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THE COSTS OF GOING PUBLIC

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ABSTRACT

This paper presents evidence regarding the two quantifiable components of the costs of going public: the direct expenses and the underpricing. Together, these costs average 21.22 percent of the realized market value of the securities issued for firm commitment offers, and 31.87 percent for best efforts offers. For a given size offer, the direct expenses are of the same order of magnitude for both contract types, but the underpricing is greater for best efforts offers. An explanation of why some firms choose to use best efforts offers in spite of their apparent higher total costs is given.

1. Introduction

For firms going public, capital markets are not frictionless. In this paper, I present evidence on the transaction costs of going public. The two components of these transaction costs that I focus on are the direct costs, which are primarily investment banking fees, and the indirect cost of underpricing. Both of these components are economically significant, with the total costs, expressed as a percentage of the realized market value of the securities issued, averaging 21.22 percent for firm commitment offers and 31.87 percent for best efforts offers.

With both types of investment banking contracts, the formal process of going public starts when a registration statement, containing descriptive material about the issuing firm and the proposed offer, is filed with the U. S. Security and Exchange Commission (S.E.C.). With a firm commitment offer, the issuing firm and its investment banker then issue a preliminary prospectus and solicit indications of interest from potential investors. Following S.E.C. approval of the offer, the issuing firm and its investment banker then hold a "pricing meeting" at which the offer price and the number of shares to be sold are agreed upon (with the investment banker usually being granted an "overallotment option" to sell as many as 15 percent more shares). Only when the final prospectus is issued does the investment banker make a guarantee to deliver the proceeds (net of commissions) to the issuing firm, whether or not the offer is fully subscribed at the offer price. Once an offer price has been set, shares cannot be sold at a higher price even if demand for the issue is unexpectedly strong, although the investment banker is permitted to sell shares at a lower price.

With a best efforts contract, the issuing firm and its investment banker agree upon an offer price and a minimum and maximum number of shares to be

sold. Following S.E.C. approval, the investment banker then circulates a prospectus and makes its "best efforts" to sell the shares to investors. During this selling period, interested investors indicate interest by depositing money in an escrow account established by the underwriter. If the minimum number of shares is not sold at the offer price within a specified period of time, usually 90 days, the offer is withdrawn, and the investors' money is refunded to them, with the issuing firm receiving no money.

While the costs of going public are on average much higher for best efforts offers, this is partly due to the fact that there are substantial economies of scale and that best efforts offers tend to be much smaller than firm commitment offers. If issue size is held constant, however, best efforts offers still seem to be somewhat more costly than firm commitment offers. This raises the question of why many (35.4 percent of the total in 1977-82) firms chose to use best efforts contracts, in spite of their apparent cost disadvantage.

In Section 4, I analyze the contract choice decision, focusing upon the role of asymmetric information among investors. Since, once an offer price is set, there may be quantity rationing of shares, those investors who are uninformed relative to other investors about the value of an issuing firm will find themselves exposed to adverse selection risk. Since informed investors are more likely to submit purchase orders for underpriced issues than for overpriced issues, uninformed investors will find that they are allocated a disproportionately small number of shares in underpriced issues, while being allocated a disproportionately large number of shares in overpriced issues. Faced with this adverse selection problem, these uninformed investors will be unwilling to participate in the market for initial public offers if offer

prices are set in a manner such that the expected market price is equal to the offer price.

There are two methods by which issuing firms can compensate uninformed investors for the adverse selection problem that they face, corresponding to firm commitment and best efforts contracts. With a firm commitment contract, uninformed investors can be compensated for the adverse selection problem if, on average, offer prices are set at a discount relative to the expected market price. Alternatively, with a best efforts contract, issuing firms can pre-commit to withdraw overpriced offers. In Section 4, I discuss the circumstances under which each of these two alternative strategies is optimal for the issuing firm. The analysis predicts that firms for which there is a great deal of uncertainty about their value should use best efforts contracts, and firms for which there is little uncertainty should use firm commitment contracts.

The organization of this paper is as follows. In Section 2, descriptive statistics for firm commitment and best efforts offers are presented. In Section 3, I analyze Mandelker and Raviv's (1977) optimal risk-sharing argument for the contract choice decision. In Section 4, I give an explanation for the choice between the two contract types based upon asymmetric information among investors. Section 5 presents empirical evidence supporting the prediction of the asymmetric information among investors analysis. The paper ends with a brief summary and discussion.

2. The characteristics of firm commitment and best efforts offers

Table 1 reports descriptive statistics for the 1028 firms that were taken public by investment bankers in the U. S. in 1977-82.¹ The data are described in more detail in Ritter (1984) and Beatty and Ritter (1986). Table 1 shows that the average firm commitment offer raises almost four times as much money

as the average best efforts offer (\$8.88 million vs. \$2.37 million). Furthermore, firm commitment offers are used by firms that are, on average, substantially larger in terms of sales and book value. Table 1 also shows that while firm commitment contracts are used in 64.6 percent of all offers, they account for 87.2 percent of the proceeds.

Insert Table 1 Here

In Table 2, I categorize offers by gross proceeds and contract type. As Table 2 shows, 72.0 percent of the offers that raise less than \$2,000,000 use a best efforts contract, while only 2.8 percent of the offers that raise \$10,000,000 or more use this contract.²

Insert Table 2 Here

In Table 3, I report the direct costs of going public. These include underwriter commissions; legal, printing, and auditing expenses; and other out-of-pocket costs. The existence of substantial economies of scale is evident. As a stylized fact, the direct costs of going public are equal to approximately \$250,000 plus 7 percent of the gross proceeds. For a given size offer, the direct costs are of the same order of magnitude for both firm commitment and best efforts offers, although the costs for best efforts contracts are understated due to the exclusion of the value of warrants which are commonly granted the underwriter. Nevertheless, these costs are substantially higher than those that Smith (1977) reports for seasoned equity issues.

Insert Table 3 Here

The direct costs of going public are only one of the components of the total costs. A second cost is the underpricing cost.³ (This is known as the

money "left on the table.") For initial public offers, this is substantial, as reported in Table 4. The average initial return, defined as the percentage price change from the offer price to the first day's closing bid price, is 14.80 percent for firm commitment offers and 47.78 percent for best efforts offers. Furthermore, best efforts offers have higher average initial returns than firm commitment offers in all but the largest of the five gross proceeds categories. (In the largest gross proceeds category, there are only 5 best efforts offers.) Thus, while the direct costs of going public are comparable for both firm commitment and best efforts offers, holding the offer size constant, the indirect cost of underpricing is greater for best efforts offers. Consequently, the total costs of going public are higher for best efforts offers, as shown in the "Average total costs" columns in Table 4.

If best efforts offers are more expensive than firm commitment offers, a question arises: Why do over one-third of offers use best efforts contracts?

Insert Table 4 here

3. Optimal risk-sharing as an explanation of the contract choice decision

One potential reason for choosing between a firm commitment and a best efforts contract, given by Mandelker and Raviv (1977), concerns the optimal bearing of proceeds risk, defined as the uncertainty about the amount of money being raised. They argue that in a best efforts offer the issuing firm bears the proceeds risk, while in a firm commitment offer the investment banker bears this risk.

For firm commitment offers, a preliminary prospectus is typically issued several weeks before the actual offer. In the preliminary prospectus are tentative minimum and maximum offer prices, and a tentative number of shares to be sold. The actual minimum and maximum number of shares and the offer

price are only determined at a "pricing meeting," which usually occurs the day before the offer⁴; the offer price and number of shares can be, and frequently are, substantially different from those indicated in the preliminary prospectus.

In Table 5, I present data on just how large these changes are, using offers for 1982 only, including best efforts offers that were withdrawn.⁵ In row 1, I have computed the "expected" gross proceeds of \$10,159,670 for firm commitment offers by finding the weights for the minimum and maximum amounts from the preliminary prospectus such that the "expected" gross proceeds equals, on average, the realized gross proceeds. The last column shows that the average absolute percentage change between the actual realized gross proceeds and the expected gross proceeds was 23.8 percent for firm commitment offers. In other words, for a firm that in the preliminary prospectus indicates that it will sell 1,000,000 shares at \$9.00-\$11.00 a share, it is not at all unusual to have the offer scaled back to, say, 800,000 shares at \$8.00 or increased to 1,200,000 shares at \$12.00. (The number of shares and the offer price are almost always changed in the same direction.) Thus, only a few weeks before the offer, the issuing firm has substantial uncertainty regarding how much money will be raised.⁶

Insert Table 5 Here

These revisions are why the investment banker's guarantee of the proceeds is so misleading: the guarantee isn't made until the final pricing meeting, by which time the investment banker has a good (although not perfect) idea of how much money can be raised.⁷ Consequently, it is rare for investment bankers to sell fewer than the guaranteed minimum number of shares at the offer price. Practitioners have told me that, at most, only 10 percent of

firm commitment offers are not fully subscribed, and even in the cases where they aren't, it is usually only a small fraction of the shares that must be sold at a lower price, and it usually isn't too much lower. As a practical matter, there is little risk-bearing by the investment banker in a firm commitment offer; essentially all of the proceeds risk is borne by the issuing firm.

The remaining 3 rows of Table 5 contain figures for best efforts offers, including 73 failed offers. I have computed the "expected" gross proceeds in a manner analogous to that for firm commitment offers. (1982 was somewhat unusual in that there was an unusually large fraction of best efforts offers that failed.) Largely because so many offers fail, there is substantial proceeds risk for firms attempting to go public using a best efforts contract.⁸

In summary, Table 5 shows that, for both firm commitment and best efforts offers, the issuing firm bears substantial proceeds risk, although it is higher for best efforts offers. Finally, it should be noted that the average absolute deviations reported in Table 5 are lower bounds to the actual proceeds risk. This is because many offers (both best efforts and firm commitment) are withdrawn at a stage before a prospectus is issued.

4. An explanation based upon asymmetric information among investors

An implication of Rock's (1986) model of the underpricing of initial public offers, developed in Beatty and Ritter (1986), is that firm commitment offers will be underpriced more (in an expected value sense) the greater is the ex ante uncertainty about an issuing firm's value. This occurs because, if there is differential information among potential investors, informed investors impose an adverse selection cost on uninformed investors. The cost is that since informed investors submit more purchase orders for underpriced

offers than for overpriced offers, uninformed investors wind up being allocated a disproportionately small fraction of underpriced offers, and a disproportionately large fraction of overpriced offers. Consequently, uninformed investors find themselves facing a situation in which their expected return conditional upon receiving shares is lower than their expected return conditional upon submitting a purchase order. The difference between these two conditional expected returns becomes larger as the dispersion of possible firm values increases. Thus, uninformed investors will be willing to submit purchase orders for more speculative initial public offers only if the expected underpricing is greater than for issues for which there is less ex ante uncertainty about true firm value.

With a best efforts offer, if the offer is not fully subscribed, it is withdrawn. Thus, the adverse selection problem that uninformed investors face with a firm commitment offer is ameliorated with a best efforts offer. Because uninformed investors do not face a severe adverse selection problem for which they have to be compensated, an issuing firm does not have to severely underprice its shares, as it would with a firm commitment offer. A best efforts offer is not without a disadvantage for the issuing firm, however--if the offer is withdrawn, the issuer receive no funds. This risk is worth taking only if the reduction in the degree of underpricing is sufficiently great.

Note that with a best efforts contract it is the issuing firm that finds it optimal to set a threshold level of demand that is high enough so that uninformed demand is insufficient to fill it. This is because by precommitting to withdraw best efforts offers for which there is weak demand, the adverse selection problem facing uninformed investors is ameliorated. Consequently, uninformed investors are willing to submit purchase orders (with

their money placed in an escrow account) for a best efforts offer with a high offer price when they would be unwilling to do so for a firm commitment offer. Because the issuer precommits to withdraw offers for which there is weak demand, the issuer can set a higher offer price, involving less dilution, than it could with a firm commitment offer.

The above framework is developed formally in Ritter (1987). There it is demonstrated that firms for which there is a low level of ex ante uncertainty about their value will use firm commitment offers, and firms for which there is a high level of ex ante uncertainty will use best efforts offers. The intuition behind this result is straightforward. With firm commitment offers, as ex ante uncertainty increases, more and more money must be left on the table, via underpricing, to compensate uninformed investors for the adverse selection problem that they face. As ex ante uncertainty increases, at some point the issuing firm is better off switching to a best efforts offer involving less underpricing. The disadvantage of a best efforts offer, however, is that some positive net present value (NPV) projects will be foregone as the issuing firm trades off the probability that the offer will be withdrawn versus the dilution facing the original owners when the offer is not withdrawn. It is desirable to risk foregoing some positive NPV projects by using a best efforts contract only if the underpricing that would be required using a firm commitment contract is sufficiently large.⁹

5. Empirical evidence

To test the Section 4 prediction relating ex ante uncertainty to the contract choice, a proxy for ex ante uncertainty is needed. One observable variable that is plausibly related to ex ante uncertainty is the daily standard deviation of returns in the aftermarket. It seems likely that firms with volatile stock prices are likely to be firms for which there was a great

deal of uncertainty about their market value prior to the commencement of public trading. To calculate the daily standard deviation of returns, I use the daily closing bid prices in the aftermarket.¹⁰ These bid prices are publicly available for most new issues in Standard and Poor's Daily Stock Price Record for Over-the-Counter Stocks. For approximately 10 percent (primarily small offers) of the population of firms mounting initial public offers in the 1977-82 period, the Daily Stock Price Record does not have daily price quotations starting as soon as the stock started trading in the aftermarket. Since no other source of daily quotations is readily available, only 926 of the total sample of 1,028 firms have been used.

One potential problem in using the aftermarket standard deviation of returns as a proxy for ex ante uncertainty is that this variable is correlated with firm size, as measured by the gross proceeds. The simple correlation coefficient between the aftermarket standard deviation and the log of gross proceeds is -0.31. To control for possible confounding effects, in Table 6 I report the fraction of offers using best efforts contracts using the gross proceeds categories that I use in Tables 2, 3, and 4. For each gross proceeds category, I report the fraction of offers using a best efforts contract for firms with low and high aftermarket standard deviations, where the cutoff for these two categories is the sample median value of 4.3 percent per day.

Insert Table 6 Here

For all five gross proceeds categories in Table 6 the fraction of offers using best efforts contracts is higher for firms in the high aftermarket standard deviation category than those with low aftermarket standard deviations. Furthermore, the differences are striking: for both the \$4,000,000 - \$5,999,999 and \$6,000,000 - \$9,999,999 categories, the fraction of offers

using best efforts contracts is more than ten times larger in the high after-market standard deviation category than for the low aftermarket standard deviation category.

An F-test of the hypothesis that the fraction of firms using best efforts contracts is the same for both low and high aftermarket standard deviation categories leads to rejection of the null hypothesis at high levels of statistical significance for all but the largest gross proceeds category. (In the largest gross proceeds category, the small number of best efforts offers makes it difficult to reject any hypothesis at conventional levels of statistical significance.) The results reported in Table 6 strongly support the proposition that firms with higher ex ante uncertainty are more likely to use a best efforts contract than a firm commitment contract.

Further evidence supporting the notion that only firms for which there is a high degree of uncertainty about their value will use a best efforts contract is contained in Booth and Smith (1986). Since the level of ex ante uncertainty about the market price of a stock that is currently traded is minimal compared to that of most initial public offerings, I would predict that few seasoned equity offers use a best efforts contract. Using the S.E.C.'s Registration and Offer Statistics data set for 1977-82, Booth and Smith report in their Table 1 that 54.3 percent of initial public offers of common stock used a best efforts contact, while only 2.6 percent of seasoned equity offers used a best efforts contract.

I have argued that uninformed investors face less adverse selection risk with best efforts offers than with firm commitment offers, because overpriced best efforts offers are withdrawn. A literal interpretation of this statement would predict that no best efforts experience negative initial returns. In practice, some do have negative initial returns, possibly because of new

negative information that arrives towards the end of the selling period. Still, if best efforts offers do result in less adverse selection risk for uninformed investors than do firm commitment offers, I would expect to see a smaller proportion of best efforts offers experiencing negative initial returns than for firm commitment offers. In fact, for the 1028 initial public offers in 1977-82, 24.7 percent of firm commitment offers had negative initial returns, while only 16.5 percent of completed best efforts offers had negative initial returns. This is further indirect evidence that is consistent with the notion that the contract choice decision by issuing firms is motivated by considerations relating to informational asymmetries among investors.

6. Conclusions

This paper documents the differences in the types of firms using firm commitment and best efforts contracts. These differences are striking: small, more speculative, firms tend to raise small amounts of money using best efforts offers, and larger, more established, firms tend to raise large amounts of money using firm commitment contracts. With either type of contract, the average transaction costs are enormous: 21.22 percent for firm commitment offers and 31.87 percent for best efforts offers. While part of the lower average cost for firm commitment offers is due to the existence of substantial economies of scale, it appears to be the case that the total transactions costs of using a best efforts contract are higher than for a firm commitment contract, for a given size offer. Furthermore, the proceeds risk borne by the issuing firm, while substantial with both contract types, appears to be much greater for best efforts contracts. Yet many firms still choose to use best efforts contracts. I resolve this apparent paradox as follows: if there is enough uncertainty about the value of the firm, an issuing firm is better off using a best efforts contract because the required

underpricing if it used a firm commitment contract would be so severe. The rationale for this result is that the two types of contracts have different implications for the adverse selection problem facing potential investors. Since a best efforts contract involves an implicit precommitment to withdraw overpriced offers, uninformed investors do not demand a large amount of underpricing in order to be willing to submit purchase orders, as they would with a firm commitment offer.

I examine the testable implication of the contract choice model using a data set of initial public offers from 1977-82. The empirical results are consistent with the theory: firms that are more volatile in the aftermarket are more likely to have used a best efforts contract to go public.

Analyzing the contract choice decision in terms of the effect on the adverse selection problem facing investors sheds light on the existence of over-allotment options in firm commitment offers. As mentioned earlier, most firm commitment offers include a feature in which the underwriter has the option of selling as many as 15 percent more shares than the guaranteed number. The ability of the underwriter to exercise this option for oversubscribed (i.e., underpriced) offers helps to ameliorate the adverse selection problem facing uninformed investors. Consequently, an over-allotment option may reduce the required degree of underpricing of a firm commitment offer.

An alternative (although not mutually exclusive) rationale for the existence of over-allotment options is suggested by Smith (1986b, p. 20). Since the profit margin on the commissions that an investment banker receives on incremental shares sold through the over-allotment option is very high, investment bankers have an incentive to underprice an offer that includes an over-allotment option in order to increase the probability of exercising it. Because of this incentive structure facing the investment banker, investors

can rationally interpret the existence of an overallotment option on an offer as indicating a low probability that it will be overpriced.

When an investment banker takes a firm public, the underwriter is both certifying and distributing the issue. As discussed in the introduction, in a best efforts offer the offer price is set at an earlier stage of the process of going public than in a firm commitment offer. With a firm commitment offer, the investment banker gathers more information (and, as a byproduct, redistributes it) about market demand before setting the offer price than is done with a best efforts contract. Thus, a firm commitment offer involves relatively more certification than in a best efforts offer. This is consistent with the fact that the "major bracket" investment bankers almost always do firm commitment offers, as mentioned in footnote 2.

FOOTNOTES

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1. The data exclude Regulation A offers, for which firms raising less than \$1,500,000 are eligible. The disclosure requirements for Regulation A offers are substantially less than for the S-1, S-2, and S-18 offers that comprise the sample used here.
2. Other differences between the two contract types include the "quality" of the underwriters employed. Only one of the 364 best efforts offers in 1977-82 was conducted by a "major bracket" investment banker. Most underwriters restrict themselves to either best efforts offers or firm commitment offers. Another difference is that firm commitment offers are bought primarily by institutional investors, while best efforts offers are purchased almost exclusively by individual investors.
3. There is another component not dealt with in this paper: management time and effort. No data exist regarding the monetary equivalent of this cost.
4. Most first commitment offerings give the underwriter an option to increase the number of shares above the guaranteed minimum if demand is strong. During the 1977-82 period 85.2 percent of the 664 firm commitment offers had an overallotment option allowing the investment banker to increase the size of the offer by as much as 10 percent. In 1983, the S.E.C. began permitting firm commitment offerings to include an overallotment option of up to 15 percent. The underwriters normally have 30 days after the offering in which to exercise the overallotment option, although it is usually exercised immediately.
5. I only analyze the offers in 1982, rather than 1977-82 as in the rest of the tables, because of the extensive time commitment to track down and transcribe data from the preliminary prospectuses of firm commitment offers and from withdrawn best efforts offers.
6. For an account of the process of going public for one company, see Uttal (1986).

7. As Smith (1986a, p. 23) notes, the investment banker's guarantee can be viewed as the granting of a put option to the issuing firm. I am arguing that the exercise price of this option is set in a manner so as to make the value of this put option nearly worthless. Smith (1977, p. 289) makes a similar point regarding the value of this put option for a new issue by a publicly-traded firm.
8. For the offers that are withdrawn, it appears to be the case that they typically don't try again. I have found very few instances of a best efforts offer being withdrawn where the firm subsequently went public. If alternative sources of financing are not found by these firms, then the net present value of foregone investments is an additional cost that is borne by firms which attempt to raise capital with best efforts contracts and withdraw the offer.
9. While some firms wind up being financed if they use firm commitment contracts that would not be financed if best efforts contracts are used, this does not necessarily imply that these firms are investing in negative NPV projects. These firms are not financed if best efforts contracts are used because the issuing firms are implicitly charging potential investors too high a price for the opportunity to finance them.
10. The NASDAQ National Market Issues listings, where only a closing transaction price is reported, rather than the closing bid price, did not begin until 1983.

Table 1

Average gross proceeds, sales, and book values for firms going public in 1977-82, categorized by contract type

	All offers	Firm commitment ^a	Best efforts
Average gross proceeds ^{b,c}	\$6,575,616 (9,788,007) ^f	\$8,880,906 (11,437,137)	\$2,370,362 (2,164,255)
Average annual sales, in year prior to offer ^{b,d}	\$13,144,048 (45,383,358)	\$20,048,473 (55,252,680)	\$549,162 (2,238,552)
Average pre-offer book value of equity ^{b,e}	\$2,928,067 (7,155,382)	\$4,365,539 (8,557,460)	\$305,865 (654,336)
Number of firms (percent of total)	1,028 (100.0%)	664 (64.6%)	364 (35.4%)
Gross proceeds as a percent of total	100.0%	87.2%	12.8%

- a. Four combined firm commitment-best efforts offers are classified as firm commitment offers.
- b. All of the averages (gross proceeds, sales, book value) are averages of nominal values; no price level adjustments have been made.
- c. Gross proceeds are total dollars raised: the offer price times the number of shares sold.
- d. Sales are the most recent 12-month revenues reported in the firm's offer prospectus.
- e. Book value is for the most recent date reported in the firm's offer prospectus.
- f. For the top three categories, the figures in parentheses are the standard deviations.

Table 2

1977-82 initial public offers categorized
by gross proceeds and contract type

Gross proceeds ^a , \$	All offers	Firm commitment	Best efforts	Fraction best efforts
100,000- 1,999,999	243	68	175	.720
2,000,000- 3,999,999	311	165	146	.469
4,000,000- 5,999,999	156	133	23	.147
6,000,000- 9,999,999	137	122	15	.109
10,000,000-120,174,195	181	176	5	.028
All offers	1028	664	364	.354

a. The gross proceeds categories are based upon the nominal values; no price level adjustments have been made.

Table 3

Direct expenses of going public
as a percentage of gross proceeds, 1977-82

Gross proceeds ^a , \$	Firm Commitment Offers			Total cash expenses, %
	Number of offers	Underwriting discount ^b , %	Other expenses ^c , %	
100,000- 1,999,999	68	9.84	9.64	19.48
2,000,000- 3,999,999	165	9.83	7.60	17.43
4,000,000- 5,999,999	133	9.10	5.67	14.77
6,000,000- 9,999,999	122	8.03	4.31	12.34
10,000,000-120,174,195	176	7.24	2.10	9.34
All offers	664	8.67	5.36	14.03

Gross proceeds ^a , \$	Best Efforts offers			Total cash expenses, %
	Number of offers	Underwriting discount ^b , %	Other expenses ^c , %	
100,000- 1,999,999	175	10.63	9.52	20.15
2,000,000- 3,999,999	146	10.00	6.21	16.21
4,000,000- 5,999,999	23	9.86	3.71	13.57
6,000,000- 9,999,999	15	9.80	3.42	13.22
10,000,000-120,174,195	5	8.03	2.40	10.43
All offers	364	10.26	7.48	17.74

- a. Gross proceeds categories are nominal; no price level adjustments have been made.
- b. The underwriting discount is the commission paid by the issuing firm; this is listed on the front page of the firm's prospectus.
- c. The other expenses figure is comprised of accountable and non-accountable fees of the underwriters, and cash expenses of the issuing firm for legal, printing, and auditing fees, and other out-of-pocket costs. These other expenses are described in footnotes on the front page of the issuing firm's prospectus. None of the expense categories include the value of warrants granted to the underwriter, a practice that is common with best efforts offers.

Table 4

Average percentage cash expenses
and initial returns, and total transactions costs
as a percentage of realized market values, 1977-82

Gross proceeds ^a , \$	Firm Commitment offers			
	Number of offers	Cash expenses ^b , %	Avg. initial returns ^c , %	Avg. total costs ^d , %
100,000- 1,999,999	68	19.48	26.92	31.73
2,000,000- 3,999,999	165	17.43	20.70	24.93
4,000,000- 5,999,999	133	14.77	12.57	20.90
6,000,000- 9,999,999	122	12.34	8.99	17.85
10,000,000-120,174,195	176	9.34	10.32	16.27
All offers	664	14.03	14.80	21.22

Gross proceeds ^a , \$	Best Efforts Offers			
	Number of offers	Cash expenses ^b , %	Avg. initial returns ^c , %	Avg. total costs ^d , %
100,000- 1,999,999	175	20.15	39.62	31.89
2,000,000- 3,999,999	146	16.21	63.41	36.28
4,000,000- 5,999,999	23	13.57	26.82	14.49
6,000,000- 9,999,999	15	13.22	40.79	25.97
10,000,000-120,174,195	5	10.43	-5.42	-.17 ^e
All offers	364	17.74	47.78	31.87

a. Gross proceeds categories are nominal; no price level adjustments have been made.

b. The cash expenses are those reported in Table 3.

c. The initial returns are computed as $(v - OP) \div OP$, multiplied by 100 percent, where v is the closing bid price on the first day of trading and OP is the offer price. These are not annualized returns.

d. Total costs are computed as one hundred percent minus the net proceeds as a percentage of the market value of securities in the aftermarket. Consequently, total costs are not the simple sum of cash expenses and the average initial return.

e. For best efforts offers of \$10,000,000 or more, the negative average total costs is due to the price declines suffered by several offers. For three of the five firms in this category, net proceeds exceeded the post-offer market value of the securities issued.

Table 5

Mean "expected" and actual gross proceeds and average absolute percentage deviation from "expected" amounts, by contract type for initial public offer in 1982

Category	Average "expected" gross proceeds	Average actual gross proceeds	Average absolute percentage deviation from "expected" gross proceeds
116 Firm commitment offers	\$10,159,670 ^a	\$10,159,670	23.8% ^b
82 Successful best efforts offers	\$ 1,908,504 ^c	\$ 1,908,504	18.2%
73 Unsuccessful best efforts offers ^d	\$ 2,600,178 ^e	0	100.0%
155 Attempted best efforts offers	\$2,234,260	\$ 1,009,660	56.7%

- a. For firm commitment offers, the "expected" gross proceeds is computed as 0.663 of the minimum and 0.337 of the maximum proposed gross proceeds in the preliminary prospectus. These are the weights for the 106 firm commitment offers for which there was complete information that make the "expected" proceeds equal to the average realized proceeds. In the preliminary prospectus, an offer price range is usually specified, along with a proposed number of shares. The minimum proposed gross proceeds is the minimum offer price multiplied by the number of shares. The maximum proposed gross proceeds is the maximum offer price multiplied by the number of shares, assuming that any overallotment option is exercised. (In most firm commitment offers, the underwriters have the option of increasing the number of shares offered by up to 10 percent to cover over-allotments in the offer. Consequently, the actual number of shares sold is not generally certain until a week or more after the actual closing date.)
- b. Information on the preliminary offer price range is incomplete for 10 of the 116 firm commitment offers in 1982. Consequently, the average absolute percentage deviation is based upon only 106 offers.
- c. For best efforts offers, the "expected" gross proceeds is computed as 0.653 of the minimum and 0.347 of the maximum number of shares offered times the offer price. These are the weights for the 82 successful offers that make the "expected" proceeds equal to the average realized proceeds.
- d. The 73 withdrawn best efforts offers are those best efforts offers that had effective dates between October 1981 and September 1982, and were later withdrawn. Best efforts offers that are withdrawn are usually withdrawn 3 months after the effective date; reliable data on the exact dates they were withdrawn are unavailable.
- e. Of the 73 withdrawn best efforts offers, data on the minimum number of shares offered are unavailable for 10 of them. Most of the 10 had registered as firm commitment offers and later switched to best efforts before being withdrawn. Consequently, the "expected" gross proceeds is based upon only 63 failed offers.

Table 6

Fraction of NASDAQ-listed^a offers in 1977-82 using best efforts contracts categorized by gross proceeds and aftermarket standard deviation

Gross proceeds, ^b \$	Aftermarket daily standard deviation		F-statistic ^e (p-value)
	below median ^{c,d}	at or above median	
100,000- 1,999,999	0.436 (n=55)	0.743 (n=109)	16.23 (.0001)
2,000,000- 3,999,999	0.275 (n=91)	0.557 (n=203)	21.37 (.0001)
4,000,000- 5,999,999	0.026 (n=76)	0.273 (n=77)	20.36 (.0001)
6,000,000- 9,999,999	0.022 (n=92)	0.273 (n=44)	23.52 (.0001)
10,000,000-120,174,195	0.021 (n=142)	0.054 (n=37)	1.17 (.2816)

- a. Only the 926 NASDAQ-listed offers are used because daily price data are not readily available for non-NASDAQ-listed OTC stocks. Of the 926 offers, 641 used firm commitment contracts and 285 used best efforts contracts. Only 67.5 percent of offers under \$2,000,000 were subsequently listed on NASDAQ, compared with 97.1 percent of offers of \$2,000,000 or more.
- b. The proceeds categories are based upon the nominal values; no price level adjustments have been made. The corresponding table in real terms (not reported here) shows a qualitatively similar pattern, but the quantitative differences are even stronger than those shown above.
- c. The median daily aftermarket standard deviation is 4.3 percent.
- d. The average aftermarket daily standard deviation is 4.2 percent for firm commitment offers and 7.6 percent for best efforts offers.
- e. The F-statistics test the hypothesis that the mean fraction using best efforts contracts is the same for both high and low aftermarket standard deviation firms. The p-value is the probability that the F-statistic would be as large or larger under the null hypothesis that the fraction of offers using best efforts contracts is unrelated to the aftermarket daily standard deviation category, assuming independence of each offer.

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