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# Structuring deals and governance after the IPO: Entrepreneurs and venture capitalists in high tech start-ups

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## KEYWORDS

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 Venture capitalists

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## 1. Pressures to go public

For the past decade, the business press, implicitly or explicitly, has promoted the view that creating a publicly traded company should be the goal of entrepreneurs. From this perspective, the entrepreneur and firm are not truly successful until they have undertaken an initial public offering (IPO). However, there are more practical reasons for the

entrepreneur to contemplate an IPO. For firms involved in areas such as pharmaceuticals and biotechnology, the capital requirements to bring a product from conception to market are so great that they preclude financial boot-strapping methods applicable to other industries. Moreover, it is often difficult for firms to attract professional and managerial talent without offering some form of equity, typically stock options that are tied to publicly traded stock.

The access to capital facilitated by going public does not come without consequences, however. Intense scrutiny by the Securities and Exchange Commission and other regulators may distract,

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deter, or alter the actions of entrepreneurs not familiar with the IPO process or not experienced at operating publicly traded companies. Additionally, some new ventures receive interim financing from venture capitalists, angel investors, and others that requires them to create publicly traded stock. Often, interim investors have definitive timelines regarding when they expect to receive a minimum return and/or a refund on their investments. Interim financing may initially postpone the need to go public. Nevertheless, the IPO has increasingly become the exit strategy for interim investors; thus, their involvement may hasten the inevitability of an IPO for the new venture.

Frequently, entrepreneurs and venture capitalists have divergent goals. Bhide (1996, p. 122) noted that an individual entrepreneur's personal and business goals are "inextricably linked," and that entrepreneurs must answer personal questions before they can answer questions related to their business. These questions include: "What kind of business do I wish to build?", "What are the risks and sacrifices of building such a business?" and "Can I accept these risks and sacrifices?"

We are interested in how much control the typical entrepreneur is willing to relinquish in order to bring their concept, product, or service to market, despite potentially differing goals with interim investors. Specifically, we are interested in the impact venture capitalists have on governance-related issues and financing structures of new ventures at the time of the IPO. Understanding the impact of venture capital involvement may assist the entrepreneur in strategic decision making regarding the goals and financing of their organization. Though beyond the scope of our data, we speculate that, based on their goals, venture capitalists may attract certain types of entrepreneurs, but not others.

### 1.1. Options for and types of entrepreneurs

From the moment entrepreneurs recognize their ideas have market potential, they face the challenge of how best to finance their ventures. For a few firms, such as Genentech, the business and financial strategy may be laid out and agreed upon by the entrepreneur and interim investors at the firm's conception. However, for many firms this is not the case, with the entrepreneur seeking financial and strategic advice on an "as-needed" basis. The impetus to raise additional funds may force entrepreneurs to obtain additional financing beyond their personal means and that which might be obtained from angel investors. This decision can

arise from the need of the firm (to survive and grow) or the need of the entrepreneur (desire to diversify their personal risk or the reluctance to make additional investments).

Entrepreneurs have traditionally relied upon multiple sources of external financing: debt, private equity, venture capital, and public stock offerings. Investors who commit funds to business start-ups expect to receive back their invested funds, along with a handsome return. This view of the IPO, however, may or may not coincide with that of the initial entrepreneur. Examining serial entrepreneurs, Wright, Robbie, and Ennew (1997) note that entrepreneurs are frequently either craftsmen or opportunists. While craftsmen are motivated by a desire for autonomy, opportunists are motivated by a desire for financial gain.

Some entrepreneurs view the IPO exactly as do interim investors; i.e., as an exit strategy (an opportunity to transfer ownership and control to other parties). Many serial entrepreneurs fit into this mold. They start a new venture but do not wish to see it to fruition; their motivation is driven by their love of the venture creation process. At the other extreme, some entrepreneurs view going public as a last resort: a means to raise funds when other options are not available. For these individuals, remaining private may be of the utmost importance, but pragmatically impossible. Most entrepreneurs, however, consider the IPO as a vehicle to fund the company beyond their own and interim investors' means, while reducing both parties' financial risk.

Entrepreneurs must ask themselves if their goals and needs are congruent with those of potential investors. For the entrepreneur of a fledgling company, goal congruency may be as important as receiving the funding itself. For the founding entrepreneur whose goal is to run their own company, some financial arrangements may not be worth the cost of loss of control.

### 1.2. Venture capital arrangement

Developing a model of venture capital investment, Tyebjee and Bruno (1984, p. 1054) note that once the deal between entrepreneurs and venture capitalists has been consummated, the "role of the venture capitalist expands from investor to collaborator." At this stage, value is added by the venture capitalist, thereby justifying the management fees and a percentage of the profits (Davila, Foster, & Gupta, 2003; Sapienza, 1992).

According to the National Venture Capital Association ([www.ncva.org](http://www.ncva.org)), venture capital firms were

customarily organized as limited partnerships, with limited liability companies (LLCs) or limited liability partnerships (LLPs) becoming more common. These entities typically have predefined life spans (Gompers, 1996) and are, unlike mutual funds, illiquid. Fig. 1 illustrates the structure of a typical venture capital general partnership.

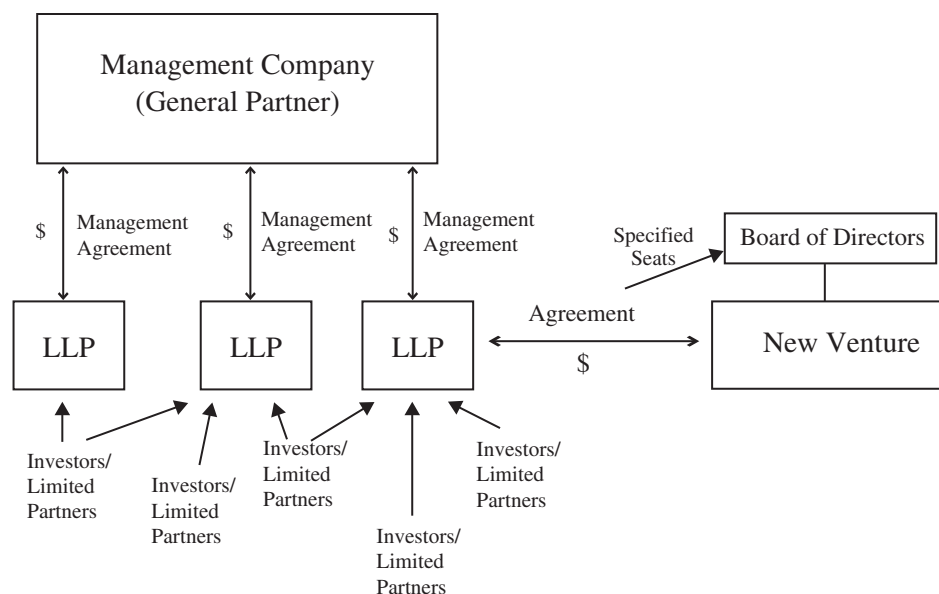
As depicted in Fig. 1, there are several contractual and monetary relationships. Each entity (e.g., management company and new venture) has its own set of articles of incorporation and bylaws. The venture capital firm is represented as the Management Company and acts as the general partner. Each venture capital firm may set up multiple LLPs to invest in numerous new ventures. The investment typically involves an equity position in the new venture. Barry, Muscarella, Peavy, and Vetsuypens (1990) found that, on average, venture capital firms own 34.3% of the pre-initial public offering equity of the firms in which they invest.

Looking at project governance, Sahlman (1990) illustrated that the venture capital firm typically invests very little (usually 1%) in the LLP; rather, the majority of funds come from investors as limited partners. The General Partner has a management agreement with the LLP. Most often, there is a board of directors composed of limited partners and representatives from the general partnership. The management agreement between the LLP and the General Partner typically involves a nominal fee, usually around

2.5% of committed capital, for management services.

There is also an agreement between the LLP and the new venture, with some arrangements allowing for board participation by LLP members. Investment in the new venture is usually staged. According to Sahlman (1990) and Schilit (1994), the LLP seeks a high return on its investment, typically about 20–30% of the new venture's profits. These funds are then distributed to the limited and general partners based upon predefined rights. If the new venture goes public, the shares or cash can be distributed to the partners in accordance with the ownership interest of the partners.

A substantial portion of the venture capitalist's time and energy is consumed by the creation and monitoring of arrangements. The venture capitalist's success in carrying out duties dictates whether the organization will attract additional investors or limited partners. Barry et al. (1990) found that 85% of venture capitalists participate in governance of the new ventures, with a significant proportion having more than one seat on the board of directors. Board participation can act as a signal to investors with respect to the monitoring that has occurred by the venture capitalists. Sapienza, Manigart, and Vermeir (1996) found that venture capitalists view strategic involvement as their most important role, and that boards with venture capitalists were more involved with strategy formation and evaluation.



**Figure 1** The venture capital arrangement. Source: Adapted from the works of Barry et al. (1990), Sahlman (1990, 1994), and Schilit (1994).

## 2. Research questions

In an effort to better understand the effects of venture capital investment on selected firm governance and financing structures, we examined the post-IPO experiences of 190 biotechnology and healthcare firms (see appendix). Specifically, we wanted to answer three important questions about venture capital involvement in firms engaged in initial public offerings. These questions and their answers affect entrepreneurs differently based on their goals. The questions we considered were:

- (1) How does venture capital investment affect the composition of the board of directors in firms engaged in an initial public offering?
- (2) What happens to the entrepreneur when venture capitalists invest?
- (3) How do venture capitalists invest in initial public offerings?

### 2.1. How does venture capital investment affect the composition of the board of directors?

In studying board composition, [Ranft and O'Neill \(2001\)](#) suggested that founding CEOs and their growing firms can maintain an entrepreneurial spirit by adopting strong independent boards. However, in studying governance and performance, [Daily and Dalton \(1992\)](#) found only modest performance advantages for entrepreneurial firms with greater proportions of outside directors. Of the 190 start-up firms we studied, 69% of their board of director members were outsiders (see [Table 1](#)). A slightly higher percentage of outsiders were found in biotechnology firms (72%) than healthcare firms (66%). Of the 102 IPOs with venture capital investment, 75% of the board seats were held by outsiders. The percentage of outside directors for biotechnology firms was 77%, for healthcare firms, 74%. When venture capital-

ists were not involved, these percentages dropped to 61%, 64%, and 59%, respectively. In almost all cases (92% of the IPOs) when venture capitalists became involved through direct investment, they occupied one or more seats on the board of directors.

The answer to our first question is clear: when venture capitalists are involved in biotechnology and healthcare IPOs, the percentage of outsiders on the firm's board of directors will increase by as much as 15 percentage points. If one assumes that the typical board of directors of a start-up firm has six members, the presence of venture capital investment will result in approximately one additional board seat being allocated to an outsider. Moreover, this additional seat is likely to be occupied by a venture capitalist, as evidenced by the fact that more than 90% of the companies in our sample with venture capital involvement had a venture capitalist on the board. The involvement of venture capitalists in direct investment creates the potential for significant impact by outsiders on the firm's strategic decision making.

### 2.2. What happens to entrepreneurs when venture capitalists invest?

Although [Willard, Krueger, and Feeser \(1992\)](#) found no differences in performance between founder-managed and professionally managed high growth firms, [Boeker and Karichalil \(2002\)](#) argue that rapidly growing new firms quickly eclipse the managerial capacity of entrepreneurs or founders. [Table 2](#) illustrates that 78% of the 190 IPOs we studied retained the founder as either an officer or a member of the board of directors. Of the 102 IPOs with venture capital involvement, 79% kept the founder as an officer or board member. This number was only slightly higher than the 77% of the IPOs without venture capital investment.

Founders remained as either an officer or a board member in 78% of the biotechnology IPOs,

**Table 1** Percent of directors in biotechnology and healthcare IPOs with and without venture capital investment

	Total	Biotechnology	Healthcare
Number	190	78	112
Percent of outside directors	69%	72%	66%
IPOs with venture capital investment	102	47	55
Percent of outside directors in IPOs with venture capital investment	75%	77%	74%
IPOs without venture capital investment	88	31	57
Percent of outside directors in IPOs without venture capital investment	61%	64%	59%
IPOs with venture capital investment with venture capitalists on board of directors	92%	92%	93%

**Table 2** Founders as officers and members of boards of directors for IPOs with and without venture capital investment

	Total IPOs	Biotechnology (%)	Healthcare (%)	With VC investment (%)	Without VC investment (%)
Number	190	41	59	54	46
IPOs with founder as an officer or board member	78%	78	79	79	77
Biotechnology				75	84
Healthcare				84	74
IPOs with founder as chair of BOD	54%	47	59	51	58
Biotechnology				43	55
Healthcare				58	60
IPOs with founder as CEO	55%	53	57	53	58
Biotechnology				45	65
Healthcare				60	54
IPOs with founder as CEO and chair of BOD	36%	31	39	30	42
Biotechnology				26	39
Healthcare				35	44
IPOs with duality regardless of founder's status	49%			39	60
Biotechnology				32	58
Healthcare				46	61

compared to 79% in healthcare firms. When venture capitalists were involved, the percentage of biotechnology firms placing the founder in an officer or board position dropped to 75%, compared to 84% when venture capitalists were not investors. In the case of healthcare firms, the percent of founders as an officer or board member actually increased to 84% when venture capitalists invested, and dropped to 74% when this involvement was not present. Only in biotechnology did there appear to be a significant reduction in the percent of founders in officer and director positions when venture capitalists were involved. In fact, just the opposite occurred in healthcare, with founders retaining positions as officers and directors in significantly more cases than in biotechnology.

The founder served as the chairperson of the board in 54% of the total IPOs studied. This number was smaller in biotechnology firms (47%) and larger in healthcare firms (59%). When venture capitalists signed on as investors, a slightly smaller percentage (51%) of IPOs maintained the founder as chairperson compared to IPOs without venture capital investment (58%). When venture capitalists invested, 43% of the biotechnology firm founders served as COB, compared to 58% in healthcare. When venture capitalists were not involved, 55% of the founders of biotechnology firms served as COB, while in healthcare this number was 60%. It is important to note that, in all cases, the founding entrepreneurs served as chair of the board more commonly in both segments when venture capitalists were not investors.

In the total sample, 55% of the founders remained as CEO after the IPO. In biotechnology firms, 53% served as CEO, while the percentage was slightly higher for healthcare firms, at 57%. In firms where venture capitalists were involved, 53% of the founders served as CEOs, compared to 58% where venture capitalists were not involved. In biotechnology firms, 45% of the founders served as CEO when venture capitalists invested, compared to 65% when venture capitalists were not involved. In healthcare, the numbers were 60% and 54%, respectively. Overall, a pattern emerged that when venture capitalists were involved, fewer founders served as CEO. An interesting exception to this, however, was noted in the area of healthcare. A substantially larger number of founders served as CEOs when venture capitalists invested in healthcare firms than when venture capitalists were not active investors.

Thirty-six percent of the total sample had founders serving as both CEO and COB (known as duality) after completion of the IPO. This occurred more often in healthcare (39%) than in biotechnology (31%). Firms retained the founder as CEO and COB 30% of the time when venture capitalists invested in the IPO, compared to 42% when venture capitalists were not involved. This dynamic was consistent in both biotechnology and healthcare, with 32% compared to 58% in biotechnology and 46% compared to 61% in healthcare. When disregarding the status of the founder, duality was much more likely without venture capital involvement (60%) than with it (39%). These figures differ considerably

**Table 3** Number of venture capital firms invested in biotechnology and healthcare IPOs

	Number of IPOs with VC investment	Biotechnology	Healthcare
Number	102	60%	49%
Mean number of VC firms invested	2.6	2.8	2.5
S.D.	1.6	1.6	1.6
Range	1–7	1–6	1–7

from large corporations overall in that, as [Boyd \(1995\)](#) noted, over 80% of Fortune 500 companies have CEOs who are also chairs of the board. In both biotechnology and healthcare, founders occupied higher leadership positions when venture capitalists were not investors.

### 2.3. How do venture capitalists invest in IPOs?

When venture capitalists invest in private organizations that are newly formed or forming, they often view themselves as “entrepreneurs first, financiers second” ([www.ncva.org](http://www.ncva.org)). Examining IPO underpricing, [Daily, Certo, Dalton, and Roengpitya \(2003\)](#) observed that venture capital involvement often signals a positive performance potential for the IPO. When investing in IPOs, three practices are common for venture capitalists: co-investing, staged financing, and specialization ([Steier & Greenwood, 1995](#)). [Norton \(1995, p. 24\)](#) suggested looking at alternative means to allocate capital that “[s]everal venture capitalists may compete to invest in an especially attractive-looking entrepreneurial team.” Moreover, venture capitalist firms may find a venture more attractive if they can share expertise as well as risks. [Barry et al. \(1990, p. 455\)](#) stated that the “presence of multiple venture capitalists allows the originating venture capitalists to obtain independent assessments about the likely success of the venture.”

As illustrated in [Table 3](#), in our study of 190 IPOs, the typical IPO with venture capital investment (102) had 2.6 venture capital firms invested in it (range 1–7). The typical biotechnology firm with venture capital investment had 2.8 (range 1–6) firms invested in it, compared to the typical healthcare firm with 2.5 firms invested (range 1–7). There were 122 different venture capital firms invested in the 102 IPOs.

When investing in IPOs, venture capitalists often employ staged financing. Rather than provide all at once the capital necessary to bring a new venture to market, the venture capitalists instead “stage” their investment into distinct phases, with each new phase allowing for a reassessment of the partnerships, the environment, and the project as a whole. [Steier and Greenwood \(1995\)](#) suggested that staging is viewed as more effectively aligning the goals of the entrepreneur with the goals of the venture capitalist investor, thus reducing agency costs. For investment purposes, venture capital firms separate new ventures into distinct investment categories (e.g., early stage/seed, mezzanine stage, or late stage) based on size and stage of development.

As illustrated in [Table 4](#), of the 190 IPOs we studied, the average total assets at the time of the offering was \$23 million. The typical biotechnology firm had \$21 million in total assets, compared to \$24 million for the typical healthcare firm. For IPOs with venture capital involvement, total assets averaged \$22 million. For those not involving venture capitalists, the number was \$23 million. Healthcare firms had slightly more total assets at the time of the IPO than biotechnology firms. The average biotechnology IPO with venture capital investment had total assets of \$20 million, compared to \$24 million in healthcare. The average biotechnology firm without venture capital involvement had total assets of \$22 million at the time of the IPO, compared to \$24 million in healthcare.

As venture capitalists and entrepreneurs may believe that the overall value of the firm will increase, they may not wish to sell 100% of their

**Table 4** Total assets and stated venture capital percentage equity pre- and post-IPO

	Total IPOs	Biotechnology	Healthcare	With VC investment	Without VC investment
Number	190	78	112	102	88
Total assets pre-IPO	\$23 M	\$21 M	\$24 M	\$22 M	\$23 M
Biotechnology				\$20 M	\$22 M
Healthcare				\$24 M	\$24 M
Percentage equity pre-IPO owners intend to sell	30%	28%	31%	28%	32%
Biotechnology				26%	30%
Healthcare				29%	33%

equity at the time of the IPO. Barry et al. (1990) found that venture capitalists and non-venture capitalists sell only 6.6% and 5.2%, respectively, of their pre-IPO shares in the initial offering. Certo, Daily, and Dalton (2001) noted that the retention of ownership sends a strong signal to potential investors about the firm's prospects.

The pre-IPO owners in our study stated that they intended to sell 30% of the equity of the firm at the time of the initial public offering (see Table 4). Biotechnology firms planned to sell 28% and healthcare firms planned to sell 31%. The typical IPO with venture capital involvement stated an intention to sell 28% of its equity, while the typical IPO without venture capital investment planned to sell 32%. This trend was consistent across market segments, with biotechnology firms with venture capital investment stating the intention to sell 26%, compared with 30% for biotechnology firms without venture capital investment. The pre-IPO owners of healthcare IPOs with venture capital investment stated the intention to sell 29% of their equity, compared to 33% for owners of healthcare IPOs without venture capital investment. It should be noted that these percentages are considerably higher than those found in previous studies.

When investing in IPOs, venture capitalists also employ the practice of specialization, including specialization relating to industry, geographic location, and stage in the venture's life cycle (Manigart et al., 2002). Barry et al. (1990) found that venture capitalists tend to specialize to provide expertise and increase their monitoring ability. Norton (1995, pp. 21, 24) noted that "specialization can help reduce search costs and agency costs of identifying and selecting attractive venture capital investments. . . More so than in any other current organizational form, the monitoring function of venture capitalists and their ability to function as expert consultants helps to increase return potential, lower risk, and reduce agency cost concerns."

Pratt's Guide to Venture Capital Sources (1996) surveys venture capital firms with respect to their investment preferences. Nine categories are given, including healthcare and biotechnology, from which the venture capital firm may select investment preferences. We considered a venture capital firm to specialize if it limited its investment preferences to the healthcare and biotechnology categories. Of the 122 venture capital firms that invested in the 102 IPOs, only 18 limited their investing preferences to healthcare and/or biotechnology firms. In addition, only 10 IPOs were considered to have engaged specialist venture capital firms; that is, the remaining eight firms either co-invested with

other specialist firms or did not take the "lead" role (i.e., board seats and/or primary venture capital investors).

### 3. Implications for today and tomorrow

When bank loans have been exhausted and angels have invested all they can afford, the entrepreneur frequently finds the only recourse for additional capital lies in selling shares in the business. Many entrepreneurs would prefer to offer ownership to the public while limiting the percentage of shares sold to any particular person, so as to avoid diluting their interest in the venture. As appealing as this strategy might seem, it often does not pan out; in fact, many entrepreneurs find it necessary to sell relatively large blocks of stock to venture capitalists.

Of the 190 biotechnology and healthcare ventures we studied that went public during the period 1996–1999, some of the IPOs had venture capital investors; some did not. Therefore, we were able to look at the effects of venture capital involvement on selected governance matters in a post-IPO environment. We were also able to observe the ways the venture capitalists structured their "deals" with this sample of entrepreneurial start-ups.

First, we should note that the involvement of venture capitalists increases the proportion of outsiders on a firm's board of directors, a boost of approximately 15% according to our study. Since the typical start-up usually has six members on the board, this amounts to one additional outsider. Moreover, the outsider is almost always a venture capitalist who has invested in the firm; in fact, our study shows that over 90% of the biotechnology and healthcare firms placed venture capitalists on the board as part of the IPO financing agreement.

Although there is no conclusive evidence to suggest that the proportion of outsiders on the board is associated with performance increases, a higher ratio has generally been recognized as a positive signal to investors and the Securities and Exchange Commission. One undeniable effect of venture capitalists' representation on the board of directors is that these individuals, because of their perceived business acumen, become powerful advocates in strategic decision making. This is perhaps even more so the case in biotechnology firms. Savvy business partners are often sorely needed in high technology start-ups, in which technical knowledge is significant but business expertise can be lacking. The entrepreneur should be aware that our findings suggest this venture



capital expertise lies in the venture creation and IPO process, and is not specific to an industry (i.e., very few venture capital firms were found to specialize). Indeed, some would argue that, at times, the influence of venture capitalists can shift the strategic priorities of start-ups away from a focus on building the long-term strengths of the firm to short-term priorities, such as maximizing earnings per share to boost stock prices and ensuring that the company makes its quarterly estimates.

We found no conclusive evidence that venture capital involvement alone accounts for any difference in the percentage of firms retaining the founder as an officer or member of the board. However, this lack of conclusiveness was the result of an important difference in biotechnology and healthcare firms. Although the aggregate numbers did not show any significant differences, 84% of the biotechnology firms retained the founder as an officer or board member when venture capitalists were not involved; when venture capitalists were investors, this figure dropped to 75%. Interestingly, the opposite occurred in healthcare: 74% of the founders remained as an officer or board member when venture capitalists were not involved, but this percentage increased to 84% with venture capital investment. We cannot explain this difference, except to suggest the reason must be the result of some industry-specific factor(s).

In all cases in both the biotechnology and healthcare segments, the likelihood that a founder would serve as the chair of the board, CEO, or function in both positions was reduced with the involvement of venture capitalists. While this does not amount to purging the founders, it demonstrates a clear preference on the part of venture capitalists for reducing the concentration of executive power in the hands of owners and entrepreneurs as a condition for their participation. The entrepreneur/craftsman who wishes to operate and control his or her own business might find this to be of great concern; however, it would be less significant to the entrepreneur/opportunist whose primary goal is new venture and personal wealth creation. Interestingly, it would appear that a Fortune 500 CEO might have more autonomy than a founder-entrepreneur in these firms.

Finally, we found that, in our sample, between two and three venture capital firms were involved in most deals. This was interesting, since the typical size of the firm in both biotechnology and healthcare was relatively small. In terms of total assets, the average IPO was under \$25 million in both industry segments. This was contrary to our expectations. Moreover, we found that pre-IPO

owners intended to sell a larger portion of their equity in the deal than is generally typical. Research indicates that most pre-IPO owners intend to sell 11% of their equity, whereas our sample percentage was closer to 30%. It is commonly agreed that a more positive signal is generated when pre-IPO investors intend to sell a smaller percentage of their equity. These last two findings may be indicative of the fact that this period (1996–1999) was considered a “hot market” for IPOs, and biotechnology and healthcare firms (regardless of venture capital investment) may have been pursuing the IPO to take advantage of the influx of investor interest and capital in this market. The business press’ report on the Internet and software IPO markets appears to bear this out.

Of course, there are limitations to our analysis. Our examination is concentrated, with a focus on 190 firms in two industry segments. These segments are likely to become even more important in the future, as the healthcare sector in general is expected to account for 17% of gross domestic product within the next 5 years, and they continue to attract venture capital investment. Although one should be careful in generalizing our findings to new ventures, we believe the results of our analysis suggest important implications for governance and financing issues. Specifically, entrepreneurs must first understand their own needs and desires (and how venture capitalists operate) prior to exploring financing arrangements with venture capitalists. Only by doing so will they enhance their potential to receive financing and satisfy their personal and professional goals.

## Appendix A. Context of the study and method

We looked at two industry segments, biotechnology and healthcare, to gain an understanding of the role, activities, and goals of venture capitalists as they relate to board and financing structures. These industries were selected because the U.S. healthcare sector is the nation’s second largest market sector, with \$1.8 trillion in expenditures in 2004 ([National Coalition on Healthcare, 2004](#)). In 2003, the healthcare sector accounted for 27% of all venture capital investment.

We separated the healthcare market sector into biotechnology firms and healthcare firms (e.g., medical devices, home health supply companies, hospitals). We did this because biotechnology firms, as a whole, typically have different financial needs than other firms. It usually takes a biotech-

nology firm 8 to 10 years before it can bring a product from conception to market; thus, they lack revenue streams for longer periods than firms in other industries. In addition, the average cost of bringing a new drug to market is in excess of \$800 million. Founding entrepreneurs in biotechnology firms tend to be scientists, as opposed to the more business-oriented backgrounds of healthcare entrepreneurs. Finally, whereas there is a growing body of literature on biotechnology IPOs, as illustrated by Finkle (1998), Ginter and Duncan (2000, p. 58) noted that the study of healthcare IPOs has drawn little attention with “[t]he financial aspects of business-level market entry strategies such as...venture capital investment...[being] largely ignored.” Thus, we sought to determine if biotechnology and healthcare IPOs were experiencing the same effects. We hoped that by focusing on these two similar yet, in some respects, different industry segments, we might gain broader insights into IPOs, in general.

We identified biotechnology and healthcare IPOs through several Internet sites (e.g., [www.sec.gov](http://www.sec.gov), [www.edgar-online.com](http://www.edgar-online.com), [www.iporesources.com](http://www.iporesources.com), [www.ey.com](http://www.ey.com), [www.bio.org](http://www.bio.org), [www.biospace.com](http://www.biospace.com)). We found 216 biotechnology and healthcare firms that filed an initial public offering registration statement (e.g., S-1, SB-1, or SB-2 form) with the SEC between January 1, 1996 and December 31, 1999. Of these 216 firms, 190 IPOs remained registered and active with the SEC as separate entities for 3 years. We limited our sample to these 190 firms.

The data related to our study were found in the IPO’s prospectus that is part of initial registration statements. We cross-referenced data related to venture capital involvement with Pratt’s *Guide to Venture Capital Sources* (1996) to ensure that we accurately captured and reported these data.

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