

IS UNDERPRICING GREATER FOR MIXED OFFERINGS AS COMPARED TO PURE PRIMARY OFFERINGS IN THE OTC MARKET

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Abstract

The existence of "underpricing" has been established by a number of empirical studies in the case of common stock initial public offerings (CSIPOs). The after-market prices of such common stocks have consistently been found to be higher than their corresponding offering prices. However, these papers appear to have concentrated on examining the underpricing in the case of CSIPOs as a whole even though, in practice, there are three types of offerings viz. pure primary offerings, mixed offerings, and pure secondary offerings. This study is motivated by the results of two studies. From the results, it may be inferred that a possibility exists of there being differences in the extent of underpricing for the different types of offerings. This study shows that the level of underpricing is about the same based on one-day excess returns. However, based on one-month excess returns, mixed offerings have a higher level of underpricing as compared to pure primary offerings at a 15% level of significance. It appears that the market does not appear to consider mixed offerings to be substantially more risky than pure primary offerings.

INTRODUCTION

The existence of "underpricing," viz. offering prices below the immediate after-market prices, has been well established by a number of empirical studies in the case of common stock initial public offerings (CSIPOs). The after-market prices of common stocks have consistently been found to be higher than their corresponding offering prices by approximately 3% to 35%. However, most of the earlier empirical papers appear to have concentrated on underpricing in the case of CSIPOs without regard to the type of offering. In practice, there are three types of offerings: (a) pure primary offerings - where only the company offers shares to the public (which are also further referred to as PPCSIPOs); (b) mixed offerings viz. simultaneous primary and secondary offerings - where both the company and some existing shareholders offer shares to the public in the same offering (further also referred to as MCSIPOs); and, (c) pure secondary offerings - where only some of the existing shareholders offer their shares to the public in the offering (further referred to as PSCSIPOs).

This study is motivated by the results of two earlier studies which suggest that there are differences in the behavior of mixed CSIPOs and pure primary CSIPOs: Prasad [18] finds that a higher retention of promoters' equity is required to convey value of the firm's equity in the case of mixed offerings as compared to pure primary offerings. Prasad suggests that investors may be viewing mixed offerings as more risky investments than pure primary offerings. Logue [12] finds "secondary" issues to be a significant factor in underpricing of CSIPOs. He finds that the higher the percentage of secondary issue to the total issue, the lower the performance. From these results, it may be inferred that investors may be perceiving mixed offerings to be more risky than pure primary offerings. Thus, this study examines the alternate hypothesis:

"The extent of underpricing for pure primary offerings is lower than the extent of underpricing in the case of mixed offerings."

The rest of the paper is laid out as follows: In Section II, the earlier empirical works are reviewed. The principal issues, which provide the setting for this study, are also discussed. In Section III, information on the data, sources of the data, methodology for data analysis, etc. are provided. Section IV details the results of the empirical testing. Finally, the implications of the results and conclusions are presented in Section V.

LITERATURE REVIEW

The results of some of the earlier studies of underpricing in CSIPOs are summarized as follows: Ibbotson [9] examines 128 CSIPOs issued over the 1960-1969 period. He finds that the 1 month return from the date of the offering to be 11.40%. Similarly, Ibbotson & Jaffe [10] find the first month return average to be 16.83% for all CSIPOs issued 1/1/60-10/31/70. Reilly & Hatfield [20] examine 53 CSIPOs over the 1963-1965 period. They find the first week returns to be 9.00% and the first month returns to be 8.00%. However, when McDonald & Fisher [13] examine 142 CSIPOs issued in 1969, they find the first week returns to be 28.50% and the first month returns to be 34.60%. Neuberger & Hammond [16] find for 816 CSIPOs, over the 1965-1969 period, the first week and first month returns to be 17.10% and 19.10% respectively. Reilly [19] examines 486 CSIPOs over the 1972-1975 period and finds the first week returns to be 10.90% while the first month returns are 11.60%. Block & Stanley [4] find lower returns for 102 CSIPOs issued over 1974-1978 with the first week returns and first month returns being 5.96% and 3.36%. In contrast, Neuberger & La Chapelle [17] find higher average returns for 118 CSIPOs over the 1975-1980 period with the first week returns being 27.70% and the first month returns being 26.50%. However, when Ibbotson, Sindelar & Ritter [11] examine 128 CSIPOs over 1960-1987, they find the first month return for the '60s decade to be 21.25%, the '70s decade to be 8.95% and for 1980-1987 to be 16.09%. Logue [12] finds the average first day published returns to be 30.00% when he examines 250 CSIPOs over 1965-1969. Beatty & Ritter [3] examine 545 CSIPOs issued during 1981-1982 and find the first day returns to be 14.10%. Ritter [21], while examining 1028 CSIPOs over the 1977-1982 period, finds the average first day returns to be 26.50%. However, Chalk & Peavy [8] find the first day returns to be 21.67% for 649 CSIPOs issued during 1975-1982. Over the 1982-1983 period, the first day return is 9.87% for 510 CSIPOs--Miller & Reilly [14]. As can be seen, the existence of underpricing is firmly established by all these studies even though the extent varies for the different studies.

A number of explanations have been offered to explain the phenomenon of underpricing: (a) favor to investors--Logue [12], Baron and Holmstrom [2]; (b) offering value uncertainty--Smith [23]; (c) information asymmetry and offering value uncertainty--Baron [1], Muscarella and Vetsuypens [15], Rock [22]; (d) reduction of underwriter risk--Neuberger and La Chapelle [17]; (e) certification of insider information--Booth and Smith [5]; (f) maintenance of underwriter reputation--Beatty and Ritter [3]; (g) regulations (ceilings)--Brandt [6 & 7]; and, (h) regulations (legal liability)--Tinic [24]. However, the situation may be summarized by quoting Ibbotson, Sindelar and Ritter [11]: "...there are several possible explanations of the underpricing of initial public offerings. None taken alone, however, is entirely satisfactory. The question remains..." Thus, it is clear that further study of the observed phenomenon is required.

In a study of the signalling behavior of CSIPOs, Prasad [18] finds that a greater level of promoter's retention of equity is required for mixed offerings as compared to the level of promoter's retention of equity required in the case of pure primary offerings to convey the same value of the firm's equity. Prasad conjectures that the potential investors may be viewing mixed offerings as being more risky investments than pure primary offerings.

The aspect of risk being associated with various CSIPOs has also been alluded to in the explanations of underpricing. Logue [12] argues that by underpricing, an investment banker minimizes his costs and risks and gains favor with investors. Investors tend to avoid issues which would make their ex-ante returns normal or below normal. To assure a positive initial return to investors, the offering price is set below the expected market value. Thus, on an average, new issues would tend to rise to a premium and generate superior returns in the absence of any special factors. Smith [23] implies that average underpricing is greater for issues with greater price uncertainty. Baron [1] bases his explanation of underpricing on the information asymmetry existing between investment bankers and issuers. He sets

up a theoretical model which implies that the amount by which the issue is underpriced is related to the uncertainty about the value of the offering. The implication is that there would be a larger amount of underpricing if there is larger uncertainty about the market value of the issue. Rock [22] sets up a theoretical model which

implies that the underpricing and the uncertainty about the value of the offering are related. Rock argues that a larger amount of underpricing would result from greater uncertainty about the issuer's market value. Rock bases his explanation on the information asymmetry existing between informed and uninformed investors. However, Rock hypothesizes that some investors become better informed about the true value of a new issue while others remain uninformed because it may be too costly or difficult for them to obtain more information.

The earlier empirical papers appear to have concentrated on underpricing in the case of CSIPOs as a whole without considering that the market may perceive PCSIPOs (pure primary offerings) to be different from MCSIPOs (mixed offerings) and/ or PSCSIPOs (pure secondary offerings). Logue appears to be the only one to make some kind of examination based on the different types of offerings. He finds that the higher the percentage of secondary issue to the total issue, the lower the performance. Logue theorizes that the significance of the secondary variable could be due to a closer relationships with the secondary issuers.

Thus, this study is motivated, by the Prasad [18] and Logue [12] findings, to examine specifically whether greater underpricing exists in the case of mixed offerings as compared to pure primary offerings. The study limits itself to pure primary offerings and mixed offerings since they are, overwhelmingly, the largest portion of the total CSIPOs.

DATA AND METHODOLOGY

The data consists of firms which went public for the first time (and for which prospectuses could be obtained from investment bankers or brokers in Oklahoma City and San Antonio) from the year 1984 onwards. Some firms had to be dropped because of various reasons such as prospectuses being preliminary, offerings also involved warrants simultaneously, offerings being pure secondary etc. CSIPOs may be listed for sale, after the offering, on the New York Stock Exchange (NYSE), American Stock Exchange (AMEX) or the OTC. The listing requirements of these exchanges are most stringent for the NYSE and least for the OTC, so that companies are required to be "larger" for the NYSE. For "market" uniformity purposes, all the CSIPOs chosen for this study are those which were to be listed on the OTC. The final sample size is 35 firms. Of these CSIPOs, 13 are pure primary offerings and 22 are mixed offerings.

The basic methodology followed in this study are similar to those in earlier studies by Brandt [6 & 7], Neuberger and La Chapelle [17], McDonald and Fisher [13], Reilly [19] etc. In this study, using the pricing data for each firm, the returns are calculated for the one-day period from the date of the issue. Similarly, returns are calculated for a 1-month period from the date of issue. Corresponding one-day and one-month "market returns" are calculated using values of the "OTC Market Indicator (Ind.)" using the same dates as those for each individual firm. Finally, excess returns of the new issues over the corresponding market index are calculated for each firm. The basic equations for calculating the firm's returns, the market returns, and corresponding excess returns are given in equations (1), (2) and (3) below:

Equation 1

$$R_{j,i} = (P_{j,i} - P_{j,0}) / P_{j,0}$$

where: $i = 1$ for 1 day from the offering, or, $= 2$ for 1 month from the offering by firm j ; $R_{j,i}$ = the one-day return, or one-month return, from the date of the issue, for firm j ; $P_{j,i}$ = stock price of the firm j (for 1-day returns, this is the closing price on the issue date itself, and, for the 1-month return this is the closing price a month from the issue date); and, $P_{j,0}$ = offering stock price of the firm j .

Equation 2

$$R_{Mj,i} = (P_{Mj,i} - P_{Mj,0}) / P_{Mj,0}$$

where: $i = 1$ for 1 day from the offering, or, $= 2$ for 1 month from the offering by firm j ; $R_{Mj,i}$ = the one-day return, or one-month return, for the market index corresponding to the offering by firm j ; $P_{Mj,i}$ = value of the market index corresponding to the offering by firm j (for 1-day returns, this is the closing value on the issue date itself, and, for

the 1-month return this is the closing value a month from the issue date); and, $P_{Mj,0}$ = value of the market index corresponding to the offering stock price of the firm j (the closing value of the index on the day prior to the issue date for firm j - noting that this is also the opening value of the index on the issue date which corresponds to the fact that the offering price for firm j is the opening price on the date of the issue).

Equation 3

$$ER_{ji} = R_{ji} - R_{M,i}$$

where: $i = 1$ for the 1-day from the offering, or, $= 2$ for the 1-month from the offering by the firm j; ER_{ji} = the one-day excess return, or one-month excess return corresponding to the issue by firm j; R_{ji} = the one-day return, or one-month return, for firm j; and, $R_{M,i}$ = the one-day return, or one-month return, for the market index corresponding to the offering by firm j.

Information relating to the date of issue and the offering price for each CSIPO are drawn from the prospectuses of different firms. Data for the after-market prices for the firms, and for the corresponding market returns, are drawn from various issues of the Standard and Poor's *Daily Stock Price Record*. Data is drawn for the issue date closing and one month (closing) from the date of issue. In a few cases, the data was drawn from the first available day after 1 month was used due to the month end falling on a week-end or holiday.

To test the alternative hypothesis, the average excess returns are calculated for each group, i.e. for the PPCSIPOs and the MCSIPOs, as shown in equation (4):

Equation 4

$$AER_{k,i} = [\sum ER_{ji} / n_k]$$

where: $i = 1$ -day from the offering, or, 1-month from the offering by firm j; $k = 1$ for PPCSIPOs, or, $= 2$ for MCSIPOs; $ER_{k,i}$ = the average one-day excess return, or one-month excess return for group k; ER_{ji} = the one-day excess return, or one-month excess return corresponding to the issue by firm j; and, n_k = number of firms in group k.

RESULTS

The results using the above data are given in Table 1.

TABLE 1
Excess Returns

	Primary Offerings		Mixed Offerings	
	1 Day (%)	1 Month (%)	1 Day (%)	1 Month (%)
Mean	6.811	-2.524	5.505	5.388
Standard Deviation	12.20	13.95	7.66	25.86
Degrees Of Freedom¹:	1 Day	18	1 Month	33
t-value¹:	1 Day	0.348	1 Month	-1.175*

*Level of significance: 15%

As may be seen, there does not appear to be any difference in the level of underpricing is about the same for mixed offerings as compared to pure primary offerings for 1-day returns. In the case of 1-month returns, there appears to be higher underpricing in the case of mixed offerings as compared to pure primary offerings. In fact, there seems to be a little overpricing in the case of PPCSIPOs. The significance of the difference is tested using the Smith-Satterthwaite Test¹ which is appropriate in the case of smaller samples. The t-value shows that there is no statistical significance in the difference in levels of underpricing in the case of 1-day returns. However, the t-value is higher in the case of 1-month returns and shows a level of significance of 15%.

CONCLUSIONS AND IMPLICATIONS

The above differences in mean 1-month excess returns may initially lead us to the conclude that the market considers offerings involving both primary offerings and secondary offerings simultaneously to be more risky than pure primary offerings. Such an expectation may be due to outside investors' perceiving additional risk in the case of firms with mixed offerings as the promoters are reducing their own holdings. The dilution of ownership by the promoters could be considered as being beyond that required to enable the firm to raise additional funds. However, the t-values¹ from the Smith-Satterthwaite Test do not show strong support for this conjecture. If the differences had been significant, the implication would have been that "it may be advisable for promoters to separate the raising of funds for the firm through public offerings from the sale of their personal holdings so as to reduce the level of underpricing required." However, the results of the study suggest that potential investors do not appear to consider mixed offerings to be substantially more risky as compared to pure primary offerings. This behavior, with relation to underpricing, is in contrast to the signalling behavior—reference Prasad [18] where higher promoter's retention of equity is required to convey the value of the firm's equity in the case of mixed offerings as compared to pure primary offerings.

For future research, this study could be extended to examine underpricing in one of the recognized exchanges, such as the NYSE or AMEX, because the behavior of the OTC market and the organized exchanges are not perfectly positively correlated. The OTC market may not be as sensitive to the type of CSIPOs. However, investors tend to scrutinize the larger firms on the NYSE, or AMEX, more closely. Further research in the area may also extend the study to pure secondary offerings even though the number of secondary offerings are very few.

ENDNOTES

1. Smith-Satterthwaite Test:

$$t = \frac{X_1 - X_2}{\sqrt{((s_1^2 / n_1) + (s_2^2 / n_2))}}$$

$$df = \frac{((s_1^2 / n_1) + (s_2^2 / n_2))^2}{((s_1^2 / n_1)^2 / (n_1 - 1) + (s_2^2 / n_2)^2 / (n_2 - 1))}$$

where: X_1 = average excess returns for PPCSIPOs
 X_2 = average excess returns for MCSIPOs
 s_1 = standard deviation of excess returns for PPCSIPOs
 s_2 = standard deviation of excess returns for MCSIPOs
 n_1 = number of PPCSIPOs
 n_2 = number of MCSIPOs.

The degrees of freedom are rounded off to the next highest whole number.

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