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Initial Public Offer Underpricing: The Issuer's View—A Note

STEVEN M. DAWSON*

MANY STUDIES (FOR EXAMPLE, Bear and Curley [1], Beatty and Ritter [2], Block and Stanley [3], Ibbotson [4], Ibbotson and Jaffe [5], Logue [6], McDonald and Fisher [7], Neuberger and La Chapelle [8], Reilly [9], and Ritter [10, 11]) show that initial public offers (IPOs) are underpriced on average when offered to the public. All these studies focus on the difference between the offer price and the observed market price, which is the return earned by new investors. Only a few studies refer to issuer-oriented measures of underpricing, and each also uses the observed market price as the benchmark. Bear and Curley [1], for example, based the efficiency of new issue pricing on the relationship between the offering price and the initial secondary market price. Ibbotson [4] used the market price to describe various explanations for underpricing from the issuer or underwriter's perspective. Ritter [11] developed a detailed pricing analysis for the choice between firm commitment and best-efforts underwriting contracts, but the comparison price remained the post-issue market price. A similar reliance upon the observed market price in measuring IPO underpricing is found in corporate finance textbooks.

This note demonstrates that traditional investor-oriented measures of underpricing may mislead issuers. IPOs do not simply have a cost with the opposite sign of the investors' return. Rather, underpriced new shares create a dilutive effect that may make their real cost or wealth transfer much different. Section I develops an alternative measure of underpricing that is issuer oriented and documents the difference between the two measures using IPOs issued in Singapore from 1978–1985. Section II analyzes the increased costs for issuers of underpricing IPOs using the new measure of underpricing.

I. Issuer-Based Measure of Underpricing

If an unlisted company with one million shares valued at \$20 sells an equal number of new shares for \$10 in an IPO, the expected beginning market price is \$15. Using the principal underpricing formula $((P_m - P_o)/P_o) \times 100$, where P_m is the initial or early market price and P_o is the offering price, the new issue was underpriced by fifty percent. This comparison of the \$15 market price to the \$10 offering price provides useful information for new investors and uses readily available price information, but it does not measure underpricing for the issuer since shares worth \$20 beforehand, not \$15, were sold for \$10. The situation is similar to the well-recognized rights issue price effect; the post-issue IPO market

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price corresponds to the ex-rights price since both are observed after dilution caused by new shares issued at a price below their market value. Just as the price discount in a rights issue should be measured with the rights-on market price, issuers should measure IPO underpricing with the value of the original shares before dilution.

The value of the original shares before the IPO is underpriced, assumed to be \$20 in the previous example, is not readily available since the shares were not traded, but it can be derived as follows using the post-issue market price:

$$P^* = (S_t P_m - S_n P_o) / S_o, \quad (1)$$

where

- P^* = value of the shares with no new issue underpricing,
- S_t = total shares outstanding after the new issue is made,
- P_m = the market price when the shares begin trading,
- S_n = the new shares issued in the IPO,
- P_o = offering price per share for the new issue, and
- S_o = the number of shares outstanding before the IPO.

Continuing with the previous example, from equation (1) the value of the original shares before dilution (P^*) is [(2 million) (\$15) – (1 million) (\$10)]/1 million, which equals \$20 per share. P^* can be used in place of the observed market price in the traditional underpricing formula to measure underpricing from the issuer's perspective (UP^*), as follows:

$$UP^* = ((P^* - P_o) / P_o) \times 100. \quad (2)$$

Since shares were worth \$20 before the new shares were sold for \$10, issuer-oriented underpricing is one hundred percent, rather than fifty percent as previously believed.¹

Issuer-oriented underpricing (UP^*) will not equal the traditional investor-oriented underpricing since the observed market price (P_m) is not equal to the value of the shares without underpricing (P^*), except in the two special cases of no underpricing and a secondary issue without new shares. Also, investor-oriented underpricing is not a consistent proxy for UP^* since P^* is fixed, while a change in the size of the new issue will change the observed market price (P_m) and hence the investor-oriented measure of underpricing.

To test for a difference between the traditional investor-oriented and alternative issuer-oriented measures, forty-three IPOs marketed in Singapore from 1978–1985 were analyzed. For each new issue, the closing first-day market price, offering price, original shares, and new shares issued were used to derive the share value without underpricing and the two underpricing measures. A major difference was found: investor-oriented underpricing using the observed market

¹ Investor-oriented underpricing will understate issuer-oriented underpricing whenever the offering price is less than the original share value, with the amount of unreported underpricing (UUP) being equal to

$$UUP = \frac{((S_t P_m) - (S_n P_o)) / S_o - P_m}{P_o} \times 100.$$

price averaged 36.0 percent, while the issuer-oriented underpricing was much larger at 58.6 percent.

II. Effect on the Issuer

Whenever there is a significant difference between investor-oriented and issuer-oriented underpricing, as in Singapore, use of the former by issuers underestimates the effects of underpricing. In the example of one million new shares offered at \$10, investor-oriented underpricing suggests that there would be no underpricing at a \$15 offer price, the initial market price, and that 666,667 new shares would be needed to raise the same amount of funds. In contrast, issuer-oriented underpricing shows that the theoretical offering price is \$20, the value of the shares without underpricing, and that only 500,000 new shares are needed to raise the funds. Since the number of excess new shares increases from 333,333 to 500,000 with the new underpricing measure, the costs of IPO underpricing also increase, as shown in Table I.

Issuing shares at \$10 instead of the \$15 observed market price means that underpricing causes 333,333 excess shares to be issued. Because more shares are outstanding, there is a decrease of seventeen percent in earnings per share (EPS), voting control retained, and market value owned by the original shareholders. For example, if EPS is \$1 when 1,666,667 shares are outstanding after new shares are issued at \$15 each, it declines to \$.83 if the offer price is \$10 and two million shares are outstanding instead. In contrast, issuing shares at \$10 instead of the \$20 share value without underpricing means that 500,000 excess shares are issued and that EPS, voting control retained, and market value owned by the original shareholders decrease by twenty-five percent. Since the correct target price is the share value before the dilution caused by IPO underpricing, and not the observed market price, both underpricing and the costs of underpricing are therefore higher for issuers than previously believed.

Table I
Costs of IPO Underpricing:
Comparison of the Offer Price (\$10) to
the Observed Market Price (\$15) and
the Value without Underpricing (\$20)

	Assumed Target Price	
	\$15	\$20
Excess Shares Issued ^a	333,333	500,000
Dilution of EPS	17%	25%
Loss of Voting Power	17%	25%
Transfer of Stockholder Wealth	17%	25%

^a Total shares outstanding are two million if the offer price is \$10, 1,666,667 if the offer price is \$15, and 1,500,000 if the offer price is \$20.

III. Summary and Conclusions

The appropriate measure of IPO underpricing for issuers compares the offering price to the value of the shares without underpricing. Although the value of the shares without underpricing is not available beforehand because the shares were not traded, it can be derived from the post-issue market value with the same delay that occurs in calculating the traditional value of underpricing. Whenever underpricing exists, issuer-oriented underpricing will be greater than the traditional investor-oriented underpricing since the latter does not acknowledge the market value decrease per share caused by selling new shares below their value.

What are the implications of the proposed issuer-based measure of underpricing? For issuers it shows that the appropriate pricing target is the market value of the shares without underpricing rather than the post-issue market price. For past issuers of IPOs, who measured their pricing accuracy relative to the observed market price, it will be necessary to revise their analyses of how efficiently the shares were priced. For observers of the efficiency with which underwriters priced the shares, the more appropriate comparison is between the offering price and the share value without underpricing, not the post-issue market price.

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