Erik Liden, and from 2002-2006, they are from Dealogic. The Philippine numbers are from Michael Sullivan and Angelo Unite's 2001 *Pacific-Basin Finance Journal* article for 1987-1997, and Dealogic of 1999-2006. The Polish numbers are from Jelic and Briston's 2003 *European Financial Management* article for 1991-1998, and from Dealogic for 1999-2006. The Portuguese numbers are from Miguel Almeida and Joao Duque's chapter in *Initial Public Offerings: An International Perspective*, edited by Greg. N. Gregoriou (Elsevier, 2006) for 1992-1998, and from Dealogic for 1999-2006. Russian numbers are from Dealogic.

Numbers for Singapore from 1992-2001 are from Steve Dawson of the University of Hawaii. Singaporean numbers for 2002-2006 are from Dealogic. The South African numbers are from Page and Reyneke's Oct-Dec 1997 *Journal of Business, Finance, and Accounting* article "The Timing and Subsequent Performance of Initial Public Offerings on the Johannesburg Stock Exchange." The updated Spanish numbers are from an ESADE working paper by Carmen Ansotegui and Jordi Fabregat and working papers by Susana Alvarez Otera. For 2005-2006, Spanish numbers are from Dealogic. Sri Lanka numbers come from the 2008 working paper "The Underpricing of IPOs in the Sri Lankan Stock Market" by Lalith P. Samarakoon of the University of St. Thomas in Minnesota. Swedish numbers for 81 IPOs from 1995-1998 are from Josef Schuster's LSE dissertation. Andrei Simonov provided data from 1995-2000, and I have used Dealogic data for 1999-2006. The Swiss numbers are from a University of Basel working paper by Wolfgang Drobetz, Matthias Kammermann, and Urs Walchli, and for 2001-2006 from Dealogic. The updated Taiwanese numbers are from Hsuan-Chi Chen of the University of New Mexico. Published numbers for smaller samples are contained in a 1997 *Journal of Financial Studies* article by Lin and Sheu and a Hong Kong University of Science and Technology working paper by Gwohorng Liaw, Yu-Jane Liu, and John Wei for 52 auctions from 1995-1998. For the auctions, the average first-day return of 15.06% is computed as an average of the quantity-weighted average price paid in the discriminatory auction tranche and the fixed price paid for the other tranche. Each tranche has a 50% weight. Thai numbers are from a working paper by Ravi Lonkani (Payap University) and Sunti Tirapat (Chulalongkorn University), for 2000-2006 from Dealogic, and for 2007 from Manapol Ekkayokkaya and Pengniti's Chulalongkorn University working paper "Governance Reforms and IPO Underpricing." The later paper covers 1990-2007. The Turkish numbers are from Halil Kitmaz's June 2000 *Journal of Multinational Financial Management* article "The Initial and Aftermarket Performance of IPOs in an Emerging Market: Evidence from Istanbul Stock Exchange" for 1990-1996, and for 1997-2004 from Prof. Banu Durukan of Dokuz Eylul University. The Turkish numbers have been calculated with assistance from Prof. Ozgur Ince of Virginia Tech. The U.K. numbers for 2000-2006 are from Mario Levis of the Cass Business School of City University.

The numbers for some countries represent the average first-day return on IPOs for which the company is headquartered in that country. For Belgium, for example, during 1991-1999, 61 companies went public, for which first-day return information is available on 41 IPOs. Of the 61 IPOs, 39 went public on the Brussels Stock Exchange, 3 on Nasdaq, 9 on Easdaq, and 10 on Euro.NM. Of the 3 Nasdaq IPOs by Belgian companies (Lernout et Hauspie, Xiekon, and ICOS Vision Systems), only Xiekon was an American Depositary Share (ADS) issue. The other 2 Nasdaq IPOs have been included in the U.S. totals, resulting in double-counting. The U.S. numbers exclude ADS issues, but in general include other foreign firms going public in the U.S., especially on Nasdaq. Many larger Canadian companies and Israeli tech companies went public in the U.S. in the 1990s. The Israeli numbers in the table are based on Israeli companies going public in Israel.

Special thanks are owed to Alexander Ljungqvist, Josef Schuster, Ozde Oztekin, and Dealogic, in addition to the many other individuals who have provided information.

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