Role of Venture Capitalists in IPO Corporate Governance and Operating Performance

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We find that corporate insiders control fewer board seats both before and after an IPO when a venture capital firm has provided capital to the firm. When venture capital firms supply capital to corporations they take an active role in the governance structure. In particular, we find that before and after an IPO, corporate insiders control fewer board seats when there is venture capital financing. Non-venture capital outsiders control more board seats when venture capital firms are involved. In addition, the CEOs of venture capital-backed firms own fewer shares of stock. We conclude that venture capital financing is associated with a more independent governance structure.

Introduction

The poor after-performance of initial public offerings has attracted considerable research interest. Studies have documented lower long-run stock returns after an offering (Stoll and Curley, 1970; Stern and Borstein, 1985; Ritter, 1991; Jain and Kini, 1994; Loughran and Ritter, 1995; Mikkelson, Partch, and Shah, 1997). Ritter (1991), for example, finds that IPO firms significantly underperformed a set of non-IPO firms for up to five years after going public.

Venture capital firms often support companies that later go public in the IPO market. Barry, Muscarella, Peavy, and Vetsuypens (1990) document that venture capital-backed IPOs do not suffer as much from mispricing as do other IPOs. Venture capital firms serve as active monitors, providing new firm managers with not only capital but also expertise and guidance. They conclude that venture capitalists play an important role in both shaping and governing new companies.

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We examine the role of venture capitalists in governance of the firm pre-and post-IPO. We find that corporate insiders in venture capital-backed IPO firms control a smaller percentage of board seats than in non-venture capital-backed IPOs. As this difference occurs both before and after the IPO date, venture capital firms may take an active role in overseeing companies to which they contribute capital.

The Role of Venture Capital

Venture Capital and Board Structure

Hellmann and Puri (1999) define venture capitalists as full-time professional investors who invest and specialize in providing funds to privately held firms. Venture capital participation in the IPO market has grown from 14.3 percent of the IPOs in 1978 to 33.6 percent in 1996 (Gompers and Lerner, 1999).

Venture capital financing is considered one of the major sources of financing for new firms. In most cases, start-up firms do not have access to capital market financing and are often limited to bank loans and syndicated debt. If high-risk start-up firms have substantial tangible opportunities, they may attract venture capital financing. This infusion of funds generally comes with involvement by the venture capitalists in the life of the start-up.

Venture capital firms are typically actively involved in managing and governing the ventures they finance (Sahlman, 1990). Following initial investment, they both formally and informally monitor the startup companies. Formal monitoring would include their participation as members of the board of directors. Barry, Muscarella, Peavy, and Vetsuypens (1990) find that venture capitalists hold about one-third of a company's board seats when they provide the company with funds. Baker and Gompers (2000) note that venture financing tilts the board structure away from insider and affiliated directors toward independent directors. Their main conclusion is that venture capitalists act as active monitors.

Venture capital firms are actively involved in less formal ways, including recruiting, compensation structuring involvement in key corporate decisions such as mergers and acquisitions, and assisting in the IPO process. Gorman and Sahlman (1989), in a venture capital survey paper, find that lead venture investors made an average of 19 visits per year to the company and spent 100 hours in direct contact. Venture capital directors often occupy a high percentage of board seats, implying different governance structures from non-venture capital-backed IPO firms. We expect that there will be smaller proportion of inside directors in venture capital-backed company boards. This leads to our first hypothesis:

H1: Boards of IPO firms with venture capital backing will have proportionately fewer inside and affiliated directors and proportionately more independent outside and venture capital directors.

Ownership Structure of IPO Firms

Jensen and Meckling (1976) emphasize the importance of insider ownership in providing incentives for managers to act in the best interest of shareholders. On the benefit side, the higher the insider ownership, the less need there is to control their behavior. On the cost side, higher ownership by insiders provides them more voting power to entrench themselves (Demsetz, 1983; Fama and Jensen, 1983).

McConnell and Servaes (1990) examine the relation between the level of management ownership and firm performance as measured by Tobin's Q. They document a significant curvilinear relation. That is, firm performance improves at low levels of ownership and worsens at higher levels of ownership. Morck, Shleifer, and Vishny (1988) also document a similar nonlinear relation between firm performance and board ownership, as do Barnhart, Marr, and Rosenstein (1994). The curvilinear relationship provides evidence consistent with both the management entrenchment and convergence of interest hypotheses.

Many factors affect the ownership structure of an IPO. First, a lock-up provision imposed by the investment bank constrains insider trading following an IPO. Firms use lock-ups in an attempt to mitigate the potential adverse selection problem that might accompany the IPO (Myers and Majluf, 1984)[1]. Lock-ups also are used as a way to signal firm quality (Allen and Faulhaber, 1989; Welch, 1989). Firms may underprice offerings to signal their quality. High-quality firms are willing to bear the cost of underpricing, while lower-quality firms cannot.

Brav and Gompers (2000) find that the adverse selection problem is likely diminished by an agreement to restrict equity sales at the time of an IPO. Therefore, the lock-up contract drives potential low quality issuers from the market; firms thus experience less underpricing than would be the case without the lock-up.

A second factor that affects an IPO firm's ownership structure is management's desire to maintain control in the firm post-IPO to prevent the possibility of a hostile takeover (Brennan and Franks, 1997). Venture capitalists may gain from a takeover, however, and therefore would not oppose one. We expect that when venture capitalists are involved in a firm that CEOs would own less stock. This gives the venture capitalist more control over the firm and more opportunities to seek outside buyers. We therefore propose our second hypothesis:

H2: CEO ownership of IPO firms will be proportionately less when the firm has venture capital backing.

Sample Selection

The initial sample consists of 3054 IPOs reported by the Security Data Corporation for the four-year period, from 1995-1998. We eliminate 203 firms that issued

[1] A lock-up is a commitment by corporate insiders not to sell equity for a specific period of time.

Table 1—Reasons for Elimination of IPO Firms from the Initial Sample

The initial sample was identified from the SDC database. The first panel shows the number of firms that were excluded from the total population of all IPOs (3054). The second panel shows the second sampling procedure. Most data are collected from S1 Form on EDGAR on line.

Reason	Freq
Initial sample	3054
Presampling Elimination	
1. Issuance of dual class of stock	203
2. ADRs or ADSs	126
3. International Limited Partner	36
4. Finance Insurance and Real Estate	359
Remaining Sample	2330
During-Sampling Elimination	
1. Governance Data Unavailable on EDGAR Online	1744
2. Data Unavailable on Compustat Files	180
3. Merger Events Around the IPO Date	33
4. Spin-Off	18
5. Other Missing Data	62
Final Sample	293

dual classes of stock through an IPO; 126 that issued ADRs or ADSs; 36 international limited partnerships; and 359 commercial banks, insurance companies, and REITs.

We then eliminated 1744 firms for either no registration statement on Edgar (53 IPOs) or inadequate governance data in the registration statement (1691 IPOs). We eliminated 180 IPOs not listed on Compustat. Finally, we eliminated 33 IPOs that became targets of mergers during the study period, 18 that were spin-offs from other companies, and 62 that lacked miscellaneous data. Table 1 shows these sample selection criteria.

Table 2 shows selected frequency statistics for listing exchange, filing year, and four-digit SIC codes. Panel A classifies the sample according to the listing exchange. Although the New York Stock Exchange changed its listing rules in 1983, making it easier for IPOs to meet the listing requirements, the majority of the sample (90.8 percent) is listed on NASDAQ; only 8.2 percent of the sample is listed on the NYSE.

Panel B classifies the sample according to the filing year. Virtually all IPOs occurred in the last three years of the initial sample. There is only one firm with complete data in 1995, as the SEC did not make electronic filing mandatory for IPO until May 6, 1996.

Panel C classifies the sample according to their standard industrial classification (SIC) codes. The majority of the sample is concentrated in two major industries, high tech services and manufacturing (38.6 percent) and health care services and manufacturing (28.0 percent).

Table 2—Frequency Statistics for the Sample (N = 293)

The initial sample was identified from the SDC database. The majority of the sample is concentrated in the last three years 1996, 1997, and 1998 because beginning May 1996, the SEC made electronic filing mandatory for IPO firms

	SIC Codes	Freq.	%
Panel A: IPO Exchange			
NASDAQ		266	90.8
NYSE		24	8.2
ASE		3	1.0
Total		293	100.0
Panel B: Filing Year			
1995		1	0.3
1996		123	42.0
1997		132	45.1
1998		37	12.6
Total		293	100.0
Panel C: Type of Industry (SIC)			
1. Manufacturing (Total)		123	42.0
Medical Instrumental and Surgical Devices	3812-3873	60	20.5
Computer Equipment	3571-3699	36	12.3
Others	3312-3499	27 9.2	
2. Transportation, Communication, …	4011-4971	17	5.8
3. Wholesale and Retail Trade	5012-5995	32	10.9
4. Business Services (Total)		114	38.9
Advertising, Motion Pictures, …	7311-7349	15	5.1
Data Processing, Software, …	7352-7389	77	26.3
Health Services	8011-8099	22	7.5
5. Others		7	2.4
Total		293	100.0

Board of Director Data

Board of director data were hand-collected from registration statements for two years before the IPO, the year before the IPO, and from the first proxy statement following the IPO (year 1). Table 4 provides summary statistics for the boards of the IPO firms.

We categorize directors into three groups, consistent with previous board research (e.g., Baysinger and Butler, 1985; Byrd and Hickman 1992; and Lee, Rosenstein, Rangan, and Davidson, 1992). The first group represents outside directors, defined as members who are not full-time employees of the corporation or retired executives and who are not affiliated with the corporation. The second group represents inside directors, defined as full-time executives or employees of the firm. The third group represents affiliated directors, defined as retired employees of the firm or non-immediate family members of the firm's employees. Affiliated directors also include individuals who have an ongoing business relationship with the firm.

Table 3—Summary Statistics for Boards of Directors

We use four director classification groups in this study. The first group is inside board members who are full-time employees of the company. The second group is affiliated board members who have a business relationship with the firm or have family relationships with executives of the firm or are non-executive founders. The third group is outside board members who are not full-time employees of the company and do not have any business relationship with the company. The last group is venture capital-backed board members who represent the venture capital firms that provide capital for the company. This category is considered in the analysis as a second type of affiliated board members. Data are compiled from two sources: S1 Form on Edgar on line database for the period before the event and from proxy statements from Edgar and Lexis Nexis database for the period after the IPO

Board Members		Lower Quartile	Median	Upper Quartile	Mean	z-stat (p-value)	t-stat (p-value)
Insiders (%)	before	22.2	40.0	61.3	45.1	–10.3***	–11.4***
	after	16.7	25.0	40.0	28.2	(0.000)	(0.000)
Outsiders (%)	before	0.0	14.3	28.6	16.5	13.7***	21.9***
	after	33.3	42.9	57.1	44.3	(0.000)	(0.000)
Affiliated (%)	before	0.0	20.0	33.3	20.7	–2.6**	–2.8***
	after	0.0	16.7	25.0	17.0	(0.010)	(0.006)
Venture Capital (%)	before	0.0	0.0	33.3	17.8	–7.0***	–7.6***
	after	0.0	0.0	20.0	10.6	(0.000)	(0.000)
Board Size	before	4.0	5.0	6.0	4.9	10.6***	13.0***
	after	5.0	6.0	7.0	6.4	(0.000)	(0.000)

*** Significant at the 1 percent level
** Significant at the 5 percent level
* Significant at the 10 percent level

Table 4—IPO Firm Ownership Data

In this table, we report and compare ownership statistics from before to after the IPO for four groups of owners. The four groups are CEO, directors and officers, venture capitalists, and outside blockholders. Data come from the prospectus (Form S-1 on Edgar) before the IPO and proxy statement after the IPO. The z-statistic is the Wilcoxon comparison of ownership medians before to after the IPO. The t-statistic compares the ownership means before and after the IPO

Ownership		Lower Quartile	Median	Upper Quartile	Mean	z-stat (p-value)	t-stat (p-value)
CEO (%)	before	4.6	14.5	44.2	28.2	–12.08***	–10.88***
	after	3.1	6.9	24.7	16.8	(0.000)	(0.000)
Directors & Officers (%)	before	12.8	32.8	54.7	35.6	–12.07***	–14.52***
	after	4.3	12.0	27.6	17.5	(0.000)	(0.000)
Venture Capitalist (%)	before	0.0	0.0	27.5	14.6	–9.65***	–11.05***
	after	0.0	0.0	1.1	3.7	(0.010)	(0.006)
Outside Blockholders (%)	before	0.0	0.0	0.0	2.4	–1.00	–0.67
	after	0.0	0.0	0.0	2.0	(0.318)	(0.747)

*** Significant at the 1 percent level
** Significant at the 5 percent level
* Significant at the 10 percent level

We also created a fourth category, venture capital directors. These are directors employed by or representing the venture capital firms that have supplied capital to the IPO companies.

As shown in Table 3, the percentage median of inside board members declines significantly (z = –10.3) from 40 percent before the initial offering event to 25 per-

cent after the offering. The mean also declines significantly from 45.1 percent to 28.2 percent (t = −11.4). This result suggests that after exposure to market monitoring, IPO firms reduce the proportion of insiders on the board. The other categories of directors exhibit significant changes as well. The median and mean percentages of affiliated directors decline significantly. The mean and median percentages of independent outsiders increase significantly. These results suggest that management was forced to increase the percentage of outside board members with the new pattern of ownership.

The mean percentage of venture capital directors also falls from 17.8 percent before the IPO to 10.6 percent after (t = −7.6), reflecting the decline in venture capital ownership that often occurs shortly after an IPO (Lerner, 1994).[2] Most venture capitalists abandon IPO firms shortly after the offering, but some wait longer.

Ownership Data

Table 4 shows ownership percentages before and after the IPO for four groups of owners. The first group represents equity held by the CEO, which is all of direct ownership and stock options outstanding plus share ownership by immediate relatives. The second group represents equity held by executives and directors other than the CEO. The third group represents equity held by venture capitalists. The last group represents equity held by outside blockholders other than venture capitalists. The table compares the median and mean ownership for the two time periods.

CEOs own a mean of 28.2 percent of stock before the IPO and 16.8 percent after the IPO. Directors and officers average 35.6 percent ownership before and 17.5 percent after the IPO. Venture capital ownership drops from 14.6 percent to 3.7 percent after the IPO. Although most venture capital firms exit a venture shortly after the IPO, some wait for longer periods to abandon a firm, which explains the positive mean value after the IPO event.

These changes are all statistically significant at better than 1 percent. Comparisons of medians demonstrate a similar pattern; the ownership percentage by CEOs, directors and officers, and venture capital firms all drop significantly after the IPO. Ownership of outside blockholders also drops (from 2.4 percent to 2.0 percent), but the change is statistically insignificant.

Results

Panel A of Table 5 reports differences in board composition for venture capital-backed and non-venture capital-backed firms. The percentage of insiders is significantly higher for non-venture capital-backed firms in both periods. The mean

[2] Lerner (1994) notes that venture capitalists generate the bulk of their profit from firms at the time they go public.

Table 5—Comparison of Board Composition, Ownership and Firm Size Between Venture Capital-Backed and Non-Venture Capital-Backed IPO Companies

Data come from Form S1 on the Edgar data base for the period before the event and from Edgar and Lexis Nexis for the period after the event. Panel A shows differences in the board structure between the two groups. We classify directors into four groups. The first group is inside board members who are full time employees of the company. The second group is affiliated board members who have business relation with the firm, or have family relation with executives of the firm, or are non-executive founders. The third group contains independent outside directors, and the fourth group is venture capital directors. Panel B shows differences in ownership percentages differences between various pairs. We used four major groups for the ownership structure. The first group is the percentage of stock ownership held by the firm's CEO. The second group represents the percentage of stock ownership held by firm's directors and board members excluding CEO stock ownership. The last group represents the percentage of stock ownership held by outside blockholders

		Venture Capital-Backed			Non-Venture Capital-Backed				
Year		Mean	Median	Mean Rank	Mean	Median	Mean Rank	t-Stat p-value	z-Stat p-value
Panel A: Board Composition (%)									
Insiders	before	29.5	25.0	102.3	59.1	50.0	187.3	10.73*** (.000)	8.61*** (.000)
	after	24.2	20.0	121.8	30.6	28.6	162.1	4.36*** (.000)	3.96*** (.000)
Affiliated	before	15.6	16.6	130.8	25.6	25.0	161.6	–4.14*** (.000)	–15.46*** (.000)
	after	12.2	12.5	121.7	21.1	20.0	162.2	–4.50*** (.000)	–4.05*** (.000)
Outsiders	before	18.2	16.7	157.2	15.0	0.0	102.3	–1.49 (.152)	2.19** (.000)
	after	37.7	40.0	115.0	48.3	50.0	166.2	5.67*** (.000)	5.03*** (.000)
Venture Capital	before	36.9	33.3	221.0	0.0	0.0	79.8	26.95*** (.000)	3.22*** (.001)
	after	26.0	21.1	233.2	0.0	0.0	94.1	19.7*** (.000)	15.38*** (.000)
Panel B: Ownership (%)									
CEO	before	15.9	8.2	116.9	39.4	30.5	172.7	7.20*** (.000)	5.65*** (.000)
	after	10.3	5.1	123.7	20.7	10.0	161.0	4.97*** (.000)	3.65*** (.000)
D&O	before	43.4	44.1	174.1	28.5	21.3	120.3	-5.07*** (.000)	5.45*** (.000)
	after	18.0	16.3	137.4	17.1	9.6	162.9	-0.50 (.617)	2.49** (.013)
Blockholders	before	2.0	0.0	149.0	2.8	0.0	143.3	0.79 (.431)	0.81 (.325)
	after	1.7	0.0	150.6	2.1	0.0	144.8	0.48 (.630)	0.99 (.322)

*** Significant at the 1 percent level
** Significant at the 5 percent level
* Significant at the 10 percent level

is 29.5 percent for venture capital-backed firms and 59.1 percent for non-venture capital-backed firms in the period before the event. After the IPO the mean proportion of inside directors is 42.2 percent for venture capital-backed firms and 30.6 percent for the non-venture capital-backed firms. The differences in means between the venture-capital backed company boards and those not backed by venture capitalists are significant at the 1 percent level in both periods.

The comparison of median values yields similar differences. The lower percentage of inside directors for the venture capital-backed subsample is consistent with hypothesis 1. The results are also consistent with Baker and Gompers (2000) who find that venture capitalists tend to tilt boards toward more independent directors. After the IPO boards of venture capital-backed firms have significantly lower percentages of insiders than the boards of non-venture capital-backed firms.

Venture capital-backed company boards have a mean of 15.6 percent affiliated directors before the IPO, while non-venture capital backed companies have a mean of 25.6 percent affiliated directors. This difference is highly significant. The medians show the same pattern that persists after the IPO. Venture capital IPO company boards average 12.2 percent affiliated directors, while non-venture capital-backed companies average 21.1 percent (also highly significant). In our sample overall, corporate insiders and affiliated outside directors occupy fewer board seats when an IPO company has venture capital backing than when it does not.

Venture capital-backed IPO company boards average 18.2 percent independent outside directors before the IPO compared to 15 percent for non-venture capital-backed company boards. This difference is not statistically significant (although the difference in medians is). After the IPO, the venture capital-backed companies have boards with significantly fewer independent outsiders (37.7 percent compared to 48.3 percent). If outside directors are assumed to monitor companies for shareholders, the venture capital-backed companies have fewer monitors after an IPO. Venture capital-backed company boards average 26.0 percent venture capital directors after an IPO; the non-venture capital backed company boards have none. If we combine outside directors and venture capital directors, we obtain an average, post IPO, of 63.7 percent for venture capital-backed IPO company boards but only 48.3 percent for the non-venture capital-backed boards. Thus, in venture capital-backed companies, outside directors plus venture capital directors, on average, control the boards numerically, but they do not in non-venture capital-backed companies. These results are consistent with our first hypothesis.

If venture capital directors act as monitors, shareholders would appear to be more protected in the venture capital-backed companies, although the venture capital directors could be serving the interests of their venture capital firms rather than those of other shareholders. As long as the interests of the venture capital firms are the same as those of the other shareholders, the controlling outside directors are in a position to serve shareholder interests. The problem that remains is that if the

interests of shareholders and venture capital firms are not the same, the conflicts of interest may not be resolved in a way that maximizes shareholder wealth.

Panel B of Table 5 reports differences between ownership in the two subsamples. The percentage of equity held by CEOs in the venture capital-backed firms is lower than that for the non-venture capital-backed companies before and after the IPO. The mean is 15.9 percent for the venture capital-backed companies and 39.4 percent for the non-venture capital-backed companies in the pre-event period, whereas the mean is 10.3 percent for the venture-backed companies and 20.7 percent for non-venture capital backed companies in the post-IPO period. The differences are significant at the 1 percent levels for both periods. The median differences are also significant. This result implies that when venture capitalists become involved in a firm, that there is less ownership by the CEO.

The average percentage of equity ownership held by directors and officers is significantly higher for the venture capital-backed subsample in both periods. The mean percentage of equity held by officers and directors pre-IPO period is 43.4 percent for the venture capital-backed companies and 28.5 percent for non-venture capital-backed companies. This result is expected because the venture capitalists director's ownership is represented in the D & O category. In the post-event period, however, the difference in the D & O ownership between the two groups in terms of the mean value is not significant (18.0 percent for the venture capital-backed firms and 17.1 percent for the non-venture capital-backed firms). The main reason for this difference is due to the reduced ownership of the venture capital board members who are categorized under this group.

The final category is the non-venture capital and non-insider blockholders. There are no significant differences in this case between the venture and non-venture capital companies. This result suggests that venture capital involvement in a company neither attracts nor repels other blockholders.

Summary and Conclusions

We have documented both changes to boards of directors that occur in companies that go public through an IPO and whether the involvement of venture capital firms affects the pre-and post-IPO governance structure. We hypothesize that venture capital involvement will tilt a board away from inside and affiliated members and more toward independent outsiders.

The involvement of venture capitalists seems to impact an IPO company board structure both before and after the IPO. In both time periods inside directors and affiliated outsiders occupy fewer board seats when venture capitalists are providing capital to the company. Because venture capitalists also occupy board seats when they provide capital, it is apparent that they take a direct governance role. As venture capital involvement seems to change the board structure, they may play an indirect role.

We also observe ownership differences in venture capital-backed IPOS. CEOs own fewer shares of stock before and after the IPO when there is venture capitalist involvement, while directors and officers own more shares before the IPO. This is consistent with our second hypothesis.

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