

Reasons for IPO underpricing

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Initial Public Offerings

Jay R. Ritter
Cordell Professor of Finance
University of Florida
<http://bear.cba.ufl.edu/ritter>

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3.2. Reasons for New Issues Underpricing

A number of reasons have been advanced for the new issues underpricing phenomenon, with different theories focusing on various aspects of the relations between investors, issuers, and the investment bankers taking the firms public. In general, these theories are not mutually exclusive. Furthermore, a given reason can be more important for some IPOs than for others.

3.2.a The winner's curse hypothesis

An important rationale for the underpricing of IPOs is the "winner's curse" explanation. Since a more or less fixed number of shares are sold at a fixed offering price, rationing will result if demand is unexpectedly strong. Rationing in itself does not lead to underpricing, but if some investors are at an informational disadvantage relative to others, some investors will be worse off. If some investors are more likely to attempt to buy shares when an issue is underpriced, then the amount of excess demand will be higher when there is more underpricing. Other investors will be allocated only a fraction of the most desirable new issues, while they are allocated most

of the least desirable new issues. They face a winner's curse: if they get all of the shares which they ask for, it is because the informed investors don't want the shares. Faced with this adverse selection problem, the less informed investors will only submit purchase orders if, on average, IPOs are underpriced sufficiently to compensate them for the bias in the allocation of new issues.

Numerous studies have attempted to test the winner's curse model, both for the U.S. and other countries. While the evidence is consistent with there being a winner's curse, other explanations of the new issues underpricing phenomenon exist.

3.2.b *The market feedback hypothesis*

Where bookbuilding is used, investment bankers may underprice IPOs to induce regular investors to reveal information during the pre-selling period, which can then be used to assist in pricing the issue. In order to induce regular investors to truthfully reveal their valuations, the investment banker compensates investors through underpricing. Furthermore, in order to induce truthful revelation for a given IPO, the investment banker must underprice issues for which favorable information is revealed by more than those for which unfavorable information is revealed. This leads to a prediction that there will only be a partial adjustment of the offer price from that contained in the preliminary prospectus to that in the final prospectus. In other words, those IPOs for which the offer price is revised upwards will be **more** underpriced than those for which the offer price is revised downwards. This pattern is in fact present in the data, as shown in Table 3.

Table 3

IPOs in 1990-96 with proceeds = \$5 million, excluding units and ADRs				
Offer price relative to the file price range				
	All	OP < Low	Lo = OP = Hi	OP > High
Average initial return	13.99%	3.54%	11.99%	30.22%
Standard deviation	21.06%	8.92%	17.97%	27.12%
Percent positive	75%	53%	76%	95%
Number of IPOs	2,861	708	1511	642

Source: Barry, Gilson, and Ritter (1998). The sample of 2,861 IPOs is less than in Figure 1 because five IPOs with missing file price ranges are deleted.

3.2.c *The bandwagon hypothesis*

The IPO market may be subject to bandwagon effects. If potential investors pay attention not only to their own information about a new issue, but also to whether other investors are purchasing, bandwagon effects may develop. If an investor sees that no one else wants to buy, he or she may decide not to buy even when there is favorable information. To prevent this from

happening, an issuer may want to underprice an issue to induce the first few potential investors to buy, and induce a bandwagon, or cascade, in which all subsequent investors want to buy irrespective of their own information.

An interesting implication of the market feedback explanation, in conjunction with bandwagons, is that positively-sloped demand curves can result. In the market feedback hypothesis, the offering price is adjusted upwards if regular investors indicate positive information. Other investors, knowing that this will only be a partial adjustment, correctly infer that these offerings will be underpriced. These other investors will consequently want to purchase additional shares, resulting in a positively sloped demand curve. The flip side is also true: because investors realize that a cut in the offering price indicates weak demand from other investors, cutting the offer price might actually scare away potential investors. And if the price is cut too much, investors might start to wonder why the firm is so desperate for cash. Thus, an issuer faced with weak demand may find that cutting the offer price won't work, and its only alternative is to postpone the offering, and hope that market conditions improve.

3.2.d The investment banker's monopsony power hypothesis

Another explanation for the new issues underpricing phenomenon argues that investment bankers take advantage of their superior knowledge of market conditions to underprice offerings, which permits them to expend less marketing effort and ingratiate themselves with buy-side clients. While there is undoubtedly some truth to this, especially with less sophisticated issuers, when investment banking firms go public, they underprice themselves by as much as other IPOs of similar size. Investment bankers have been successful at convincing clients and regulatory agencies, including the Office of Thrift Supervision (in the case of mutual savings bank conversions), that underpricing is normal for IPOs.

3.2.e The lawsuit avoidance hypothesis

Since the Securities Act of 1933 makes all participants in the offer who sign the prospectus liable for any material omissions, one way of reducing the frequency and severity of future lawsuits is to underprice. Underpricing the IPO seems to be a very costly way of reducing the probability of a future lawsuit. Furthermore, other countries in which securities class actions are unknown, such as Finland, have just as much underpricing as in the U.S.

3.2.f The signalling hypothesis

Underpriced new issues "leave a good taste" with investors, allowing the firms and insiders to sell future offerings at a higher price than would otherwise be the case. This reputation argument has been formalized in several signalling models. In these models, issuing firms have private information about whether they have high or low values. They follow a dynamic issue strategy, in which the IPO will be followed by a seasoned offering. Various empirical studies, however, find that the hypothesized relation between initial returns and subsequent seasoned new issues is not present, casting doubt on the importance of signalling as a reason for underpricing.

3.2.g The ownership dispersion hypothesis

Issuing firms may intentionally underprice their shares in order to generate excess demand and so be able to have a large number of small shareholders. This dispersed ownership will both increase the liquidity of the market for the stock, and make it more difficult for outsiders to challenge management.

3.2.h Summary of explanations of new issues underpricing

All of the above explanations for new issues underpricing involve rational strategies by buyers. Several other explanations involving irrational strategies by investors have been proposed. These irrational strategies will be discussed under the heading of the long-run performance of IPOs, for any model implying that investors are willing to overpay at the time of the IPO also implies that there will be poor long-run performance.

Many of the above explanations for the underpricing phenomenon can be criticized on the grounds of either the extreme assumptions that are made or the unnecessarily convoluted stories involved. On the other hand, most of the explanations have some element of truth to them. Furthermore, the underpricing phenomenon has persisted for decades with no signs of its imminent demise.

3.3 Why don't issuers get upset about leaving money on the table?

The dollar amount of underpricing per share, multiplied by the number of shares offered, is referred to as the amount of money "left on the table." An extreme example is Netscape's August 1995 IPO, in which (including the international tranche and over-allotment options), 5.75 million shares were sold at \$28.00 per share. The first-day market price closed at \$58.25, leaving \$174 million on the table. If the same number of shares could have been sold at \$58.25 per share instead of \$28.00, the issuing firm's pre-issue shareholders would have been better off by \$174 million (before investment banker fees). Instead, the wealth of those who were allocated shares at the offer price increased by this amount. Yet, amazingly, Netscape's pre-issue shareholders weren't visibly upset by this transfer of wealth from their pockets. Why not?

The reason probably lies in the "partial adjustment phenomenon," illustrated in Table 3. The highest initial returns, and therefore the most amount of money left on the table, tend to be associated with issues where the offer price has been revised upwards from the file price range. Furthermore, frequently the number of shares are revised in the same direction as the price. To use the extreme example of Netscape, the preliminary prospectus contained an offer price range of \$12-14 per share, for 3,500,000 shares (not including a 15% over-allotment option). Thus, just a few weeks before the offering, the company was expecting to raise about \$50 million. Instead, it raised \$161 million before fees. So the bad news that a lot of money was left on the table arrived at the same time that the good news of high proceeds and a high market price arrived. Because a lot of money is left on the table almost exclusively when it is packaged with good news, issuers rarely complain. And the investment banker will always be willing to argue that

the price jump was due to a successful job of marketing the issue by the investment banker.

4. "Hot Issue" Markets

A second pattern is that cycles exist in both the volume and the average initial returns of IPOs. This is illustrated for 1977-1996 in Figures 2 and 3. Inspection of these figures shows that high initial returns tend to be followed by rising IPO volume. The periods of high average initial returns and rising volume are known as "hot issue" markets. The volume of IPOs, both in the U.S. and other countries, shows a strong tendency to be high following periods of high stock market returns, when stocks are selling at a premium to book value. Rational explanations for the existence of hot issue markets are difficult to come by.

Hot issue markets exist in other countries as well as the U.S. For example, there was a hot issue market in the United Kingdom between the "Big Bang" (the end of fixed commission rates) in October 1986 and the crash a year later. In South Korea, there was a hot issue market in 1988 that coincided with a major bull market.

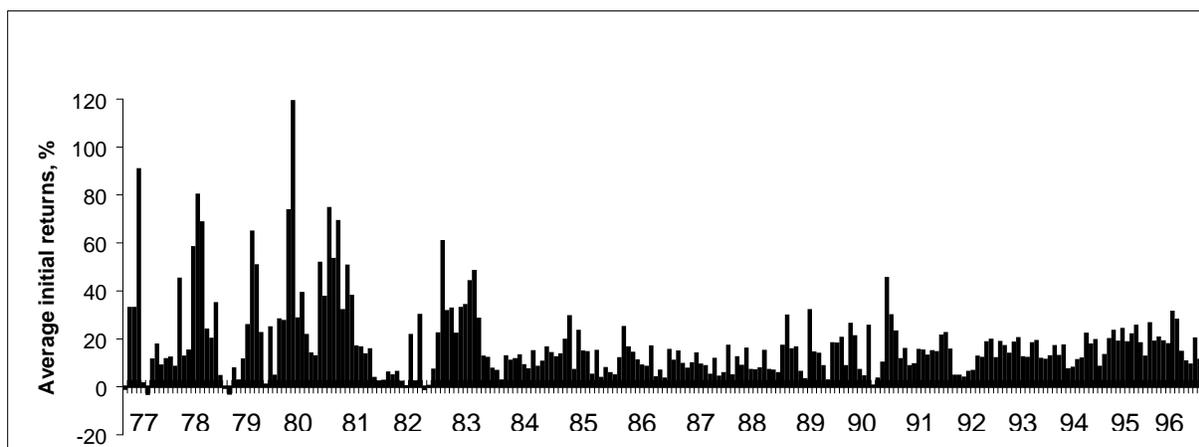


Figure 2-- Average initial returns by month for S.E.C.-registered IPOs in the U.S. during 1977-96. Source: Ibbotson, Sindelar, and Ritter (1994), as updated.

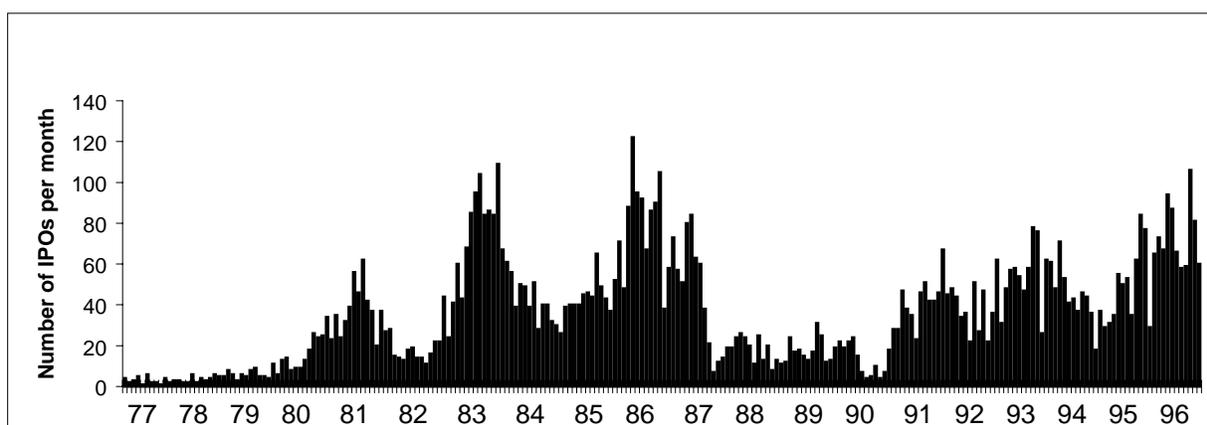


Figure 3-- The number of IPOs by month in the U.S. during 1977-96, excluding closed-end fund IPOs. Source: Ibbotson, Sindelar, and Ritter (1994), as updated.

5. Long-Run Performance

5.1 Evidence on long-run performance

The third pattern associated with IPOs is the poor stock price performance of IPOs in the long run. Measured from the market price at the end of the first day of trading, Figure 4 shows that companies going public during 1970-1993 produced an average return of just 7.9 percent per year for the five years after the offering, using the first closing market price as the purchase price.

A control group of nonissuing firms, matched by market capitalization, produced average annual returns of 13.1 percent. Thus, IPOs underperform by 5.2 percent per year in the five years after going public.

It should be noted that most firms going public have relatively high market-to-book ratios, and most are “small-cap” stocks. Small growth stocks in general have very low returns, and if IPOs are compared with nonissuers that are chosen on the basis of market-to-book ratios, as well as size, the underperformance is less than when the nonissuers are chosen on the basis of size alone.

The low returns in the aftermarket for IPOs partly reflect the pattern that IPO volume is high near market peaks when market-to-book ratios are high. The underperformance is concentrated among firms that went public in the heavy-volume years, and for younger firms. Indeed, for more established firms going public, and for those that went public in the light-volume years of the mid- and late-1970s, there is no long-run underperformance. IPOs that are not associated with venture capital financing, and those not associated with high-quality investment bankers, also tend to do especially poorly. Older firms going public, including “reverse LBOs,” do not seem to be subject to long-run abnormal performance. Reverse LBOs are companies going public that previously had been involved in a leveraged buyout.

Figure 4 treats all IPOs equally, whether the market capitalization was \$20 million, with no institutional buyers, or \$120 million, with institutions participating. In Figure 5, the IPOs are restricted to those with a post-IPO market capitalization of at least \$50 million. The average return for these IPOs was 10.1 percent per year, compared to 13.8 percent per year for their matching firms. Thus, the larger IPOs underperform by 3.7 percent per year in the five years after going public. Smaller IPOs do much worse

The earnings per share of companies going public typically grows rapidly in the years prior to going public, but then actually declines in the first few years after the IPO. During the first two quarters after going public, firms rarely have negative earnings surprises.

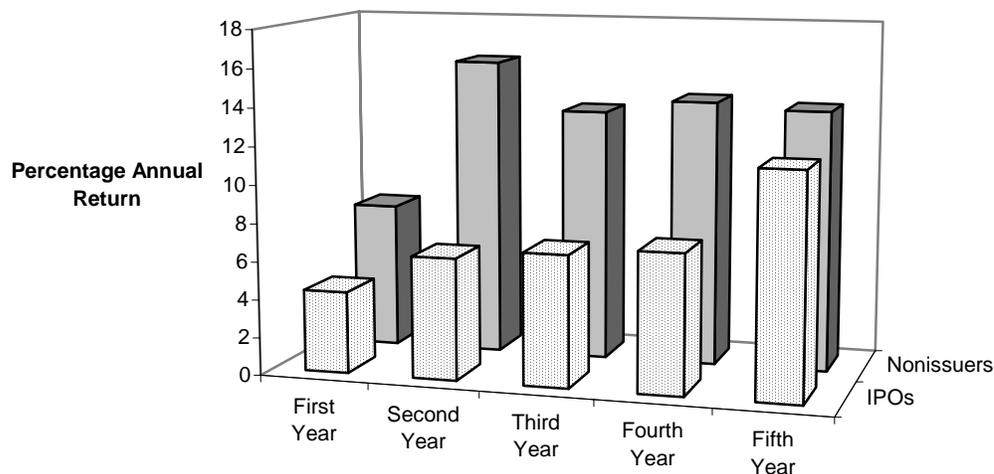


Figure 4-- Average annual returns for the five years after the offering date for 5,821 IPOs in the U.S. from 1970-93, and for nonissuing firms that are bought and sold on the same dates as the IPOs. Nonissuing firms are matched on market capitalization, have been listed on the CRSP tapes for at least five years, and have not issued equity in a general cash offer during the prior five years. The returns (dividends plus capital gains) exclude the first-day returns. Returns for IPOs from 1992-93 are measured through Dec. 31, 1996. Source: Loughran and Ritter (1995), as updated.

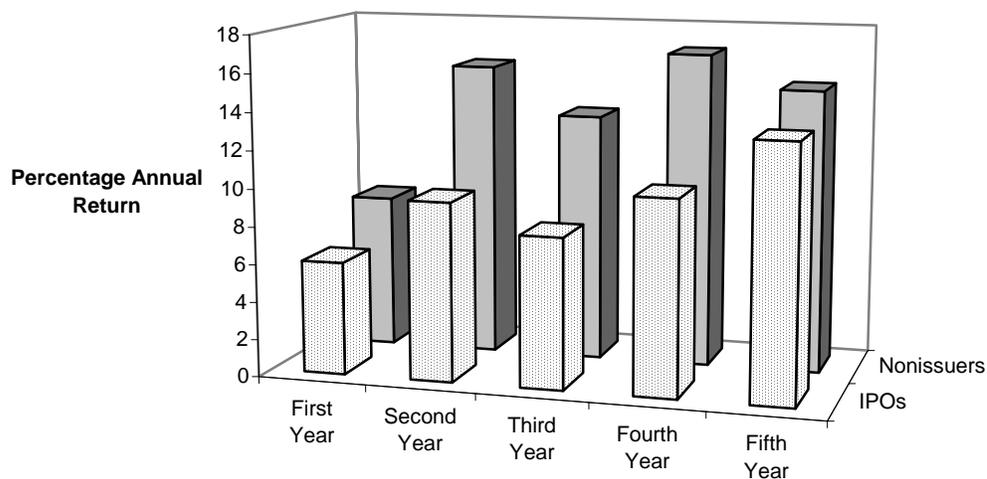


Figure 5-- Same as Figure 4, but restricted to firms with a post-issue market capitalization of greater than \$50 million (expressed in terms of 1996 purchasing power.) Approximately half of all IPOs (lower in the 1970s, higher in the 1990s) meet this criterion.

The international evidence on the long-run performance of IPOs is summarized in Table 4. Total abnormal performance is calculated as 100% minus the ratio of the average three-year buy-and-hold gross return divided by the average three-year buy-and-hold gross return on the benchmark. Thus, the total abnormal return of -20% for the U.S. can be interpreted as meaning that buying a portfolio of IPOs would have left an investor with 20% less wealth three years later than if the money had been invested in nonissuing firms instead.

Table 4
International Evidence on Long-Run IPO Overpricing

Country	Author(s)	Number of IPOs	Issuing years	Total abnormal return
Australia	Lee, Taylor & Walter	266	1976-89	-46.5%
Austria	Aussenegg	57	1965-93	-27.3%
Brazil	Aggarwal, Leal & Hernandez	62	1980-90	-47.0%
Canada	Jog and Srivistava	216	1972-93	-17.9%
Chile	Aggarwal, Leal & Hernandez	28	1982-90	-23.7%
Finland	Keloharju	79	1984-89	-21.1%
Germany	Ljungqvist	145	1970-90	-12.1%
Japan	Cai & Wei	172	1971-90	-27.0%
Korea	Kim, Krinsky & Lee	99	1985-88	+2.0%
Singapore	Hin & Mahmood	45	1976-84	-9.2%
Sweden	Loughran, Ritter & Rydqvist	162	1980-90	+1.2%
U.K.	Levis	712	1980-88	-8.1%
U.S.	Loughran & Ritter	4,753	1970-90	-20.0%

Notes: Total abnormal returns are measured as $100 \cdot [(1+R_{ipo,T}) / (1+R_{m,T})] - 100$, where $R_{ipo,T}$ is the average total return (where a 50% return is measured as 0.5) on the IPOs from the market price shortly after trading commences until the earlier of the delisting date or 3 years; $R_{m,T}$ is the average of either the market return or matching-firm returns over the same interval. This is an updated version of Table 7 in Loughran, Ritter, and Rydqvist (1994). The Canadian numbers have been supplied by Vijay Jog of Carleton University.

The long-run underperformance of IPOs is not limited to operating companies going public. Investors in a closed-end fund IPO pay a premium over net asset value (the market value of the securities that the fund holds), because commissions equal about 7 percent of the offering price. Thus every \$10.00 invested at the offering price buys only \$9.30 of net asset value. Given that closed-end funds typically sell at about a 10 percent discount to net asset value, it is difficult to explain why investors are willing to purchase the shares at a premium in the IPO. On average, it takes only about six months for closed-end funds to move from their 7 percent premium to a 10 percent discount. Perhaps it is no surprise that practitioners say that "closed-end funds are sold, not bought." Almost all closed-end fund shares are sold to individuals, rather than more sophisticated institutional investors, at the time of the IPO. Furthermore, new issues of closed-end funds are highly cyclical.

REITs are similar to closed-end funds, but they invest in property and mortgage-related securities. REIT shares used to be overwhelmingly purchased by individual investors, as are closed-end funds. With the explosion of REIT offerings in the 1990s, they now comprise a substantial portion of the Russell 2000 index, and many institutional investors now hold REITs. In the 1970s and 1980s, REITs underperformed in the first six months after their IPO, but the pattern has been less clear in the 1990s.

Three theories have been proposed to explain the phenomena of the long-run underperformance of IPOs.

5.2 The divergence of opinion hypothesis

One argument is that investors who are most optimistic about an IPO will be the buyers. If there is a great deal of uncertainty about the value of an IPO the valuations of optimistic investors will be much higher than those of pessimistic investors. As time goes on and more information becomes available, the divergence of opinion between optimistic and pessimistic investors will narrow, and consequently, the market price will drop.

5.3 The impresario hypothesis

The "impresario" hypothesis argues that the market for IPOs is subject to fads and that IPOs are underpriced by investment bankers (the impresarios) to create the appearance of excess demand, just as the promoter of a rock concert attempts to make it an "event." This hypothesis predicts that companies with the highest initial returns should have the lowest subsequent returns. There is some evidence of this in the long run, but in the first six months, momentum effects seem to dominate. One survey of individual investors in IPOs found that only 26 percent of the respondents did any fundamental analysis of the relation between the offer price and the firm's underlying value.

5.4 The windows of opportunity hypothesis

If there are periods when investors are especially optimistic about the growth potential of companies going public, the large cycles in volume may represent a response by firms attempting to "time" their IPOs to take advantage of these swings in investor sentiment. Of course, due to normal business cycle activity, one would expect to see some variation through time in the volume of IPOs. The large swings in volume displayed in Figure 3, however, seems difficult to explain as merely normal business cycle activity.

The windows of opportunity hypothesis predicts that firms going public in high volume periods are more likely to be overvalued than other IPOs. This has the testable implication that the high-volume periods should be associated with the lowest long-run returns. This pattern indeed exists.