Another View of the Underpricing of Initial Public Offerings

by Judith S. Ruud

Over the past two decades several studies have reported that initial public offerings on average achieve sizable returns over very short periods.[1] In the parlance of investment bankers, firms going public appear to "leave money on the table" in significant amounts While hardly a cause for complaint from investors, such underpricing might hurt emerging firms trying to raise capital for expansion. The high average initial returns on new issue shares is therefore an anomaly that invites further study.

Most current academic theories hold that initial public offering (IPO) underpricing is undertaken deliberately.[2] Proponents of this view offer different rationales for intentional underpricing. For example, underwriters may recommend low offering prices to reduce the effort required to sell new issues, or issuers may purposely underprice their IPOs in order to cash in on a reputation for good performance later[3] The findings presented here, however, suggest that the apparent underpricing (that is, high average initial returns) may be largely attributed to a different source—the frequent market practice of underwriter price support or stabilization[4]

Underwriter price support involves transactions that serve the specific purpose of keeping the market price from falling too far below the fixed selling price of the offering Although price support may tie up underwriters' capital in the short run, it is often thought that the practice ultimately enhances underwriters' reputations with issuers and investors The Securities and Exchange Commission generally prohibits security price manipulation, but it has permitted price support on the grounds that it mitigates underwriter losses stemming from temporary downward price pressure during the selling period.[5] The Commission has taken the position that stabilization is not manipulative as long as the possibility of stabilization is disclosed in the offering prospectus[6]

Statistical analysis provides a means of evaluating whether IPO underpricing is a deliberate strategy or a consequence of underwriter price support. Specifically, if IPO underpricing were done deliberately across the board, the distribution of a sample of IPO initial returns might approximate a bell-shaped curve, with the

[1]See, for example, Roger Ibbotson, "Price Performance of Common Stock New Issues," *Journal of Financial Economics*, vol 2 (1975), pp 235-72, Roger Ibbotson and Jeffrey Jaffe, "Hot Issue Markets," *Journal of Finance*, vol 30 (1975), pp 1027-42, and Jay Ritter, "The 'Hot Issue' Market of 1980," *Journal of Business*, vol 57 (1984), pp 215-40

[2]See, for example, David Baron, "A Model of the Demand for Investment Banking Advising and Distribution Services for New Issues," *Journal of Finance*, vol 37 (1982), pp 955-76, Kevin Rock, "Why New Issues Are Underpriced," *Journal of Financial Economics*, vol 15 (1986), pp 187-212, Seha Tinic, "Anatomy of Initial Public Offerings of Common Stock," *Journal of Finance*, vol 43 (1988), pp 789-822, Franklin Allen and Gerald Faulhaber, "Signaling by Underpricing in the IPO Market," *Journal of Financial Economics*, vol 23 (1989), pp 303-23, Mark Grinblatt and Chuan Yang Hwang, "Signalling and the Pricing of New Issues," *Journal of Finance*, vol 44 (1989), pp 393-420, and Ivo Welch, "Seasoned Offerings, Imitation Costs, and the Underpricing of Initial Public Offerings," *Journal of Finance*, vol 44 (1989), pp 421-49

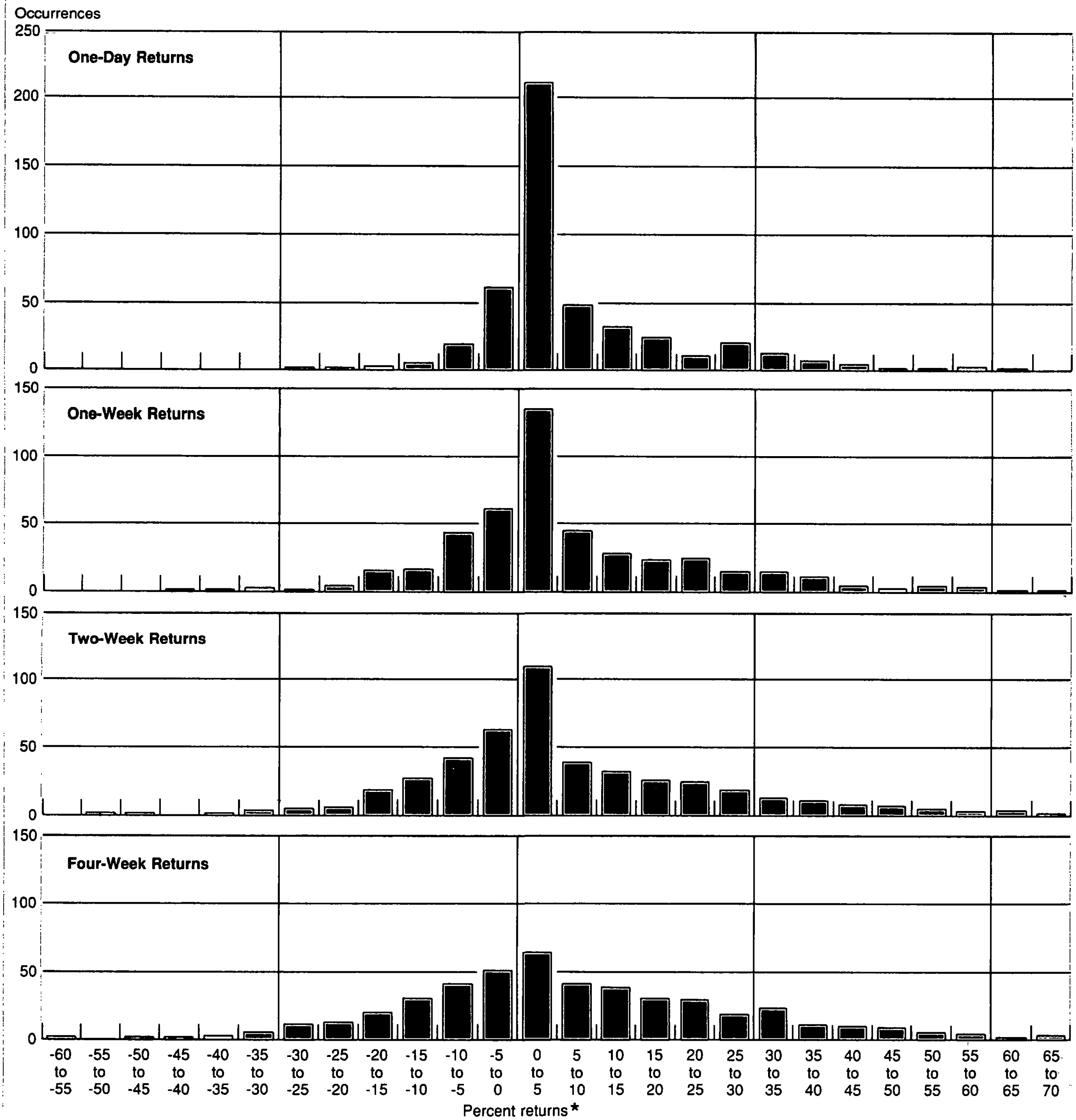
[3]For evidence against the latter hypothesis see Judith S Ruud, "Underpricing of Initial Public Offerings Goodwill, Price Shaving or Price Support?" Ph D diss , Harvard University, 1990 Chapter 4 finds little evidence of any future benefit from IPO underpricing

[4]For a detailed presentation of this argument and methodology, see Judith S Ruud, "Underwriter Price Support and the IPO Underpricing Puzzle," Federal Reserve Bank of New York, Research Paper no 9117, May 1991

[5]See Securities Exchange Act Release no 2446 (March 18, 1940) The Securities Act of 1934, 15 USC §10(b) and 17 CFR §240 10b-7, permits stabilization

[6]To preserve the option of stabilization, most offering prospectuses contain the following legend "In connection with this offering, the underwriters may effect transactions which stabilize or maintain the market price of the common stock of the company at a level above that which might otherwise prevail in the open market Such stabilization, if commenced, may be discontinued at any time "

Initial Public Offering Returns for Different Intervals



Sources Securities Data Company, Investment Dealers' Digest, and Standard and Poor's Daily Stock Price Record

Note Returns are measured as the natural logarithm of the ratio of the market price at the end of the indicated period to the original offering price

* Each range starts at the first indicated value and continues to, but does not include, the second For example, the range 0 to 5 includes returns of 0 through 4 99 percent

peak of the distribution centered on a return greater than zero. In fact, however, relatively few IPOs sink much below their offering price immediately. Instead of tracing a bell-shaped curve with a positive mean, the distribution of one-day returns peaks steeply around zero and the negative tail of the distribution is significantly curtailed.

Underwriter price support affords a plausible explanation for the positively skewed distribution of initial IPO returns. The effect of such price support would be to reduce the number of negative initial returns from what would otherwise be observed. If investment bankers are actively supporting price in the aftermarket, observations that would have been in the left tail of the distribution (that is, negative returns) may be propped up to zero or a small negative return by a standing purchase order at or slightly below the offer price. The statistical term for this effect is censoring.[7] Initial returns of zero are observed in instances that would have yielded negative returns in the absence of underwriter price support. Thus, systematic price support would allow the right tail (positive returns) to be observed, but not the "true" left tail. This previously overlooked censoring of the negative tail of the distribution of initial returns could produce a positive mean initial return even if offering prices were set at their true expected market value.

The observed distributions of initial returns of 469 IPOs occurring in 1982 and 1983 are consistent with the hypothesis that positive mean initial returns are largely due to underwriter price support. The four panels of the chart—the cross-sectional distributions of one-day returns, one-week returns, two-week returns and four-week returns—illustrate the initial effect and gradual withdrawal of price support. The distribution of initial one-day returns peaks steeply around the zero percent return range and appears to have a partially censored left tail.[8] Fifty-nine percent of the one-day initial returns fall between the range of −5 percent to 5 percent. In fully 25 percent of the one-day initial return observations, the closing price is the same as the offering price. The concentration of the observed distribution of initial one-day returns around zero indicates the potentially strong influence of price support.

The tendency for most of those stocks with one-day returns in the zero return range to fall in price, thus yielding negative one- and two-week returns, is also consistent with the gradual withdrawal of price support. Of those IPOs in the modal one-day return range of zero percent to 5 percent, only 8 percent increase in price, while 47 percent report negative one-week returns and the remaining 45 percent report one-week returns in the same distribution range. The overall one-week mean return is *less* than the overall one-day mean return. Successively smaller mean returns over time suggest that reports of positive mean initial returns are not primarily the result of systematic underpricing, but rather the result of temporary underwriter price support of new issues. As price support is withdrawn, the mean initial return decreases.

Even stronger indications of the influence of price support are found for the subset of IPOs underwritten by top-tier investment banks.[9] Because price support requires a commitment of capital, larger and wealthier investment banks would be more likely to engage in the practice.

In sum, investigation of the *distribution* of initial IPO returns shows that positive mean initial returns result in some measure from a partially censored left (negative) tail. Underwriter price support or stabilization can readily account for this censoring of the distribution of initial returns: stock prices are allowed to rise, but are prevented from falling significantly until the issue is fully sold. This interpretation, which incorporates neglected information on return distributions and on market practice, stands in contrast to the view that positive average initial IPO returns result from deliberate underpricing of most offerings.

[7]A sample is said to be censored if there is some threshold level below which actual values are not observed. In this case the threshold value is zero.

[8]In statistical terms, the distribution exhibits considerable leptokurtosis and positive skewness.

[9]Details can be found in Ruud, "Underwriter Price Support."