GOING PUBLIC:
SELL THE SIZZLE OR THE STEAK?

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ABSTRACT

Two samples of high-technology companies that went public in different time periods show about a 50-50 split between early stage ("selling the sizzle") and later ("selling the steak") actions. More significant benefits accrue to the larger and later firms. The larger companies are better prepared for and in greater control of their decisions to go public. They more carefully search for and find higher quality underwriters. Their deals cost them less in direct and total costs, as well as in warrant dilution of their stock. Their stock sales go smoothly and they even gain surprisingly in immediate after-market price appreciation, although this differential benefit is not sustained over the smaller companies. After the fact the larger firms feel that they had also benefited more in regard to acquisitions, personal entrepreneurial liquidity and employee perqs.

Both large and small technological firms do meet their goals of raising needed capital through going public. And neither group feels it has incurred meaningful disadvantages in the process. However, the smaller firms experience the clear advantage of survival, in that many would have gone under had the public offering not succeeded.
EXECUTIVE SUMMARY

An old adage in going public is "sell the sizzle or sell the steak". Two "going public" samples indicate that technical firms tend to split 50-50 between trying to sell "sizzle" or "steak". The timing of an issue is jointly determined by the companies' internal needs for funds and the conditions of the securities markets, ranked by the entrepreneurs as comparable in importance. Larger companies rate market considerations as a more important factor than the small companies, for which capital had generally become a critical requirement.

In most situations a technical company needs to find an investment banking firm that will agree to underwrite a public offering. This involves decision-making by two parties -- the technological firm and the investment banker -- both of which apply their own search, evaluation and decision criteria. While the larger technical companies carefully seek out underwriting houses which meet their concerns, the smaller companies are far less sophisticated, approaching investment banking firms more or less at random. Underwriters in turn express ordered preferences toward the capabilities and depth of management of the young company, the future growth prospects of the firm and its industry, and the past record of the company.

Key areas of deal negotiation include the market value of the technical firm, the percentage of the company to be offered, the price per share and the underwriter's compensation. Needless to say no underwriter indicates it adopts a textbook approach to valuation. For companies with a record of earnings, especially the more established firms, the underwriters tend loosely to apply price-earnings (P/E) ratios of "similar" firms to reflect current market conditions, but a wide variation of a 5 to 1 range in P/E ratios results. Statistical tests find little correlation between these ratios and the size of the companies or their sales growth rates. The most cogent explanation is that the spread in the P/E ratios reflects the effects of industry fads, special circumstances of the companies and different timing relative to "hot" markets.

Offering prices for the underwritten companies studied range from $0.50 per share up to $22.00 per share, with a median price of $9.50. These initial prices correlate with factors related to the size of the company,
including net worth, total assets and revenues, with revenues alone explaining 63 percent of the variance in the offering price.

Many entrepreneurs find the underwriter’s discount and commissions and the total accounting, legal and underwriting expenses quite high relative to their prior expectations. The underwriter’s discount or spread, expressed as a percentage of the offering price, varies from a low of 6.0% to a high of 18.4%. The spread is negatively correlated with the price of the stock, indicating a higher spread for the lower priced offerings, and tends to be less during “new issues” markets. Another important underwriter compensation are the warrants that are sold by the company to the underwriter at a nominal charge, required by underwriters of the smaller issues, requested by some other underwriters but not by those doing the largest underwritings.

In organizing to move the stock the underwriter creates a distribution network of retail and institutional brokers, ranging in the samples from a single firm, carrying out a “best efforts” underwriting, to a full commitment co-managed transaction which includes 83 underwriters. As expected the larger dollar volume transactions have the larger number of underwriters, with the large underwriters distributing the stock far more widely.

Opening day price changes vary dramatically across the sampled firms, with larger companies escalating more on opening day than smaller firms. In addition issues made during a hot “new issues” market tend to appreciate more than those made outside this time period. Neither the size of the underwriting firm, the sales growth rate of the company, nor the price-earnings ratio at the offering price relates significantly with the first-day price change. Analyses of the stock price data after ten trading days, after one month, after 40 trading days, and after three months show an increasing spread of the results over time. Sales growth rate of the company prior to going public shows up as statistically related to price growth of the stock in these slightly longer period market studies.

Despite the concerns raised by many entrepreneurs prior to going public, few of them think that public ownership now has an important effect on the way they run their businesses. A few remarked that it has affected their long range growth goals. The majority of the entrepreneurs claim that they are not doing anything now that they would not have done had they remained a privately held corporation.
Most aspects of going public apparently favor the larger technical firm, the one selling the steak, not just the sizzle. But if the principal purpose of going public is to raise needed capital, then both large and small firms meet their goals. In contrast with most other perceived benefits, however, one clear advantage from the received capital is gained by the smaller companies, many of which in their own founders' judgments would have gone under had the public offering not succeeded. For the smaller companies going public is not equivalent in their own eyes to achieving success, rather it is a crucial step enabling their process of building a technological enterprise to continue.
GOING PUBLIC: SELL THE SIZZLE OR THE STEAK?*

For many technological firms going public is a logical step in their continuing growth. The capital made available from the public offering helps fund accelerated product development programs, enables the broadening of their distribution channels, and generates financial strengthening through debt retirement. Yet success is a many-colored fabric. To some technological entrepreneurs "going public" is success, not just part of further "growing up". As one entrepreneur philosophized, "I built this company up from scratch, made it profitable and growing, and brought it public. Now it's time for me to step aside and let these other fellows run the company." Especially from the perspective of personal fulfillment, bringing the firm from being privately held into public ownership, with the company's stock traded and reported daily (more-or-less), engenders strong feelings of pride of accomplishment. For those entrepreneurs with high need for achievement, going public creates new tangible measures of attainment.

Whether another part of corporate growth or a first measure of company success, personal financial success of the entrepreneur is also usually solidified, and even somewhat enhanced, by going public. Some of the entrepreneurs sell a portion of their ownership as part of the initial public offering and transform paper wealth into cash. These and other entrepreneurs, as well as the early investors in the company and the usually many stockholding employees, soon begin to sell portions of their stock into the public market, as allowed by the Securities and Exchange Commission (SEC) regulations. The realized liquidity of their previously illiquid assets generates for many of them thousands and even millions of dollars. For all entrepreneurs and their stockholding associates, going public makes the paper assets they still hold much more real, valued tangibly by an existing outside market into which they at least conceptually can sell their holdings. And almost always, the pricing of their shares of stock by the public market is considerably higher, even at the time of initial public offering, than their prior inhouse prices, thereby increasing their perceived wealth.

* This article is based on materials included in E. B. Roberts, *Entrepreneurs in High-Technology: Lessons from MIT and Beyond* (New York: Oxford University Press, forthcoming 1991). The author expresses deep appreciation to his three former graduate students, Harold Bogle, Andrew Gutman and Charles McLaughlin, for their critical efforts in data collection and analysis.
As indicated, going public produces for almost all entrepreneurs capital needed by their firms, enabling them to continue to grow toward fulfilling their company goals. Corporate success may thus follow going public as a consequence in part of the strengthened financial capacity of the firm. This occurs directly via the increased working capital produced by the public offering. But it may also occur indirectly through enhanced access to capital markets, both debt and equity, for the future needs of the firm. The publicly traded stock certainly makes it easier for the company to attract and/or hold on to key employees through the stock-based incentives that become available. That public stock may in addition facilitate acquisitions of other companies or product lines, if these are part of the firm's strategy. Many entrepreneurs report that the enhanced image and reputation derived from being a public corporation even improve their ability to sell products and services.

Such a stream of benefits does not come without costs. The most obvious is that going public is itself a very costly process, consuming not only significant time of the key managers of the firm but also a substantial part of the proceeds of the public stock sale for commissions to the underwriters and brokers and for the sizable expenses of lawyers, accountants and printers. Less visible initially, but for some entrepreneurs a greater real cost after the fact, are the continuing requirements for the changed conduct of a public corporation, with quarterly reports, annual meetings, continuous public visibility and scrutiny, demanding time and patience of officers as well as increased overhead costs. "Living in a fishbowl" is a new and often unwelcome consequence for the entrepreneurs who may previously have run their firms in their own private ways. To some entrepreneurs the most painful aspect of this public existence is the perceived pressure they sense for short term performance. This is an anathema to those who believe that their company's destiny and competitive advantage are only achievable through long term technology and product development. For some entrepreneurs the benefits with customers of their improved public relations seem countered by the increase of company information now made readily available to competitors. And to others the fear of loss of control of their "baby" to outside stockholders looms large, whether realistic or not.

Many books have been written for many years on the whys and wherefores of going public. The technology-based firm is not without specific guidance in this regard. Among the most recent and most thorough of these
guides is the Peat Marwick publication, *Going Public: What the High Technology CEO Needs to Know* (1987). This article does not present a how-to perspective. Rather, it reports the results of research studies of technological enterprises that have gone public. The article covers decisions by entrepreneurs to seek public market funding, their search process for investment bankers/underwriters, the negotiations with the underwriters including the underwriters' decision criteria, and the outcomes of the public offerings, both in terms of stock performance and impacts upon the companies. Surprisingly, despite the obvious significance of going public to the entrepreneurial firm, few research papers on the subject appear in six recent annual volumes of *Frontiers of Entrepreneurship Research* and only one paper appears in the issues of *Journal of Business Venturing*. The experiences of Japanese firms that go public are described in one recent report. (Systems Science Institute, 1989)

**MEASURES AND METHODS**

The data sources for this article are focused studies of two samples generated fourteen years apart, each covering approximately a three year period of "going public" activities. For each sample comprehensive lists were prepared of all the New England area technologically-oriented companies that had their initial public offering (IPO) during the time period that ended about one year prior (so as to obtain some record of post-issue stock market results and impacts upon company management), generating 30 companies on each list. Development of these lists was difficult as no single source of information, including the regional office of the SEC, could reliably identify the companies. Indeed the two primary sources on IPO activities nationally, the *Investment Dealers Digest* and the *IPO Reporter*, disagree in their numbers over the years by as much as forty percent, due in large part to different definitions of IPOs. The lists used here should be reasonably reliable, given all of the cross-checking done to assure completeness. Half of each list was included in the actual interviews, providing detailed data on 16 and 15 firms, respectively. The Boston and New York underwriters involved in these public issues were also studied, producing information from 9 different investment banking firms in each of the two analyses, occasionally from more than one office of these firms. Data were analyzed separately for each sample as well as for the combined set when appropriate.

What seems remarkable is the essential sameness of the findings from the two sample sets, despite their decade plus separation. For example, even
the spread of company interviewees turns out to be the same, although originally the CEO of each company was approached for cooperation: 7 presidents, 7 treasurers and 2 outside Board members are the sources in the first analysis; 8 presidents and 7 treasurers provide the data for the second sampling. While the results are not necessarily representative of what might be found today, or in other parts of the United States, they reflect the types of issues, the process, and the outcomes that at least Greater Boston technical entrepreneurs have experienced over the past twenty five years. A review of recent IPOs with high market valuations (Venture, April 1989) indicates that 13 out of 100 came from Massachusetts, second only to California which originated 39 of the IPOs. Those data suggest that a comparison of these samples with California high-technology public offerings might be the most beneficial route toward generalization.

However, this article provides no insights on technological firms that wanted to go public but failed, a group that must be very large given the information from the underwriters in both samples who claim that as few as 1 to 5 percent of the companies they review eventually go public. This percentage screened out of the public market is comparable to the turndown rate for funding by venture capitalists that has been demonstrated previously (Roberts, 1990).

WHO GOES PUBLIC?

The previous discussion (Ibid.) of financing provides some incidental indications of initial public offerings among young Greater Boston-area technology-based companies. Out of one sample of 110 MIT-based companies only 2 had gone public for their initial financing and, up to the time of the data gathering, an additional 7 had received public funds as their means of secondary financing while 8 went public for their tertiary-stage funding. While others from this cluster may well have gone public at some later date, these data suggest that not much more than fifteen percent of the total population of technological companies went public, probably generally indicative of the extent of public market financing of technical firms. For perspective, venture capital firms eventually get involved as the principal financiers of a comparable percentage of the MIT spinoff companies, some of whom of course later go public. And non-financial corporations are key funding sources of about twenty percent of the firms, some of which later go public but more of which are eventually purchased outright by the non-financial
corporations. A recent analysis by Freear & Wetzel (1990) shows that public stock offerings account for 6.7% (30/445) of the equity rounds and 18% (122/671) of the funds raised externally by their sample of New England technology-based firms.

An old adage in going public is "sell the sizzle or sell the steak". Some potential stock purchasers are perceived as likely to be attracted by the glamour of very early-stage firms, which have great promise but are too young to be assessed in terms of actual performance. Other potential buyers are assumed to want to be able to evaluate actual company performance, i.e., products, revenues and profits, before they buy stock. As shown in Table 1 the two "going public" samples, supported by the MIT spinoff information cited above, indicate that technical firms tend to split 50-50 between trying to sell "sizzle" or "steak". In contrast only 2 of 79 Japanese firms studied went public with less than 10 years of existence. (Systems Science Institute, 1989) Clearly those going public at the time of their founding have only promise and no performance. The entrepreneurs personally may have established a prior track record at some other firm that constitutes a "substitute" measure of performance, but their new companies are as yet untested. The post-formation firms selling public stock at an early stage are similarly lacking in tangible measures of performance and are relying primarily upon "sizzle". They have no sales or very little sales, a maximum of $453,000 in the prior year for the largest "early issuer" in the more recent data set. The eight early-stage issuers in the first sample all have fewer than 25 employees and average three years old.

In contrast, the eight firms in the recent IPO study that went public at a later stage have revenues from over one million dollars to over fifty million dollars in the latest fiscal year prior to their public offering. Typically the later-stage issuers have several hundred employees and an average age of eight years. This latter group is still rapidly growing, however, showing sales growth rates of up to several hundred percent over their previous year. Throughout this article the company's stage of development and size are shown to be the critical parameters that affect many aspects of the going public process. Small/large, "sizzle"/"steak" are the differentiating elements for technical firms going public.
WHY GO PUBLIC?

All the companies in the two IPO studies have at least one factor in common: They had decided to issue new equity to the public rather than choose other available sources of capital such as bank loans, private placements, venture capital or even selling the company. To the extent that the firms are at various stages of development they have differing financing opportunities available to them. As contrasts, a couple of the firms went public at inception while others had long stable records of sales and earnings. The former have the choice between going public and raising funds from the more common private investors and venture capital companies; the latter are already much too large to seek further venture capital. For smaller earlier stage firms the principal issue is the likely higher cost, in terms of proportion of the company to be given up, to raise the needed capital privately. Alternatively a number of these younger companies worry about whether they are far enough along in their own development to cope with the consequences of being a public corporation. Several firms have already exhausted other sources. For example, one company was started with founder seed capital, privately placed $300,000 of equity one year later, entered into a number of contract development programs with customers to expand its resources further, and had already privately placed additional securities twice before making the decision to go public. Another early stage company sought advice from an investment banker for sources to expand beyond the financial capacity of the original founders. The investment banker presented the alternatives (his firm also had a venture capital arm) and the decision was made to go public. Advice on alternatives seems readily available, especially to the larger companies in which venture capital funds tend to have prior investments. (p=.02) For example, venture capital companies have previously invested in six of the seven largest firms in the early IPO sample.

A majority of the larger companies have seriously considered making a primary issue previously but have not gone through with it for various reasons. Abandonment due to poor stock market conditions is the principal explanation but some firms had been advised that they were too small to go public. Two of the larger companies of the more recent IPOs had previous unsuccessful attempts at non-underwritten "Reg A" offerings. ("Reg A"s are less formal and smaller public issues carried out under the SEC's Regulation A provisions, and can be underwritten or sold by the company itself without using an
underwriter.) Those two firms proceeded this time through to an immediate search for an investment banker "who would do it right".

When asked to rank the advantages they had perceived in advance of going public, the entrepreneurs in the first sample responded:
1. Fill an immediate need for cash and working capital;
2. Create a public market to facilitate acquisitions;
3. Create a public market to permit sales of their own holdings;
4. Improve their firm's debt-equity ratio.

7 of the 8 smaller firms regard their capital needs as "urgent"; 11 of 15 firms rate the need for working capital as #1, agreeing with 14 of 15 companies in the second study. The urgency issue caused several CEOs and CFOs to laugh when asked this question. One responded, "Our bank refused to extend our line of credit, even at 2 1/2% above prime, and we forecast that available working capital would be completely gone by the end of the year. A firm in a similar business had just gone to the market at some crazy multiple. We would have been nuts not to go public." Another CEO remarked, "Going public was not the best alternative, it was the only way left to us to raise real high risk capital." Others put this in perspective by saying that the public market provides the lowest cost source of needed working capital.

Special capital-related reasons show up in both IPO samples. In one case the public offering permitted the sale of a large fraction of stock of the major shareholders who are relatives of the original but no longer dominant founder. This enabled the present management to end an uncomfortable situation of stock control by a small group of foreign owners. A second case permitted a negotiated settlement to be paid by a spinoff from another high-technology company that was in bankruptcy proceedings.

The larger technical companies perceive the creation of a public market as a more important advantage than do the smaller companies (p=.001). This is true both for the purpose of facilitating acquisitions as well as permitting the sale of founders' stock in the after-market. (During any three months period SEC Rule 144 allows the sale by insiders of the greater of one percent of the class of stock outstanding or the average of the four most recent weeks' trading volume.) The larger firms also express less need for working capital than the smaller companies (p=.04). The desire to improve debt-equity ratio through the significant increase in their equity base is common among firms of all sizes, the managements recognizing that their ability to borrow funds will
be enhanced. Half of the entrepreneurs specifically mention advantages accruing from their customers' interests in becoming stockholders.

A comparable number of disadvantages is also perceived by the entrepreneurs prior to deciding to go public. A major issue with some is the direct cost of going public which is discussed in depth in "the deal" section of this article. Some entrepreneurs in the more recent study were concerned in advance about potential loss of control, although other entrepreneurs specifically point out that private investors can exert a much higher degree of control than the public. Several entrepreneurs remarked that the public financing would effectively strengthen management's control by widely distributing stock to more passive investors. The principal difference between the earlier and later IPO samples is the more recent group's worries about undue public pressures on short term results (10 of the 15 entrepreneurs) and the somewhat related cost of managing ongoing shareholder relations, especially in terms of key persons' time (8 out of 15). The earlier group senses essentially no overall disadvantages of going public, expressing minimal concerns in all these areas, with noone worried about loss of control.

Recent technological entrepreneurs who are going public may be more sophisticated than their earlier counterparts, or there may indeed have been a real change in the stock analyst, regulatory and other public pressures upon the publicly owned corporation. Not all entrepreneurs knuckle under to these pressures. One proclaimed, "We make it very clear in all our reports that our goal is long term growth. In the prospectus we said that no dividends would be paid and that we did not expect to earn a profit in the next three years. As long as we make this clear, then if our investors are so concerned about quarterly results they can find another company!" Another remarked, perhaps more thoughtfully, "Growing at our rate means we're going to have to issue more debt or equity periodically to satisfy our needs. If the investment community is unhappy with our short term results, even if we think this is nonsense, it will affect our ability and our costs to acquire funds in the future. We have to take this into account."

The timing of an issue is jointly determined by the companies' internal needs for funds and the conditions of the securities markets. Overall these are ranked comparably by the entrepreneurs in both samples, 13 or 14 in each sample regarding each as paramount in importance. The large companies rate market considerations as a more important factor than the small companies.
(p=.002), for which capital had generally become a critical requirement. At least twenty percent of the companies would have gone under in the absence of an immediate public offering, since no other source of funding seemed available to them. The small companies which had gone public during a "hot issues" market admit after the fact that the timing of their issue was luck, but large companies had tended to wait for favorable market conditions. One biotechnology company admits it was awakened by the hot biotech market into quickly developing an ambitious business plan requiring a large capital input in order to take advantage of the market opportunity. Often the 3-6 months delay from the beginning of preparation for going public to the final effective date of the offering causes loss of an attractive hot market. Fortunately for it, the biotech firm completed its public offering while the market window was still open, enabling the company to launch an extensive program of product development. But the company did have to suffer with lots of stockholder discontent in the eroded stock market that soon followed.

**FINDING AN UNDERWRITER**

Occasionally a company decides to go public after being approached by an underwriter who persuades the firm to issue public stock. In this case the underwriter choice and the company's decision are concurrent events. In most situations a technical firm needs to find an investment banker that will agree to underwrite a public offering. This involves decision-making by two parties -- the technological firm and the investment banking firm -- both of which apply their own search, evaluation and decision criteria. This section first examines the firm's efforts and then turns attention to the underwriter.

In the first sample three of the five smallest companies, all of which were still developing their first products, did not seriously attempt to find an underwriter. They considered it a hopeless task since they were so small and risky and decided to prepare and sell their own small "Reg A" issues of stock. Two others in this sample failed to find a satisfactory underwriting deal and also went the Reg A route on their own. All the rest of the first group and all but one of the second sample of companies were fully underwritten.

**The Technological Firm’s Search and Decision**

The legal, financial and organizational intricacies of going public are complex and not well understood by many others than those professionals who
are directly engaged in these activities. The need for help becomes apparent quickly to anyone contemplating a public offering. Entrepreneurs of the smaller companies rely on a diverse group of professional people for guidance, including accountants, lawyers, bankers and personal friends. Two of these companies were advised by members of their Boards who eventually managed the offerings which were made directly to the public. The larger companies rely heavily on the outsiders on their boards for advice, especially in the many cases in which venture capital investors are on the boards. After extensive consultation with its advisors, one entrepreneur felt so helpless that he reported, "I was willing to let anyone underwrite the issue." The other entrepreneurs communicate more definite criteria to evaluate possible underwriters.

In the first sample three factors emerge prominently. Most important is a preference for an established investment banking firm that had built a good reputation. The larger the technical firm the more important is this reputation criterion (.04). Second is the importance of national distribution, this capability also being weighed significantly more heavily by the larger companies (.05). Finally, in each sample several of the entrepreneurs prefer underwriters who specialized in or had extensive experience with technology-based issues. Interestingly, the smaller firms tend to see this criterion as more important. In describing the ideal investment banker the more recent sample of entrepreneurs agree on the desirability of the large national firm or the old established firm with good reputation. These entrepreneurs support the concern for gaining a wide distribution, but more strongly emphasize the desire for smooth working relationships, as well as for an investment banker with an ability to maintain an after-market for the company's stock.

While the larger companies carefully seek out underwriting houses which meet their concerns, the smaller companies are far less sophisticated, approaching investment banking firms more or less at random. Among the eight smaller companies in the early IPOs two did not bother to approach any underwriter while at the opposite extreme two presented formal proposals to more than five firms. The larger companies are often more selective, in part due to the presence of a venture capitalist or banker on their boards or due to dealings with an investment banker in regard to earlier private placements. Two in the early sample set and eight in the later group approached only one investment banker each and secured its services. A number of the companies
report that they had engaged in negotiations with two underwriters simultaneously, and several entrepreneurs made contacts with three or more underwriters. One large company discussed its proposed offering with eight special and major bracket underwriters who all seemed eager to perform underwriting services. The company was in the pleasant position of not needing to go public and believed that competition among the underwriters would encourage each to outperform the others, both on the IPO and on any future transactions.

Three of the smaller companies in the first group obtained an underwriter after a long and discouraging search. They were continually refused due to their small size and lack of earnings. Each of them ultimately found an underwriter after enlisting the services of a "finder". The larger companies in that sample and all of those in the later cluster were more successful in attracting proposals from underwriters. Most of the enterprises which talked to more than one underwriter received more than one proposal, leaving final choices to be made that turned out to be quite subjective. Ultimately, the interviews suggest that each company's decision is closely tied to its objectives in making a public issue. As in many grey areas of business the entrepreneurs have trouble justifying their decisions on rational grounds.

The Underwriter's Perspective

Detailed structured interviews with the 18 investment banking firms in the two samples generate perspectives on the process followed in deciding to underwrite. These firms vary considerably by size (regional versus national), reputation (old established versus new), specialization (full line services versus technology specialist), and attitudes toward IPOs as a business in general. These differences cause few conclusions of general validity. One clear generalization is that especially in times of "new issues" markets underwriters are besieged by opportunities. They then need to be very selective in matching their own capacities to the potential deals they see. Even in less hectic periods only a small fraction of companies wanting to go public are given underwriting. The principal sources of referrals to these investment banking firms are, in descending order, friends, current clients, and venture capitalists. Direct approaches by entrepreneurs do result in some underwriting but are seen by the underwriting firms as far less important overall because of the lack of prior screening.
Although hundreds of underwriters exist in the United States (and many more servicing new opportunities not included in this study for going public in overseas markets), the market is clearly dominated by a few specialist firms for which the IPO is a major source of income. At least one firm in the sample has IPOs accounting for over 75% of its total revenue. For another full service investment banker in the sample, IPOs might produce only 5-10% of its revenues. All the underwriters interviewed find IPOs profitable. Naturally those specializing in initial public offerings are generally more active in directly marketing themselves to potential IPO candidates, but in recent years most of the national firms have set up technology groups specifically aimed at attracting and servicing these smaller companies. Each underwriter has its own general and specific criteria for agreeing to underwrite a company. But their testimony in the interviews, evidenced by their documented practice as well, indicates that these criteria may be ignored if the company looks exceptionally "good".

In choosing to underwrite an issue the firm must balance its own perceptions of the key factors determining the strength of a company and the characteristics that they feel investors view as most important. Ultimately the underwriter is an intermediary between the investor and the issuer. Therefore, the underwriter must be concerned with the marketability of a given security. If the underwriter feels that the market is currently responsive to service industry issues (e.g., restaurant chains), it will select these. If, on the other hand, technology issues seem "hot" and are expected to continue to be, the underwriter may select companies within this industry cluster. With industry choice determined by the market the underwriter then looks for individual companies within the favored industries which satisfy its taste and judgment.

Table 2 tabulates the number of underwriters who view particular company characteristics as most important to stock buying customers, based on those included in the more recent sample. Sound company management and future growth prospects are the most frequently cited very important factors. The earlier data show the same ordered priorities toward the capabilities and depth of management, the future growth prospects of the firm and its industry, and the past record of the company. This agreement upon the importance of company management is not surprising yet investors rarely have
the opportunity to meet management prior to buying the securities. As few investors read beyond the summary and first pages of a prospectus, the investors ultimately depend upon the underwriters' evaluation of management, implicit presumably in the decision to underwrite. Despite the claimed relative importance of historical earnings, many of the companies studied have little or no previous earnings (including seven in each of the two samples), several expecting none for at least a few years. This is an example of a criterion which many underwriters are obviously willing to forgive for the "hot" prospect, even though they feel it is very important.

Whether only a rationalization of the opinions expressed in Table 2 or not, it is comforting to note in Table 3 that assessment of weak management, in addition to weak market conditions, are the key reasons cited by underwriters for rejecting a company. Beyond these general selection criteria most underwriters also have specific rules of thumb used in their evaluations. Minimum size of the company, and minimum (for the smaller underwriters, also maximum) size of the stock offering are among the scoping criteria applied by underwriters to screen initial interest in the potential underwriting.

Eleven of the sixteen technological companies in the sample of early IPOs and all but one of the later sample ended up with full commitment underwritings. The smaller firms often seemed lucky to get one underwriter, the larger companies usually got to choose. The larger companies all obtained the services of reputable investment bankers including a few of the most prestigious firms in the industry. Investment bankers for the entire sample range from the lesser lights of the industry up to Paine Webber and Alex Brown. All of the investment bankers violate their own stated guidelines regarding the minimum size of companies, some of the situations not even coming close. Despite this the size of the technical company and the size of the investment banker are highly correlated (.001), indicating primarily the preferences of the larger investment bankers.

THE DEAL

While the initial proposals of both the companies and the underwriters
outline the general terms of an issue, the two parties must negotiate the exact terms of the deal as it will be offered to the public. Key areas of negotiation include the market value of the technical firm, the percentage of the company to be offered, the price per share and the underwriter's compensation. Other less prominent issues also need to be resolved, such as secondary shares, warrants, board seats and rights of first refusal on subsequent offerings. Overall both the entrepreneurs and the underwriters report that these negotiations are relatively harmonious based on trust, respect and the general feeling that neither side tries to gain the upper hand. A few of the entrepreneurs report extensive hard bargaining in which they felt themselves at a disadvantage due to their inability to find another investment banker. Yet only one entrepreneur believes that the underwriter and deteriorating market conditions placed him in a position of doing a deal on terms with which he was less than comfortable. For non-underwritten issues the company's officers and advisors unilaterally set the terms.

After futile searches for an underwriter five of the companies in the earlier sample decided to offer their issues directly to the public, without an underwriter. All of these were small Reg A issues, offered by companies that were new, small, unprofitable and undercapitalized. The size of the offerings were set to meet the projected capital needs of these companies. One firm nominally sought twice the amount it needed because its management assumed they would only be able to sell about half the issue! Prices were set on a subjective basis with three of the companies choosing $10.00 per share because they thought that price would convey a good image to the public. Despite their companies' real condition as seed-stage firms, the entrepreneurs didn't want to create the impression that they were "penny stocks"!

Company Valuation

In the underwritten cases joint decisionmaking, rather than negotiation, is a better way to describe the process for establishing company valuation. Stated differences of opinion with few exceptions range only up to twenty percent. For instance, eight entrepreneurs say they entered the discussions with a firm idea of the market value of their own company, based largely on their analyses of market valuation of similar companies. In only one case was the company eventually valued lower than management's initial assessment.

The companies with no earnings generally left the valuation up to the
underwriter. Textbook solutions call for projections of a company's future earnings and payouts, accounting for all associated taxes, discounting the yield back to the present based on a market interest rate that reflects the riskiness of the investment. Needless to say no underwriter indicates it adopts the textbook approach to valuation. One development stage company studied, with no earnings but with sophisticated management, utilized the underwriter search process as a mechanism for evaluating itself. It garnered five offers from financial sources which helped establish an envelope for company valuation in its public offering. The management and underwriter of another development stage company for which there is no public market industry equivalent patterned its public offering, in terms of dollars raised for a given percentage of the company, on a basis comparable to what a private venture capital transaction would cost. Thus a valuation was simply transferred between financial market segments.

For companies with a record of earnings, especially the more established firms, the underwriters tend loosely to apply price-earnings (P/E) ratios of "similar" firms to reflect current market conditions. Table 4 lists the offering P/E ratios for the companies that have earnings, assuming full dilution based on the stock being sold. The more recently issued stocks have lower P/E ratios overall, but a wide variation of a 5 to 1 range is reflected in both samples. Statistical tests find little correlation between these ratios and the size of the companies as measured by sales, total assets or net worth. Nor are they correlated with sales growth rates. The most cogent explanation is that the spread in the P/E ratios shows the effects of industry fads, special circumstances of the companies and different timing relative to "hot" markets. The issue of glamour of a particular industry adds considerable volatility to the pricing of IPOs. Security analysts told the manager of one biotechnology company that it was too bad his company had earnings, because now everyone would attach a P/E ratio to his income stream. The analysts presume that due to market "hype" the company might have received a higher valuation without any earnings. As a further statement of the quandary surrounding the pricing of new issues the Price/Revenues ratios are also calculated for these firms and show a range of from 1.2 to 4.8, not correlated with the P/E ratios nor with any other other performance measure. Examining a large number of IPOs issued during 1978-85, McBain & Krause (1989) find that the P/E ratio is directly
related to the percentage of the firm's equity retained by the insiders.

Price and Proceeds

The offering prices themselves for the underwritten companies range from $0.50 per share in two cases up to $22.00 per share, with a median price of $9.50. The offering price most highly correlates with the total proceeds of the primary issue ($R^2=.70$, $p=.01$), and also correlates with factors related to the size of the company, including net worth, total assets and revenues. The firm's revenues as a single variable explain 63 percent of the variance in the offering price (.005). A multi-variate analysis does not significantly improve the model. Also, since the larger investment banking firms underwrite the larger issues, the size of the investment banking firm is positively rank correlated with the offering price (.002).

As expected the total proceeds from the public offering highly correlate with the size of the company. A linear regression model with net worth and revenues as independent variables explains 96 percent of the variance in the total proceeds (.005). The size of the issue highly relates to the size of the underwriter (.02), indicating that the larger the investment banker the larger the total proceeds of the issues underwritten. Total proceeds equals price per share times number of shares. Since both the proceeds and the price correlate with aspects of company size, it is not too surprising to discover that the number of shares issued also positively relates with the total assets of the company ($R^2=.79$, $p=.005$) and is rank correlated with the size of the underwriter (.002). The proportion of the company offered to the public is not highly related either to the size of the company or its growth rate.

In eight of the 31 cases companies had combined offerings comprised of new shares and the registration and sale of some insider shares, called "secondary shares". Underwriters monitor this process closely to avoid the appearance that owner/managers are bailing out. Half of these cases involve primarily non-management shareholders desiring to achieve some liquidity. In the other four cases the company's own cash needs are modest and the investment banker felt that sale of additional shares was necessary to make the size of the issue large enough. In these latter circumstances the majority of the pre-issue stockholders are somewhat reluctant to offer their stock as part of the primary issue since they anticipate being able to sell at a much higher price in the after-market. In three cases insiders finally agreed to sell
an equal "taxed" proportion of their holdings, feeling mollified by the fact that all shareholders were being treated uniformly.

**Underwriter Compensation**

Many entrepreneurs find the underwriter's discount and commissions and the total accounting, legal and underwriting expenses quite high relative to their prior expectations. However these issuing costs are not heavily negotiated at the outset. The underwriter's discount or spread (the difference between the offering price and the net proceeds to the company) is the underwriter's main source of compensation for all of the deals and the sole source of compensation for the nine largest issues (no warrants on them). The spread, expressed as a percentage of the offering price, varies from a low of 6.0% to a high of 18.4%. Table 5 shows not surprisingly that in the fourteen years between the two samplings the underwriter's spread as a percent of total proceeds grew about 10 percent (as measured by the median) while the total expenses increased about 40 percent. The spread is negatively correlated with the price of the stock ($R^2=.72$, $p=.005$), indicating a higher spread for the lower priced offerings. Since the price of the stock supposedly reflects the quality and riskiness of the issue, the underwriter is expected by financial theorists to demand higher compensation for assuming the risk inherent in a low priced offering. By widening its spread on the more risky issues the underwriter provides itself with greater margin to be able to sell off its inventory of company stock if the security meets with a poor reception on the offering date. The same outcome of higher spread for the smaller issues also results if one believes that the underwriter is merely allotting its fixed costs of service over a small base. As another measure of the same phenomenon, when the two samples of IPOs are each split at their medians by asset size (as listed in Table 5), the smaller companies are found to have incurred a significantly higher mean spread of 10.6 percent (10.9 in the more recent group) versus only 7.2 percent in the larger companies (9.9 for the recent IPOs).

Multivariate analysis reveals only one other factor that helps explain the variance of the spread. The linear combination of issue price and the year of issue explains 82 percent of the variance, with the spread negatively correlated with both factors. This indicates that the spread tends to be less
during "new issues" markets than for a similarly priced stock issued at some other time. Practically, the underwriter's own cost of selling no doubt decreases when investor demand is high. This is also theoretically reasonable since the underwriter's risk presumably declines when investors' demand for primary stocks increases.

In addition to the underwriter's spread, the company must pay the other direct costs associated with the offering, including fees for lawyers and accountants, printing costs, and other direct costs incurred by the underwriter in connection with the issue. The rapid increase of these costs in recent years, partially to pay for new selling costs such as "road shows" and color inserts in the prospectus, partially to pay for significantly increased legal scrutiny, makes the "other costs" a large add-on to the underwriter's base commission. These "other costs" are especially significant in the two underwritten Regulation A issues in the earlier sample ("* in Table 5), where they represent 18.9 and 16.7 percent of the total proceeds. There is little reason to believe that the real direct costs should be so high for these small issues. It is possible that these two companies, in urgent need of funds, were charged unreasonably for the services rendered by others in connection with the issue. The median and mean costs shown in Table 5 are recalculated (+), omitting those two special cases, to provide a possibly more representative cost picture.

The resulting total costs of the issue by company are also presented in Table 5, indicating that the underwriter's spread is the major component of the total cost for all but a few cases. Multivariate regression analysis shows that the linear combination of the issue price and the total assets explains 89 percent of the variance in the total percentage direct costs (.10), both independent variables being negatively correlated with the percentage costs. The year of issue does not have a statistically significant effect here. Thus the smaller companies, or those with low issue price, experience much higher direct costs. Splitting the two samples again at their medians by asset size confirms the effect of company size on the total cost of going public. The smaller companies, including the two Reg As, incur a significantly higher mean total cost of 22.0 percent (17.4 % in the more recent IPOs) while the larger firms average only 9.6 percent (12.6 % in the recent sample). The same statistically significant result is found when the firms are divided into clusters in accord with their previous year's sales, i.e. the smaller technological companies pay considerably more proportionately than the large
to generate their public funds.

A matching of total costs against underwriters shows that the most prestigious underwriters engage in the larger transactions with lower issuing costs, while the less prestigious and "best efforts" financiers with smaller transactions have comparatively higher expenses. These may alternatively reveal the prestigious underwriters as being more cost competitive or, perhaps more likely, the smaller technical firms as having less bargaining power. Then again, some entrepreneurs do not regard these "total costs" as costs at all, because they are not reflected in their own company's income statements!

A final important compensation are the warrants that are sold to the underwriter at a nominal charge. These are required by the underwriters of the smaller issues, requested by some other underwriters but not by those doing the largest underwritings. The six largest underwritings in the early IPO sample and the three largest more recently do not include warrants for the underwriter; all but one of the remaining underwritten issues contain warrants. In most cases the warrants are for 10 percent of the number of total shares offered in the primary issue, although the sample does include one firm with only 2% warrant coverage and several with up to 20 percent. The prices at which the warrants can be exercised in the future range from the offering price itself in most situations, to 120% of the offering price in one case, to another deal that provides for a 10% per year escalation over the offering price during the next five years. In general the warrants are not exercisable for a year but their life lasts as long as five years. While it is very difficult to attach a monetary cost to the warrants, it is sufficient to note that here too the largest technical firms do not incur this cost as part of their going public episode.

Board representation by the underwriters, rights of first refusal on subsequent offerings, and even consulting services are the remaining terms and conditions negotiated. About one-third of the sampled companies elected a new board member from the underwriter, contingent upon the offering, while several had pre-existing board members from those firms, sometimes due to prior venture capital investments. The smaller underwriters sometimes negotiate a right of first refusal and consulting fees. The weaker companies in the sample, whose horizons are dark without the public monies, are hardly in a position to negotiate vigorously these minor issues or indeed may believe that the ongoing outsider presence is beneficial. Larger investment banking firms
not only do not require board membership, but often decline invitations to serve except in unusually attractive companies. Similarly, the larger underwriters rarely argue for a clause in their contracts to guarantee future underwritings, presuming that their performance and position will generally suffice for assuring future business.

OUTCOMES

Pre-Issue Activities

Concluding a deal is only the beginning of "the rest of the story", as Paul Harvey says. Much work is now needed to "clean up" the company, prepare the prospectus and gain SEC approval, and market the stock to prospective investors, before the new issue can become effective. In the firms in both samples employment agreements with key employees are often revised to provide assurances demanded by the underwriter. Recapitalization of the company's stock frequently occurs, with stock splits or consolidations to generate the right number of shares desired for pricing considerations. Liquidations of product lines, rewriting agreements among stockholders and persuading debtors to alter their terms are common pre-issue requirements.

More subtle changes also take place in preparation for the public offering. Many companies restructure their boards of directors to include outsiders and individuals with expertise missing from top management. A substantial number change law firms and/or accountants as part of image projection, while also bringing in more expertise for the public offering. Some spinoff firms need to project better arms-length relationships with their original parent, some enter licensing agreements to ward off fears of possible law suits, and others tie down formal relationships with outside customers or key suppliers. A number of the larger firms which have for years been waiting for the right opportunity to go public, already had formally audited financials, prestigious outside directors, and disclosures prepared even when not required. Several other companies have earlier entered into joint development contracts specifically to bring a large and respected company into a financial relationship prior to going public. Another firm entered into a marketing agreement with a large overseas partner to "clean up our balance sheet". These types of changes by the early stage companies are obviously more limited due to time constraints and lack of prior planning to go public. Pre-issue cleanup is widely practiced by Japanese firms as well, beginning deliberately several
years before the planned public offering. (Systems Science Institute, 1989)

Preparation of the prospectus, in close working relationships with the underwriters and lawyers, consumes much management time. The SEC has specific disclosure guidelines about securities, and rules controlling undue promotional activities by management around the offering date. The prospectus tells part of the company's story, but is usually highly stylized and replete with caveats insisted upon by the SEC and by the company's and the underwriter's counsel. The prospectus cannot contain any forecasts but only a bland and boilerplate section entitled "use of proceeds", which may mention working capital requirements, the intent to retire debt, or funding for a new product generation, hardly enough information to project a vision of the future. Historical earnings are not always helpful because as shown earlier a large fraction of the technological firms going public have little or no past earnings. There is seldom opportunity to "sell" within the prospectus except in very subtle ways. In the more recent sample one third of the prospecti have color pictures of company products and even fold out presentations to improve communication and image.

The conservatism embodied in these prospecti is reflected in the fact that none of the companies encountered any really serious problems with the SEC during the registration process. The entrepreneurs attribute their success to their lawyers and accounting firms as well as to the expertise of the investment bankers in preparing the registration statement and prospectus. Ironically, although the Reg A filing is intended to simplify going public for a small issue of stock, those few smaller firms which used the Reg A were also more likely to lack expert legal advice. Consequently two of the non-underwritten companies required more than six months to gain SEC approval after submitting their initial statements, in contrast to the typical delay of two to three months encountered for the full preparation and SEC approval of the more complex filings. Only one firm got into trouble with the "blue sky" commissions of the various states in which the offerings were registered. In this case the commission ultimately limited the price of the issue by constraining, to 25:1 (!!), the price-earnings ratio of the offering. Since a major stockholder of the company resided in that state it was necessary to obtain the commission's approval. Much to the chagrin of the company and its underwriter, the issue was forced to be priced substantially below their intended level. It later became one of the "hot" stocks of the year.
The "road show" is often the mechanism for selling. Not all underwriters organize this effort, but several entrepreneurs made presentations about their companies around the country, occasionally also overseas in Europe and Japan. The entrepreneur's own salesmanship talents are put to use in promoting the company's securities at meetings in major cities of local brokers, their clients and institutional investors. Management is usually rehearsed by the underwriters and legal counsel to assure that statements and responses to questions are within SEC guidelines. One underwriter, summing up the importance of the road show in convincing prospective buyers, exclaimed "No story, no deal." One entrepreneur describes with glee his zealous underwriter, who videotaped management's discussion and demonstration of company products and then flew a private jet around the country stirring up investor interest. These methods do provide for some potential investors, or at least their stock brokers, a chance to see and hear the company president in advance of the offering, perhaps satisfying their investment concerns for sound management that are highlighted in Table 2.

In organizing to move the stock the underwriter creates a distribution network of retail and institutional brokers. The underwriting syndicates range from a single firm, carrying out a "best efforts" underwriting, to a full commitment co-managed transaction which includes 83 underwriters. The median number of underwriters in the recent IPOs is 33. As expected the larger dollar volume transactions have the larger number of underwriters. Prior to setting the final price the syndicate may accept "indications of interest" from potential purchasers, in theory to help the underwriter determine how it should set the final price. Actually the underwriter usually tells prospects that the price has been set at close to a certain level and asks how many shares the prospect would like if it is possible to get that number. If demand exceeds supply, the underwriters allocate their shares to their customers as they choose. Should supply and demand be out of balance by several orders of magnitude, the offering price may be changed, but rarely is there an iterative process in an attempt to find a market equilibrium. In only one case in the samples was there a last minute significant decrease in both the offering price and the number of shares offered by the underwriter, upsetting the entrepreneur who felt trapped into a more costly and less beneficial underwriting.

Sales of the Issues
The underwritten issues were sold in their entirety on the effective date of the offering. The five non-underwritten Reg A issues among the earlier IPOs were slow to sell, Figure 1 showing the sales records of the four which only sold part of their intended offerings. Only one of those firms placed its entire issue, and then only after a seven months selling effort. Three non-underwritten companies suspended their issues within one year of the effective date without completing the offering. One of these stopped after receiving 55 percent of the proposed total proceeds, the same firm mentioned earlier that had set its stated proceeds for the issue at twice its estimated requirements. A second firm's stockholders voted to suspend stock sales when 75 percent of its initial target was reached. Since amendments to the filing notice and offering circular have to be filed with the SEC after one year, a third firm suspended its offering at that point, with 75 percent of its issue sold. The fourth company that did not sell its entire issue did file the required amendments and continued to sell stock for a total of eighteen months, when it too finally gave up at the 75 percent completion level.

Stock distribution varies enormously across the issues. The large underwriters tend to distribute the stock far more widely as evidenced by the average shares held by an individual ($p=.04$). Again the non-underwritten cases stand out as perhaps unfortunate exceptions. In three situations the entrepreneurs managed the offerings personally, selling stock to friends, relatives, business acquaintances and professional contacts. Initial sales often generated a chain reaction: Individuals who bought a stock recommended it to their friends who contacted the company and bought shares. One issue, managed by an influential member of the company's board, was placed almost entirely with doctors and other professionals in Alabama.

**After-Market Performance**

An after-market for trading cannot develop while the company is still offering the stock at the issue price. Consequently no trading occurs in any of the non-underwritten issues until well after the companies suspend their selling efforts. And even then a rather inactive trading market has developed for only two of those five companies, prior to later refinancing activities of some of the firms.
In contrast markets and trading started immediately for all the underwritten issues in both samples, the prices at first day's closing ranging from 11 percent below the offering price to 181 percent above it, as shown in Table 6. The gains on offering day for the earlier set of underwritten IPOs are significantly greater than those that went public more recently. An unanticipated positive side effect on employee morale and esprit de corps often results. At one company employees were dancing and singing in the halls as the stock price more than doubled on the effective date of the issue.

Bivariate regression analyses of the first-day price appreciation with several variables related to the issues reveal two significant relationships. The size of the company as measured by its total assets positively correlates with the percentage price appreciation ($R^2 = .33, p = .10$), indicating that larger companies escalate more on opening day than smaller firms. First-day price change correlates as well with a dummy variable for the year of the offering ($R^2 = .27, p = .10$), indicating that issues made during a hot "new issues" market tend to appreciate more than those made outside this time period. Neither the size of the underwriting firm, the sales growth rate of the company, nor the price-earnings ratio at the offering price relates significantly with the first-day price change. Several multivariate linear models were also tested, the strongest result ($R^2 = .46, p = .10$) occurring for the combination of the two individual variables highlighted above, the total company assets and the year of going public. None of the other multivariate models tested gives statistically significant findings.

Analyses of the stock price data after ten trading days, after one month, after 40 trading days, and after three months show an increasing spread of the results over time. Some of the companies continue to decline from their initial prices, the biggest drop after 40 trading days being 32 percent. Other firms continue to escalate in price, the largest after 40 days being 313 percent above the initial offering price, with the mean change in the more recent set of IPOs being +53%. In contrast the range of the NASDAQ Index during the 40 trading days following each of these initial offerings ranges only from -6% to +16%, with a mean range of +5%, showing the far greater volatility of the new stocks. No easy way exists to evaluate the risk of these IPO securities although risk is
certainly greater for them than for the market composite. But to outperform
the changes in market average by a factor of 10 seems remarkable. Sales
growth rate of the company prior to going public shows up as statistically
related to price growth of the stock in these slightly longer period market
studies. A perhaps negative short term effect on company efficiency is an
unexpected by-product of the stock price volatility. As one entrepreneur
comments, "I couldn't get an outside telephone line for about a month after the
issue. Everyone was calling his broker to get the latest price!"

Perhaps the most important observation about the stock price is that
the general increase over the offering price is sustained over these longer but
still early periods of stock trading (i.e., up to three months post-issue), clearly
indicating that these technology-based company IPOs are not overpriced. When
questioned in this regard, many of the underwriters indicate they believe in
"leaving something on the table" for the market investors. Somewhat
surprisingly the entrepreneurs do not often object to this strong suggestion
that their companies might have raised as much as twenty to fifty percent
more funds by a higher offering price. All the companies have experienced
some periods of selloff in their stock prices since their offering and
entrepreneurs often seem relieved that they went public at what both before
and after the fact seem like reasonable valuations. The principal exception is
the entrepreneur whose offering price had been limited by the state blue sky
commission. The others feel that they received a good price for their stock and
do not begrudge the public its profits. Of course, the entrepreneurs' own
considerable stockholdings have also gone up in value. Clearly related is the
observation that the price-earnings ratio at offering does not show up as
statistically significant in any of the after-market regression analyses.

Effects of Public Ownership

Despite the concerns raised by many of the entrepreneurs prior to going
public, few of them think that public ownership now has an important effect on
the way they run their businesses. Only three of them remarked that it has
affected their long range growth goals, one commenting that his firm has to
grow faster now to justify the "inflated" stock price. The other two in
contrast say they have to be more conservative and cautious in making
strategic decisions. The majority of the entrepreneurs claim that they are not
doing anything now that they would not have done had they remained a privately
held corporation. In terms of operations several CEOs affirm that they do feel
short term pressures to accommodate investors, but one entrepreneur calls this process a forced focus rather than a planning and operating constraint. Several observe that managements had better pay attention to their business rather than to their stock prices, one speaking for this group in proclaiming, "My goal is to make money for the company, and that is what the stockholders' goal should be too."

The investment banking firms are now represented on the majority of boards of directors of the companies, with all of the entrepreneurs reporting that this relationship is beneficial and that the underwriter's advice is welcome. The investment banker does have the opportunity to influence the long range goals of the company, but the entrepreneurs typically feel that he has little real knowledge of or influence upon the internal operations of their companies.

All the entrepreneurs agree that being public has added significantly to their companies' accounting, legal and public relations expenses, especially due to the quarterly SEC filing requirements. Many of the companies have added a Public Relations or Investor Relations director as a result, while some have incorporated these new responsibilities into the expanded job of the Treasurer. The CEOs report many more phone calls from investors, investment analysts and the news media due to their public status, but most treat the annoyance as only at the "noise" level and not a significant interference. The positive side of this is increased name recognition with prospective suppliers and customers, salesmen in several firms being well received by some who previously would not talk to them. Indeed none of the entrepreneurs regrets his decision to go public, usually appraising the realized advantages as the same as the entrepreneur had perceived before going public. Officers of the three smallest underwritten companies do feel that they had gone public prematurely, leading to high costs relative to the funds raised.

In the small group of non-underwritten entrepreneurs, two now think they should have made a private placement instead of a public issue, believing they should have waited until their firms were bigger and with a better track record before going public. Two others think they should have worked harder to find an underwriter for their issue. Surprisingly, despite their lack of success in selling their issues, as documented in Figure 1, these entrepreneurs also do not regret having gone public.
Both large and small company entrepreneurs now think the most important advantage of being a public company is increased access to additional capital. They anticipate, and some have already realized, that future public issues and bank borrowings will be much easier now that they are publicly held.

The second key advantage is enhanced ability to make acquisitions, with a small number of the firms having already made non-cash acquisitions since their primary public stock issues. While these acquisitions would not have been impossible before going public, the entrepreneurs attest that being a publicly held concern facilitates negotiations. The larger companies rank the advantage of a public market for help in their acquisitions higher than do the small companies (.001), no doubt because the smaller firms are still more internally oriented in their product and business development strategies.

Two other after-market advantages are considered important by many entrepreneurs, again ranked higher by the larger technical enterprises (.07). The creation of a public market both enables them to sell small parts of their equity holdings and also increases the value of their employees' stock options.

In this regard it should be noted that the vast majority of the technical entrepreneurs who have gone public are multi-millionaires today, at least on paper. Included in the samples are two different entrepreneurs each with market worth of several hundred million dollars. While it might be difficult for many entrepreneurs to realize the current paper value of their holdings if they try to liquidate their entire positions through sale of stock in the market, the market value is gradually being turned into "cashed in" wealth by most of the entrepreneurs. Furthermore, the market value sets a public price for beginning negotiations toward being acquired by still larger firms, the outcome that eventually occurs for many of these technology-based companies.

**SUMMARY: "SIZZLE OR STEAK"?**

The initial observation in this article that technology-based firms can sell the sizzle or the steak is borne out in the evidences introduced throughout the analyses of the two samples. Whether recently or fourteen years earlier, technical firms that go public have a wide array of different motives and different consequences, depending significantly upon their stage of development at the time of public offering. The data show that technical firms
that go public split about 50-50 between early stage and later, the half selling sizzle only going public at founding or typically within their first three years of existence, with fewer than 25 employees and at best a few hundred thousand dollars in sales. Those which are "selling the steak" are much older, averaging eight years, have several hundred employees, and sales revenues from 1 to 50 million dollars.

Table 7 lists the statistically significant benefits accruing more to the larger firms (compared with their smaller counterparts) in the two samples, as enumerated in the article, clearly one-sided in supporting the gains from waiting for the further growth to be achieved. The larger companies are better prepared for and in greater control of their decisions to go public. They more carefully search for and find higher quality underwriters. Their deals cost them less in direct and total costs, as well as in warrant dilution of their stock. Their stock sales go smoothly and they even gain surprisingly in immediate after-market price appreciation, although this differential benefit is not sustained over the smaller companies. After the fact they feel that they had also benefited more in regard to acquisitions, personal entrepreneurial liquidity and employee perqs.

But if the principal purpose of going public is to raise needed capital, then both large and small firms meet their goals. And neither group feels it has incurred meaningful disadvantages in the process. What is not measured in the formal data collection presented in this article is the impact of going public on survivability of the firms. Here, in contrast, the clear advantage is gained by the smaller companies, many of which in their own founders' judgments would have gone under had the public offering not succeeded. For the smaller companies going public by itself is not equivalent to success; rather it is a crucial step enabling their process of building a technological enterprise to continue.
Table 1. Stage of Development for Technical Companies Going Public

<table>
<thead>
<tr>
<th>Stage of Development</th>
<th>MIT Spinoffs</th>
<th>Early IPOs</th>
<th>Recent IPOs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
</tr>
<tr>
<td>Initial Stage Financing</td>
<td>2</td>
<td>12</td>
<td>1</td>
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<tr>
<td>Early Stage, but secondary financing</td>
<td>7</td>
<td>41</td>
<td>7</td>
</tr>
<tr>
<td>Later Stage, tertiary or later financing</td>
<td>8</td>
<td>47</td>
<td>8</td>
</tr>
<tr>
<td>Totals</td>
<td>17</td>
<td>100</td>
<td>16</td>
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</tbody>
</table>
Table 2. **Underwriters' Views of Factors Most Important to Customers Buying Shares in an IPO** (n=10 underwriters)

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Not Important</th>
<th>Moderately Important</th>
<th>Most Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical sales growth rate</td>
<td>1</td>
<td>7</td>
<td>2</td>
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<tr>
<td>Historical earnings per share</td>
<td>0</td>
<td>6</td>
<td>4</td>
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<tr>
<td>Sound company management</td>
<td>0</td>
<td>2</td>
<td>8</td>
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<tr>
<td>Future growth prospects</td>
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<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Size of company</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Technological glamour</td>
<td>0</td>
<td>7</td>
<td>3</td>
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<tr>
<td>Price-Earnings ratio</td>
<td>0</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 3. **Primary Reasons for Not Underwriting an IPO Candidate** (n=10)

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Not Important</th>
<th>Moderately Important</th>
<th>Most Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market conditions (timing)</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Weak management</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Weak earnings</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Premature</td>
<td>1</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>No agreement on terms</td>
<td>6</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Company found other sources</td>
<td>9</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>of financing</td>
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Table 4. **Fully-Diluted Price-Earnings Ratios for Underwritten Offerings**

<table>
<thead>
<tr>
<th>Early IPOs</th>
<th>Recent IPOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td>23</td>
<td>14</td>
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<td>43</td>
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<tr>
<td>42</td>
<td>67</td>
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<td>90</td>
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</tbody>
</table>
Table 5. **Total Costs of Underwritten Issues (Excluding Warrants)** 
(% of total proceeds) (Companies rank ordered by increasing assets.)

<table>
<thead>
<tr>
<th>Early IPOs</th>
<th>Recent IPOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underwriter's Discount %</td>
<td>Total Costs %</td>
</tr>
<tr>
<td>12.5*</td>
<td>31.4*</td>
</tr>
<tr>
<td>10.0*</td>
<td>26.7*</td>
</tr>
<tr>
<td>9.0</td>
<td>18.7</td>
</tr>
<tr>
<td>12.5</td>
<td>19.9</td>
</tr>
<tr>
<td>9.0</td>
<td>13.2</td>
</tr>
<tr>
<td>7.7</td>
<td>10.8</td>
</tr>
<tr>
<td>6.7</td>
<td>10.4</td>
</tr>
<tr>
<td>7.3</td>
<td>9.9</td>
</tr>
<tr>
<td>8.1</td>
<td>9.7</td>
</tr>
<tr>
<td>7.0</td>
<td>8.6</td>
</tr>
<tr>
<td>6.4</td>
<td>8.0</td>
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<table>
<thead>
<tr>
<th>Medians</th>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1 (7.7+)</td>
<td>10.8 (10.4+)</td>
</tr>
<tr>
<td>8.7 (8.2+)</td>
<td>15.2 (12.1+)</td>
</tr>
</tbody>
</table>

* indicates the two underwritten Reg A issues  
+ indicates the medians and means omitting the two Reg As
<table>
<thead>
<tr>
<th>Early IPOs</th>
<th>Recent IPOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>(11)</td>
</tr>
<tr>
<td>8</td>
<td>(5)</td>
</tr>
<tr>
<td>26</td>
<td>(4)</td>
</tr>
<tr>
<td>33</td>
<td>0</td>
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<tr>
<td>33</td>
<td>0</td>
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<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>63</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>6</td>
</tr>
</tbody>
</table>
Table 7. Differences in Advantages to the Larger Technological Firms that Went Public

Why Go Public?
- Advice on alternatives readily available; prior investments in larger firms by venture funds
- Perceive public market as a greater advantage, for both acquisitions and sales of founder stock
- Rate market considerations as more important factor in timing the offering
- Have far less working capital urgency for going public

Finding the Underwriter
- All seek and find underwriters; some smaller firms have to do direct non-underwritten Reg A deals
- Prefer underwriters with good reputations, as well as national distribution capabilities

The Deal
- Larger companies have higher offering prices
- Larger number of shares issued and higher total proceeds gained
- Much lower underwriter spread for larger companies, as well as for the higher priced stocks usually issued by them
- Timing effect on spread, with "hot issues" market leading to lower spread, of greater benefit to larger firms that have better timing control of their public issues
- Total direct costs much lower for larger sales and larger assets companies
- No warrants as part of compensation for larger company deals

Outcomes
- Larger dollar volume transactions have larger syndicates of underwriters
- Sale of underwritten stock completed expeditiously; selling problems for non-underwritten issues of a few smaller firms
- Large underwriters distribute stock more widely
- Higher first day price appreciation for larger companies, but difference not sustained over longer time periods; timing of "hot issues" market also affects first day appreciation
- No differences in perceived effects of public ownership, although some smaller firms feel they had acted prematurely
- Larger companies rate after-market advantages regarding help in acquisitions as more important than small companies; larger companies feel more positive also about benefits from sale of founder stock and enhanced attractiveness of employee stock options
Figure 1. Partial Sales of Non-Underwritten Issues
REFERENCES


