

On the Fundamental Role of Venture Capital

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In 2001 the venture capital industry experienced its biggest decline ever. According to the National Venture Capital Association (NVCA), investments by venture capital firms in the fourth quarter of 2001 were at \$7.1 billion. This amount was approximately a third of the level the year before, which was \$20.9 billion. Similarly, the amount of money raised by venture capital firms in the fourth quarter of 2001 was \$4.6 billion, an 80 percent drop from the previous year's \$23.4 billion. This decline has raised alarm bells with many people questioning whether this trend signals the eventual demise of venture capital.

However, it is important to put these numbers in perspective. The level of venture capital investments in the last quarter of 2001 was slightly more than in the first quarter of 1999. The \$36.5 billion invested in 2001 is more than six times larger than the annual amount of \$5.9 billion invested in 1995. In terms of total dollars invested, 2001 ranks as the venture capital industry's third-best year. The developments of 2001 are thus a mere kink in an otherwise exceptional growth curve of the venture capital industry. Whether the industry is in a boom or a bust depends only on one's perspective. In the short term, the industry would appear to be in a bust, but in the long term it seems to be on a strong growth trajectory.

A similar picture emerges from the data on the rates of return to venture capital investors. The average one-year return to limited partners of venture

capital funds was -18.2 percent. But the three-year returns were 54.5 percent, and the ten-year returns were 28.4 percent. These numbers are not always entirely reliable because losses may be (it is widely suspected) underdeclared in the industry. This practice might bias returns upwards, but it is not clear how under-reporting affects the temporal variation in returns. The differences in returns over time provide an important message: While the short-term performance of the industry is weak, the long-term performance is strong.

Where do the recent losses come from? The highest losses were recorded in telecommunications (-38.3 percent) and in Internet-related ventures (-27.7 percent). Not surprisingly, these industries also have exceptional three-year returns of 69.7 percent and 35.7 percent, respectively. Clearly, the Internet and related telecom boom and bust had a significant effect on the venture capital industry.

What are we to make of this curious difference between short- and long-term performance? On the one hand, the venture capital industry seems to be a fundamentally strong and vibrant part of the economy. On the other hand, it seems to have recently undergone some dramatic changes. This paper first provides an overview of some of our research on the fundamental role of venture capital. In the spirit of suggesting future research topics, we also discuss how recent developments might have affected venture capital's fundamental role.

The Fundamental Role of Venture Capital

The question of what venture capitalists do has received surprising little academic scrutiny. The most obvious reason for this dearth of research is that good data are extremely difficult to find. The main sources of data about the industry are Venture Economics and Venture One. These firms rely on the industry's voluntary participation and are often unable to obtain some of the more sensitive but valuable information. Moreover, these data-collection firms tend to focus on easily measurable events, such as who receives money from whom, how much, and when.

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Early field research (such as the work by Gorman and Sahlman 1989 and Sahlman 1990) suggested that the value of venture capital lies in providing not only money but also ancillary services, such as selecting good firms, mentoring entrepreneurs, hiring executives, formulating strategies, and “professionalizing” companies.

If the chief value of venture capital is the provision of these ancillary services, two significant research problems arise. First, how should such services be measured? And second, what should venture capital be compared to? If one relies only on the industry data, then the problem is that venture capitalists can be compared only to each other. Such research would be unable, by its design, to unearth those effects that are common to all venture capitalists. To identify those effects, we need to compare venture capital-backed companies to other companies that receive financing from other sources of private equity, mainly angels and corporations.

The Stanford Project on Emerging Companies (SPEC) provides a unique opportunity to examine the fundamental contributions of venture capitalists. SPEC is an interdisciplinary research project, involving researchers from a variety of academic disciplines. The project's objective is to understand the development of high-technology startups in Silicon Valley. The sample consists of over 170 such firms.

The unique feature of this project is that, while it examines an environment in which venture capital is prominent, the sampling procedure itself is not contingent on the presence of venture capital. As a consequence, the sample naturally generates variation between firms that do and do not obtain venture capital. Another advantage of SPEC is that it uses a large variety of data collection methods, all involving surveys, interviews, and direct observation of both quantitative and qualitative information. While any one method of data collection has its strength and weaknesses, the compilation of various methods gives us greater confidence in the validity of our results.

The SPEC data allow us to ask some simple questions about the “real” effects of venture capital—the effects that venture capital has on the growth path of companies. This inquiry is divided into two parts: the effects of venture capital on the market position of firms and the effects of venture capital inside the firm itself.

The Effect of Venture Capital on Firms' Market Position

In the first paper (Hellmann and Puri 2000) we examined the influence of venture capital on the time it takes a company to bring its product to market. The first sale of a product is an important milestone for a company. It proves something about the viability of the product, and it might allow the firm to establish itself as a first mover in the market. Our data allow us to identify not only the point in time when a company takes its product to market but also the point when it obtains venture capital for the first time. To analyze this data, we use a duration model that allows us to estimate how much the probability of taking a product to market increases with the advent of a venture capitalist. We find that venture capital has a statistically significant effect. Relative to a baseline probability of bringing a product to market, venture capital increases this baseline probability by 79 percent. This finding suggests that venture capitalists can have a dramatic effect on a company's market performance.

Naturally, we have to ask to what extent this result stems from venture capitalists' selecting better companies versus venture capitalists' helping companies to become better. We perform a number of additional tests that suggest that selection alone does not drive these results. Along similar lines, the work of Kaplan and Strömberg (2001a, b) emphasizes that venture capitalists play a dual role of first carefully selecting companies and then monitoring them over time.

Time to market means different things to different companies. In a new industry time to market is particularly critical as companies are vying for first-mover advantages. We therefore use some of the more detailed information that we have on the sample companies. In particular, we divide firms into two camps: those that are pursuing truly innovative opportunities versus those that plan to compete in already-established industries. We find that innovator firms take somewhat longer to bring a product to market, a finding consistent with the notion that such firms have a longer development cycle. The interesting effect we then find, however, is that venture capital helps to speed up time to market, especially among innovator companies. Such companies are precisely the ones that have a greater challenge to bring their product to market and the greatest strategic interest in being fast to market. The interesting result is that for these companies the effect of venture capital is strongest.

Does this result also mean that such companies are appreciative of the help that the venture capitalist bring to them? To fully answer that question, we would need data on the valuations paid by different types of investors. Such data, however, are extremely difficult to obtain. Indeed, while the response rate on many survey items was over 80 percent, response rates dropped below 5 percent on any questions related to valuations. However, something that we can observe in the data is the self-selection into venture capital. Indeed, when we examine the likelihood of innovators' and imitators' choosing venture capital, we find that innovators are more likely to obtain venture capital. This finding suggests that firms might choose their investors on the basis of what value the investors will add. Innovators are particularly likely to benefit from venture capital and therefore also make a better match for venture capitalists. The relationship between venture capital and innovation is further corroborated in a concurrent research project by Kortum and Lerner (2000), which examines differences in the propensity among start-up firms to obtain patents.

The Effects of Venture Capital Inside the Firm

In the second part of the research project we “opened up the black box” to look inside firms (Hellmann and Puri 2002). So far, our research suggests an overwhelmingly positive effect for venture capital. But is there also a “dark side” to venture capital? Probably the most contentious issue in venture capital is the treatment of founders. Some entrepreneurs claim that venture capitalists are

notorious for removing founders from the position of CEO and bringing in an outsider. Venture capitalists tend to counter that part of the value-added that they bring is to “professionalize” the firm. This process may involve hiring the best possible management team, and it may imply that the founder is replaced by an outsider in the position of CEO.

To explore this potentially dark side of venture capital, we examine whether the presence of a venture capitalist indeed increases the likelihood that an outside CEO will be brought in. We find that that this pattern does exist, and again the effect is statistically significant and economically large. But what does it really tell us about whether these founder replacements are friendly or hostile? While it is clearly difficult to measure any degree of hostility, we consider a noisy proxy measure. In particular, we look at whether the founder remained involved with the company after the arrival of the new CEO. In about 40 percent of all companies, the founder did remain involved with the company after the new CEO arrived. The founder remained involved either at the level of the board of directors or by taking a position in the company, such as chief technology officer, vice president of business development, or some other position. (In the case of Yahoo—which is not part of our sample—the founder, Jerry Yang, became “Chief Yahoo.”)

The interesting observation is that the presence of venture capital makes no difference to the rate of founder retention. Moreover, the effect of venture capital on outside CEOs appears to apply equally whether the founder stayed or left. This evidence thus does not support the view that venture capitalists treat founders in a particularly hostile manner. But it does support the view that venture capitalists play an active role in helping companies recruit professional CEOs.

If venture capitalists can help a company recruit a professional CEO, we may ask if they also have an effect deeper down in the organization. The strength of the SPEC data is that they feature information about the inside of companies that is otherwise not easily available. We examine a variety of measures about the degree of professionalization. For example, we look at the point at which companies introduce a stock option plan. We examine whether companies recruit through professional rather than informal channels. And we examine at what point a company appoints a vice president of marketing and sales. In each of these cases we find that venture capital is associated with higher degrees of professionalization. We additionally ask in our surveys whether companies considered having

investors a milestone or whether investors had influenced their human resource policies. Whenever the companies had venture capital investors, they were much more likely to respond yes to these questions.

All of this evidence strongly points in one direction: venture capitalists provide value-added services, help to professionalize the companies they finance, and help their companies establish themselves in the marketplace. Our results suggest a new role for financial intermediaries such as venture capitalists, which we call a “support” role in which venture capitalists exert costly effort to enhance the value of the firm by professionalizing

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the human resource base of the company. This research highlights the importance of the ancillary services provided by venture capital. These results are interesting and raise a number of further questions for research: for example, to what extent do other financial intermediaries, such as banks, provide similar support functions? The results also suggest that theory should potentially capture some of these roles played by venture capitalists to address a variety of questions: for example, how do the support and control functions interact in determining security design?

Some Thoughts on the Evolution of the Venture Capital Industry

There is one important aspect that we have not mentioned yet. All of the companies we examined were pre-Internet, so the studies capture how venture capital worked before the Internet boom. One interesting challenge for future research is to better understand how those fundamentals changed during the Internet boom. We briefly discuss why there are reasons to believe that the fundamentals of the industry might have changed. We do not have as detailed data on the effect of venture capital on Internet companies. Our comments are therefore somewhat speculative, meant to point toward interesting research questions.

Casual observation suggests a change in the competition among venture capitalists. In the “old days” Silicon Valley was a closely knit community of a handful of investors who knew how to avoid excessive competition. Although it is hard to say exactly when those days ended, these norms seemed to have already weakened in the early eighties when the industry experienced its first boom. The regime of competition shifted to one of differentiated competition. Different venture capitalists specialized in different areas and types of investments. In this period a number of firms established themselves as leaders in their respective niches. For example, Kleiner Perkins, probably the most well known venture capital firm, developed an expertise in linking up its portfolio companies both with other portfolio companies and with more established companies. During this period venture capitalists also were able to achieve high rates of returns by gaining access to proprietary deal flow and by providing value-added services to their portfolio companies. From a limited partner’s perspective, venture capital is expensive because the venture capital partners receive not only a hefty management fee (typically around 2 percent of the funds committed) but also a profit share (called carry) of 20 percent. It was the unique expertise and value added of the general partners that justified this expensive arrangement.

This structure of competition changed dramatically in the midnineties with the explosion of the Internet. The nature of competition among venture capitalists was altered in two important ways. First, there was massive new entry into the industry. It is not clear how good those new entrants were in terms of providing value-added services. Second, the changes in the competitive landscape also affected the more experienced venture capitalists. Venture capitalists that before would have raised a fund of, say, \$50 million were now able to raise \$500 million and still obtain their 2 percent management fee. With a lot more money for every partner to invest, many experienced venture capitalists changed their business model. They invested in many more companies and tried to place larger sums of money into their portfolio companies, and many venture capitalists moved toward later-stage investing. All of these actions may have undermined venture capitalists’ ability to focus on the value-added component of venture capital. As the industry is currently recovering from the Internet period, it will be interesting to observe how the fundamental role of venture capital in terms of adding value as well as money to startup companies will further evolve.

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