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Grandstanding in the venture capital industry

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Abstract

I develop and test the hypothesis that young venture capital firms take companies public earlier than older venture capital firms in order to establish a reputation and successfully raise capital for new funds. Evidence from a sample of 433 IPOs suggests that companies backed by young venture capital firms are younger and more underpriced at their IPO than those of established venture capital firms. Moreover, young venture capital firms have been on the board of directors a shorter period of time at the IPO, hold smaller equity stakes, and time the IPO to precede or coincide with raising money for follow-on funds.

Key words: Venture capital; Initial public offerings; Reputation

JEL classification: G2; G3

1. Introduction

Reputation and its effect on attracting capital are important topics in recent corporate finance research. Theoretical work by Diamond (1989) shows that reputation can be important in accessing debt and equity markets. Empirical

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research by Sirri and Tufano (1993) and Chevalier and Ellison (1995) demonstrates that past performance is a strong indicator of the ability to attract investors. This study analyzes venture capital organizations to provide new evidence about the relation between performance and capital raising and its implications for fund managers' incentives. I argue that young venture capital firms have incentives to grandstand, i.e., they take actions that signal their ability to potential investors.¹ Specifically, young venture capital firms bring companies public earlier than older venture capital firms in an effort to establish a reputation and successfully raise capital for new funds.

The importance and size of the venture capital industry have increased dramatically since 1978 when 211 venture capital firms invested \$218 million of new capital and managed a capital pool of \$2.5 billion. By 1988, 658 venture capital firms invested \$4.2 billion and managed an aggregate capital pool of \$31 billion (Venture Economics, 1988). Barry, Muscarella, Peavy, and Vetsuypens (1990), Megginson and Weiss (1991), and Lerner (1994) document the important role that venture capitalists play in bringing companies public.

The venture capital industry is particularly well suited for examining reputation and capital raising because most venture capital organizations raise money in limited partnerships. These partnerships have finite lifetimes, so that a venture firm must periodically completely recapitalize itself by raising a new limited partnership. A venture capital organization would cease operations without raising a new fund. This puts pressure on young venture capital firms to establish a reputation and raise a new fund within a short, predetermined time.

Empirical tests for a sample of 433 venture-backed initial public offerings (IPOs) from January 1, 1978 through December 31, 1987 and a second sample consisting of the first IPO brought to market by 62 venture capital funds support predictions of the grandstanding hypothesis. For example, the effect of recent performance in the IPO market on the amount of capital raised is stronger for young venture capital firms, providing them with greater incentive to bring companies public earlier. Similarly, young venture capital firms raise new funds closer to the IPO. Young venture capital firms have been on the IPO company's board of directors 14 months less than older venture firms, hold smaller percentage equity stakes at the time of IPO than the stakes held by established venture firms, and the IPO companies they finance are nearly two years younger and more underpriced when they go public than companies backed by older venture capital firms. Much of the difference in underpricing and the venture capitalists' percentage equity stake is associated with a shorter duration of board representation, indicating that rushing companies to the IPO market imposes costs on the venture firm. The results suggest that the relation

¹ Webster's Third New International Dictionary defines the verb 'to grandstand' as 'to act or conduct oneself with a view to impressing onlookers'.

between performance and capital raising affects the incentives and actions of venture capitalists.

2. Incentives to grandstand

Gompers and Lerner (1995a) show that over 80% of venture capital funds are organized as limited partnerships with predefined lifetimes, usually ten years with an option to extend the fund for up to three years. Venture capitalists must therefore liquidate investments and distribute proceeds to investors within that time. Consequently, no new investments are made after the first four or five years of a fund. The predetermined lifetime of a particular fund means that venture capital firms must periodically raise follow-on partnerships to remain active in venture capital financing. Venture capital firms may have two or three overlapping funds each starting three to six years after the previous fund.

Gompers and Lerner (1995a) also find that most limited partners in venture capital funds are institutional investors whose role in the day-to-day operations of the fund is restricted by law if they are to retain limited liability. Limited partners receive periodic updates about the status of projects and new investment activity within the portfolio managed by the venture capitalist, but they do not participate in policy decisions. Evaluating a venture capitalist's ability is therefore difficult. Investors thus search for signals of ability when evaluating venture capitalists.

Theoretical and empirical research on other types of investment funds demonstrate the importance of reputation and fund performance in raising capital. Lakonishok, Shleifer, Thaler, and Vishny (1991), Patel, Zeckhauser, and Hendricks (1991), and Sirri and Tufano (1993) examine fundraising and investment patterns of various types of institutional fund managers and find that past performance influences fundraising ability. Stein (1988, 1989) and Rajan (1993) develop models in which investors' horizons lead to managerial decisions that do not maximize shareholder value. Incentives to boost performance in the short run lead to activities that lower firm value. Chevalier and Ellison (1995) show that the relative performance of mutual fund managers affects growth in capital contributions to their funds. Funds that underperform the market in the first nine months of a year have an incentive to increase the riskiness of their portfolio. This incentive is particularly strong for new mutual funds.

A formal model of grandstanding is developed in Gompers (1993) and demonstrates that new venture capital firms are willing to incur costs by taking companies public earlier than would maximize the return on those individual companies and earlier than would an established venture capital firm. I assume that venture capitalists have different abilities to select or create companies that have a high probability of going public. The most effective way of signaling ability or the value of portfolio companies might therefore be to bring one of the

portfolio companies public in an IPO.² Sahlman (1990) documents that almost all of the returns for investors in venture capital are earned on companies that eventually go public.

If investors believe that high-ability venture capitalists are more likely to fund companies that eventually go public, then taking a portfolio company public would be interpreted as a sign that the venture capitalist is skilled at financing start-up companies. After an IPO, investors increase their assessment of the venture capitalist's ability. Because investors know more about older venture capital firms, an additional IPO will not affect their beliefs about an old firm's ability as much as it would their beliefs about a young venture firm's ability.

If the amount of capital that venture capitalists can raise is an increasing function of their perceived ability, and the costs of earlier IPOs (e.g., greater underpricing or smaller equity stakes) are not trivial, then only young venture capital firms are willing to incur those costs. Old venture capital firms with good reputations do not need to signal, because investors have evaluated their performance over many years and believe in their high ability. Only new venture capital firms will benefit from signaling in the IPO market. Firms that are believed to be of low quality (through their inability to bring companies public) are unable to raise new funds. Diamond (1989) shows how reputation can similarly affect the debt market. In his model, young borrowers choose risky projects. If they survive for a certain length of time and acquire reputations as reliable borrowers, their investment behavior changes and they choose safe projects. Age becomes a proxy for reputation. Reputation can work in a similar way in the venture capital industry.

The grandstanding hypothesis predicts that the relation between bringing companies public and fundraising ability should be stronger for young venture capital firms. Each additional IPO attracts relatively more capital from investors for a young venture capital firm than for an old venture capital firm. An additional IPO changes investors' estimates of a young venture capitalist's ability more than it does their estimate of an old venture capitalist's ability. Therefore, if we compare the fundraising activity of venture capital firms, each additional IPO for a young venture capital firm attracts significantly more capital than each additional IPO for an older venture capital firm. Because the reputation of established venture capital firms is affected less by doing an IPO, the incentive to raise new funds immediately following an IPO should be smaller. If we compare the average time from an IPO to the closing of the

² By convention, most investments in a venture capital portfolio are held at book value until the next round of financing or an IPO occurs. Limited partners are often concerned that a venture capital fund may make a small investment in a company at a higher price in order to write-up the value of all previous investments in that company to the new price even though that price may not be justified. For most investors the only meaningful price is therefore one established in the public market.

venture capital firm's next fund, young venture firms will raise money sooner than older venture firms.

The relation between reputation and capital raising is consistent with industry wisdom. Established venture capital firms with long track records raise large funds quickly and with little effort. When Greylock Management Company, one of the nation's oldest and most prestigious firms, began their eighth venture fund early in 1994, they collected more than \$175 million in only a few months (\$150 million had originally been targeted). All of the investors in Greylock's new fund were previous Greylock investors.

Venture capital firms in their first fund who have shown no returns find it difficult to raise new money. These firms may have strong incentives to grandstand. For example, Hummer–Winblad formed its first venture capital fund in 1989. When Hummer–Winblad tried to raise a second fund in 1992, they found it extremely difficult to attract investors despite nearly a half-year of marketing. This lack of interest stemmed largely from the lack of successes; Hummer–Winblad had never taken a firm public. After Powersoft, one of their investments, went public on February 3, 1993, Hummer–Winblad raised a \$60 million second fund in a few months.

An additional prediction of the grandstanding hypothesis is that companies brought to market by young venture capital firms should be less mature. I examine two measures of IPO maturity. The age of the offering company at the time of issue is one measure of an early IPO. If new venture capital firms grandstand, companies they back will be younger at the offering date than companies backed by older venture firms. Similarly, if young venture capital firms rush companies to market (compared to older venture capital firms), they will have shorter relationships and will have served on the boards of IPO companies for a shorter length of time.

One cost incurred by new venture capital firms doing early IPOs is greater underpricing. Muscarella and Vetsuypens (1989) show that the older the firm at IPO (controlling for various factors), the lower the underpricing. As in Rock's (1986) IPO model, older firms have longer track records, reducing asymmetric information and underpricing. Models of IPO underpricing (Welch, 1989; Grinblatt and Hwang, 1989; Allen and Faulhaber, 1989) view underpricing as a costly signal of a company's quality. The greater the uncertainty surrounding a company, the greater the underpricing. A company that goes to market earlier is younger and has less information available for evaluation by potential investors and so is underpriced to a greater degree. Underpricing is a real loss for the venture capital firm because it transfers wealth from existing shareholders (including the venture capitalist) to new shareholders. Companies brought to market by young venture capital firms should therefore be more underpriced at the IPO.

Additional costs occur when bringing a company to market early reduces prospects for future growth. The venture capitalist may bear much of the cost of

taking companies public early by receiving a smaller equity stake. A comparison of the equity stakes of young and old venture capital firms should reveal that venture capitalists investing in a company with a young lead venture capital firm should hold a smaller percentage of the offering company's equity at the IPO date.

The grandstanding hypothesis predicts that young venture capital firms incur the costs of signaling because the company goes public earlier than if it had been financed by a more established venture capitalist. When the costs associated with an IPO are examined in regressions, the age of the IPO company and the length of the venture capitalist's board service should explain some of the difference in underpricing and percentage equity stakes at IPO between young and established venture capital providers. It is not the presence of a young venture backer that increases underpricing and reduces equity stakes but rather the early timing of the IPO. The age of the offering company and the length of board service should be negatively related to underpricing and positively related to the size of the venture capitalist's equity stake.

3. Empirical results

3.1. Data set and descriptive statistics

Two samples are used to test the predictions of the grandstanding hypothesis. The first sample, collected and described by Barry, Muscarella, Peavy, and Vetsuypens (1990), consists of 433 venture-backed IPOs taken public between January 1, 1978 and December 31, 1987. Kemper Financial Services and Brinson Partners, two investment advisors, supplied a second data set that includes all IPOs for 62 venture capital funds between August 1, 1983 and July 31, 1993. This data set is useful for addressing potential selection biases in the first sample. IPO prospectuses are from Harvard Business School's SEC document collection.

Barry et al. identify their sample using the *Venture Capital Journal*, which regularly publishes information on such IPOs. The sample of 433 excludes any IPOs for which a venture capital investor could not be identified, reverse LBOs, and IPOs for which the offering prospectus was unavailable. For the age of the venture capital firm and the offering company at IPO, I searched the Lexis/Nexis's COMPANY database for incorporation and partnership filings. I also use Ritter's (1991) IPO dataset to cross-check incorporation dates, offering size, and underpricing. For age at IPO, I always use the earliest incorporation date. Dates and sizes of new funds are from Venture Economics, a consulting firm that tracks investments and fundraising by venture capital firms.

Venture capitalists most often syndicate their investments with other venture capitalists. When this occurs, one investor usually takes the role of lead venture capitalist. This investor ordinarily has significant control over the decisions of the firm and more actively monitors the company through board service. I classify the firm that has been on the board the longest as the lead venture capitalist; this classification differs from that of Barry et al. (1990), who classify the lead venture capitalist as the firm that owns the largest equity stake and has a board seat. If two firms have been on the board the same length of time, I designate the larger equity holder as the lead. Gorman and Sahlman (1989) find that the venture capital firm originating the investment is usually the firm that acquires a board seat first and has the most input into the decisions of the offering company. The originating firm does not always end up owning the largest stake at IPO.

To test the grandstanding hypothesis, I divide the sample of venture-backed companies into two groups: those backed by experienced venture capital firms and those backed by young venture capital firms. The age of the lead venture capital firm at IPO serves as a proxy for reputation, although it is an imperfect measure of reputation because experienced partners sometimes leave to start new venture capital firms, which effect would tend to bias the results away from seeing any difference between new and old venture capital firms. I classify all lead venture capital firms that are under six years old at the IPO date as young and those that are six years old or more as old. The results are not sensitive to cutoffs between four and ten years.³

Table 1 presents summary information for the IPOs backed by young and old venture capital firms. Younger venture capital firms bring companies public closer to the firms' next fund, an average (median) of 16 months (12) prior to the next fund for young venture capital firms and 24 (24) months prior for old venture capital firms. The Venture Economics Funds database shows that experienced venture capital firms raise new funds every two to four years while young venture capital firms raise new money only every five or six years. If IPOs occur randomly, the average IPO for an old venture capital firm should be closer to its next fund than the average IPO for a new venture capital firm. Because it takes approximately one year to solicit money and close a new fund, the eight-to-twelve-month difference implies that young venture capital firms could be bringing companies public in the period immediately preceding or

³The use of a dummy variable addresses potential nonlinearities in the reputation measure. Typical funds invest all their capital in the first five years and harvest investments during the last five. The firm is likely to run out of cash in the fifth year and must raise a new fund before then. After a second fund has been raised, the pressure to grandstand is greatly reduced or eliminated. To check the robustness of the results, I also run regression using the natural logarithm to the venture capital firm's age instead of the dummy variable. Results are qualitatively similar using the logarithm of age specification.

Table 1

Comparison of the characteristics for initial public offerings backed by young and old venture capital firms

Sample is 433 venture-backed companies that went public between January 1, 1978 and December 31, 1987. Medians are in brackets. Significance tests in the third column are *p*-values of *t*-tests for difference in averages and *p*-values of two-sample Wilcoxon rank-sum tests for difference in medians in brackets.

	Venture capital firms less than six years old at IPO	Venture capital firms six years old or greater at IPO	<i>p</i> -value test of no difference
Average time from IPO date to next follow-on fund in months	16.0 [12.0]	24.2 [24.0]	0.001 [0.002]
Average size of next follow-on fund in millions of dollars	77.5 [55.9]	120.4 [99.9]	0.018 [0.024]
Average age of venture-backed company at IPO date in months	55.1 [42.0]	79.6 [64.0]	0.000 [0.000]
Average duration of board representation for lead venture capital firm in months	24.5 [20.0]	38.8 [28.0]	0.001 [0.000]
Average underpricing at the IPO date	0.136 [0.067]	0.073 [0.027]	0.001 [0.036]
Average offering size in millions of dollars	16.1 [11.5]	21.8 [16.8]	0.013 [0.000]
Average Carter and Manaster underwriter rank	6.26 [6.50]	7.43 [8.00]	0.000 [0.000]
Average number of previous IPOs	1 [0]	6 [4]	0.000 [0.000]
Average fraction of equity held by all venture capitalists prior to IPO	0.321 [0.287]	0.377 [0.371]	0.025 [0.024]
Average fraction of equity held by lead venture capitalist after IPO	0.122 [0.100]	0.139 [0.120]	0.098 [0.031]
Average market value of lead venture capitalist's equity after IPO in millions of dollars	8.40 [3.79]	12.93 [7.65]	0.033 [0.000]
Average aftermarket standard deviation	0.034 [0.030]	0.030 [0.028]	0.080 [0.324]
Number	99	240	

during the time they are raising money while established firms are not. The average size of a new venture capital firm's next fund (\$77.5 million) is also smaller than the size of an old venture firm's next fund (\$120.4 million).

Summary statistics in Table 1 for the maturity of the IPO company also support the predictions of the grandstanding hypothesis. The average (median) age of the offering company is 56 (42) months for IPOs backed by young venture capitalists and 80 (64) months for IPOs backed by old venture capitalists. Similarly, young venture capital firms sit on the board of directors for a shorter period of time with an average (median) 25 (20) months for young venture firms versus 39 (28) months for established venture firms.

Table 1 also shows that unseasoned venture capital firms bring to market IPOs that are more underpriced. The average (median) underpricing at the IPO date is 13.6% (6.7%) for IPOs brought to market by young venture capital firms versus 7.3% (2.7%) for older venture capital firms. The average offering size is also significantly smaller for IPOs brought to market by young venture capital firms and old venture capital firms tend to use higher-quality underwriters (the established venture capital firms may have contacts with more reputable underwriters through previous IPOs or other business dealings). As expected, on average old venture capital firms have financed more companies that have gone public (6.0) than have unseasoned venture capital firms (1.0).

The summary statistics in Table 1 show that venture capitalists receive a significantly smaller share of the equity in companies that go public when the lead venture capital firm is under six years old. The average (median) equity stake of all venture capital investors is 32.1% (28.7%) of the equity prior to the IPO when the lead venture capital firm is under six years old compared to 37.7% (37.1%) when the lead venture capital firm is older.

The market value of the lead venture capitalist's equity stake is also significantly lower for new venture capital organizations. IPO prospectuses indicate the number of shares sold in the IPO and the number of shares held after IPO by the lead venture capitalist. In calculating the market value of shares sold, I assume that the venture capitalist receives the IPO offering price for all shares sold in the IPO. Shares held after IPO are valued at the first price listed on the Center for Research in Security Prices (CRSP) data tapes. The first price listed on CRSP is usually (but not always) on the IPO date, but it is never more than several days from the listed IPO date. Table 1 shows that the average (median) market value of a young lead venture capital firm's equity stake is \$8.4 (\$3.8) million while the market value of an established lead venture capital firm's equity stake is \$12.9 (\$7.7) million. These summary statistics are consistent with the grandstanding hypothesis. Young venture capital firms bring companies public early and bear real costs through greater underpricing and lower-valued equity stakes, although the company going public also bears some of the cost.

An alternative explanation for the differences in firm age and board service is a selection bias caused by classifying young venture capital firms as all firms that

are under six years old. The age of the venture capital firm might be correlated with the age of the IPO company without a causal relationship. By definition, no young venture capital firm will have been on the board of the IPO company for more than 71 months. This would cause companies brought to market by young venture capital firms to have shorter venture capitalist board representation on average even though the IPO process was the same for young and old venture capital firms.

This potential selection bias should not be important because the length of time that the typical investment is held from first funding to IPO is significantly less than 71 months. Gompers (1995a) shows that the average (median) time from first-round venture financing to IPO date for a sample of 127 venture-backed IPOs is 34 (31) months. While the date of initial funding is unknown for my sample, in virtually all cases of first-round financing the venture capital firm receives a seat on the board of directors.⁴ Old venture capital firms are on the board for an average (median) of 39 (28) months while new venture capital firms are on the board 25 (20) months.

To determine the extent of the selection bias, I use the second set of IPOs provided by Kemper Financial Services and Brinson Partners for the period August 1, 1983 to July 31, 1993. The sample consists of 19 venture capital firms in their first fund and 43 venture capital firms in their second fund or later. Funds that had not performed an IPO prior to July 1993 are excluded. From the complete fund histories, I identify the first IPO brought to market by each fund. I compare the characteristics of the first IPO for first-fund venture capital firms to the first IPO of second-or-later-fund venture capital firms. Because a successful venture fund may have only two or three IPOs, the first IPO is a strong signal of ability to take companies public. Comparing first IPOs for various funds eliminates any selection bias but sacrifices sample size.

Table 2 presents summary statistics for the 62 IPOs. The results support conclusions from the larger sample and are consistent with the grandstanding hypothesis. First IPOs for first-fund venture capital firms are significantly younger (32 vs. 54 months) and more underpriced (18.5% vs. 7.8%) than first IPOs for second-or-later-fund venture capital firms. First-fund venture capital firms have also been on the board for a shorter period of time and they raise money significantly sooner following the IPO (13 vs. 29 months). Neither the offering size nor average underwriter rank differs significantly. Average after-market standard deviation, however, is higher for the first-fund sample. Selection biases do not appear to drive the results.

⁴Gompers (1995b) examines conversion features and covenants in 50 venture capital convertible preferred private placements; every contract included provisions for board representation by the syndicate of venture capital investors.

Table 2

Comparison of the characteristics for initial public offerings backed by young and old venture capital firms

Sample is the first IPO for each of 62 venture capital funds for two institutional investors from August 1, 1983 through July 31, 1993. Medians are in brackets. Significance tests in the third column are *p*-values of *t*-tests for difference in averages and *p*-values of two-sample Wilcoxon rank-sum tests for difference in medians in brackets.

	First-fund venture capital firms	Second-or-later-fund venture capital firms	<i>p</i> -value test of no difference
Average age of venture-backed company at IPO date in months	31.6 [33.5]	53.5 [50.0]	0.001 [0.001]
Average duration of board representation for lead venture capital firm in months	25.8 [30.0]	40.2 [40.0]	0.005 [0.005]
Average time from IPO date to next follow-on fund in months	12.9 [6.0]	29.0 [24.0]	0.028 [0.001]
Average underpricing at the IPO date	0.185 [0.215]	0.078 [0.038]	0.004 [0.005]
Average offering size in millions of dollars	32.8 [25.6]	32.5 [26.0]	0.949 [0.943]
Average Carter and Manaster underwriter rank	8.19 [8.00]	8.16 [9.00]	0.939 [0.329]
Average aftermarket standard deviation	0.036 [0.035]	0.031 [0.028]	0.884 [0.245]
Number	19	43	

3.2. Regression results

Regressions are performed on the following variables: 1) the size of the lead venture capitalist's next fund, 2) the time from IPO to the lead venture capitalist's next fund, 3) length of board service, 4) the age of the offering company at IPO, 5) underpricing, and 6) the equity stake of all venture capitalists prior to IPO.

Mundlak (1961, 1978) demonstrates that if industry effects are present in the IPO sample, fixed-effects regression models are appropriate:

$$Y_{i,j} = \beta' X_{i,j} + \alpha_i + \varepsilon_{i,j}. \quad (1)$$

If firm *j* in industry *i* goes public, the dependent variable $Y_{i,j}$ (e.g., underpricing, age at IPO, or time to next fund) is a function of the independent variables $X_{i,j}$ (e.g., offering size, IPO market liquidity, underwriter rank, etc.) and α_i ,

Table 3

Regressions for the size of the lead venture capitalist's next fund and the time from IPO until the firm raises its next fund

The sample is 433 venture-backed IPOs from 1978-1987. The dependent variables are the time from IPO until the lead venture capital organization raises its next fund (in years) and the logarithm of the size of that next fund (in millions of 1992 dollars). Independent variables include a dummy variable that equals one if the lead venture organization is less than six years old, the logarithm of the venture capital firm's age in months, the cumulative number of IPOs (both venture- and nonventure-backed) in the previous four months, the capital under management at the lead venture capital firm, the number of previous IPOs in which the lead venture capital firm was an investor, the Carter and Manaster (1990) underwriter rank, and the first-day return on the IPO (*t*-statistics are in brackets).

Independent variables	Dependent variable	
	Logarithm of the size of next fund	Years until venture firm raises next fund
Venture firm less than six years old	0.036 [0.17]	-0.70 [-3.12]
Logarithm of venture firm age	-1.925 [-2.38]	-0.44 [-1.76]
Number of IPOs in previous four months	0.092 [0.76]	0.310 [2.43]
Venture capital under management	0.0013 [0.89]	-0.0013 [-0.28]
Number of IPOs for lead venture firm	0.0014 [0.80]	-0.0029 [-1.26]
	0.033 [2.20]	0.0018 [2.51]
	0.036 [1.74]	0.286 [1.76]
		-0.0021 [-0.85]
		0.004 [0.51]

Number of IPOs for lead venture firm if under six years old	0.189 [1.86]								
Number of IPOs for lead venture firm multiplied by log of venture firm age									
Underwriter rank	0.0985 [1.93]	0.0171 [0.27]	0.896 [1.79]	0.295 [2.20]					
Underwriter rank if lead venture firm is under six years old	0.2297 [2.23]								
Underwriter rank times log of venture firm age									
First-day return (underpricing)	-0.216 [-0.46]	-0.225 [-0.48]	-0.175 [-0.37]	-0.242 [-0.51]					
Constant	3.307 [7.18]	3.914 [7.27]	3.219 [7.15]	1.809 [1.91]	2.14 [9.58]	1.77 [6.93]	1.34 [3.83]	1.91 [6.98]	
R ²	0.121	0.169	0.125	0.147	0.083	0.081	0.042	0.036	
p-values of F-test	0.011	0.0004	0.009	0.012	0.007	0.011	0.032	0.136	
Number	119	119	119	119	181	171	164	154	

a term that represents industry effects. I break the sample into 19 industries based on SIC codes and use dummy variables for each industry to control for unmeasured industry effects.

3.2.1. *Size of next fund and time to next fund*

Results from regressions for the size of the lead venture capitalist's next fund and the length of time from IPO to the firm's next fund are presented in Table 3. The dependent variable in the first set of regressions is the logarithm of the amount of capital raised in the lead venture capitalist's next fund in constant 1992 dollars. The grandstanding hypothesis predicts that the amount of capital a venture firm can raise should be positively related to the number of companies the firm has taken public. Capital raising should also be more sensitive to IPOs for young venture capital firms.

Table 3 shows that the number of companies that the lead venture capitalist has taken public is positively related to the amount of capital raised. In the first regression, the coefficient of 0.039 means that each additional IPO translates into roughly \$8 million dollars more capital committed to the firm's next fund. I find that underwriter rank for the most recent IPO is also positively related to the amount of capital raised. Higher-quality underwriters tend to take larger, more promising companies public. If underwriter rank is related to the quality of the IPO company, then the relation between rank and capital raised should be positive. Taking higher-quality firms public is a stronger signal of ability. Industry reports and fund offering memoranda touting recent IPO successes clearly indicate that venture capitalists understand this relation.

The second regression includes interaction terms between the young venture capital firm dummy variable, the number of IPOs brought to market, and underwriter rank. The significantly positive coefficients on both interaction terms show that the amount of capital raised by young venture capital firms is more sensitive to both the number of IPOs they have financed and the underwriter rank of the most recent IPO, consistent with the predictions of the grandstanding hypothesis. Because older venture capital firms have established reputations, beliefs about their ability are not very sensitive to an additional IPO or the quality of the underwriter for that IPO. New venture capital firms have considerably more to gain (in terms of reputation and fundraising ability) by doing an IPO. The limited lifetime of venture funds and the strong relation between recent IPO performance and fundraising provide powerful incentives for young venture capital firms to bring companies to market earlier than older venture firms. The third and fourth regressions in Table 3 show that the results are robust to using the logarithm of age specification for venture capital firm reputation.

The second set of regressions in Table 3 indicates that new venture capital firms raise money for follow-on funds significantly sooner after the date of the IPO (between five and nine months sooner) despite the fact that the older

venture capital firms started more funds during the time period. The results also indicate that larger venture capital firms wait longer to raise a new fund. Firms with more capital have less incentive to grandstand because they have more money in reserve for future investment opportunities. While five to nine months may not seem like a large difference between young and established venture firms, the evidence is consistent with the existence of reputational concerns and the predictions of the grandstanding hypothesis. Reputation affects fundraising in the venture capital market.

3.2.2. *Length of board service and age at IPO*

The regressions in Table 3 indicate that the sensitivity of fundraising to recent IPO performance is stronger for young venture capital firms than it is for older ones. This relation provides an incentive for young firms to rush companies to the IPO market. Table 4 examines the effects of venture capital firm reputation on two measures of IPO timing. The first is the length of time that the lead venture capital firm has served on the board of directors. If young venture capital firms take companies public earlier, they will have served on the board of directors for a shorter length of time. The second measure of early IPOs is age of the issuing company. The first two regressions indicate that young venture capital firms (those under six years old) have served on the board of directors between 12 and 14 months less than established venture capital firms. Similarly, companies backed by a new venture capital firm are between 26 and 28 months younger than companies backed by more established venture capital firms. These results are consistent with the grandstanding hypothesis that companies backed by young venture capital firms go public sooner, controlling for other factors.

Table 4 also presents results from the sample of first IPOs for the 62 funds to examine potential selection biases. The results show that first-fund venture capitalists have been on the board of their first IPO 13 to 14 months less than second-or-later-fund venture capitalists. The first company brought public by a new fund is 19 to 20 months younger on average than the first IPO of a second-or-later-fund venture firm. These results are nearly identical to the results for the entire sample, indicating that selection bias is not a problem.

The differences in board service (14 months) and IPO firm age (28 months) are important. They represent a 30% difference in firm age and board service between the new venture capital firm sample and the old venture capital firm sample. Moreover, these companies are very young, and 14 to 28 months is a substantial fraction of their existence. Because young companies often grow by 50–100% per annum in their first years of operation, the small differences in board service and IPO company age mean that new venture-backed companies have only half the level of sales and earnings of old venture-backed companies have when they go public. This is a significant reduction in firm size. (As seen

Table 4
Regressions for the length of board service and age of issuing company at IPO

The first sample is 433 venture-backed IPOs from 1978-1987. The second sample consists of the first IPOs for 62 venture capital funds from two institutional investors. The dependent variables are the length of time that the lead venture capitalist has been on the IPO company's board of directors (in months) at the time of IPO and the age of the offering company at the time of IPO (in months). Independent variables include a dummy variable that equals one if the lead venture firm is less than six years old, a dummy variable that equals one if the lead venture capital organization has only raised one venture capital fund at the time of the IPO, the cumulative number of IPOs (both venture-backed and nonventure-backed) in the previous four months, the logarithm of IPO offering size, the Carter and Manaster (1990) underwriter rank, the percentage of the IPO company's equity held by all venture investors immediately prior to IPO, and the capital under management at the lead venture capital firm. Regressions for the sample of 433 IPOs include industry dummy variables to control for any fixed effects. Coefficients on industry dummies are not reported (*t*-statistics are in brackets).

Independent variables	Dependent variable			
	Full sample of 433 IPOs		Sample of first IPOs for 62 funds	
	Duration of board service (months)	Age of IPO firm (months)	Duration of board service (months)	Age of IPO firm (months)
Venture firm less than six years old	-14.35 [-3.26]	-12.59 [-2.95]	-26.83 [-3.91]	-28.81 [-3.43]
First-fund venture firms			-13.00 [-2.58]	-14.94 [-2.55]
Number of IPOs in previous four months	0.037 [0.95]	0.091 [2.23]	-0.030 [-0.48]	-0.045 [-0.71]
			-19.40 [-2.85]	-20.76 [-3.25]
			-0.037 [-0.53]	-0.018 [-0.24]

Logarithm of IPO offering size	-4.630 [-1.87]	-0.781 [-0.28]	-15.20 [-3.81]	-16.92 [-3.38]	2.718 [0.64]	4.736 [1.04]	6.475 [1.22]	6.674 [1.25]
Underwriter rank		1.059 [0.75]		2.816 [1.15]		2.466 [1.10]		3.312 [1.25]
Equity stake of all venture firms prior to IPO		0.265 [2.71]		0.035 [0.22]				
Venture capital under management		-0.020 [-1.41]		-0.037 [-1.41]		-0.004 [-0.19]		0.075 [3.31]
Constant	109.13 [2.66]	24.46 [0.57]	326.65 [4.90]	319.15 [4.15]	0.77 [0.01]	-55.65 [-0.68]	-54.84 [-0.61]	-96.81 [1.01]
R^2	0.171	0.232	0.207	0.235	0.168	0.192	0.189	0.351
p -value of F -test	0.004	0.004	0.000	0.000	0.018	0.078	0.007	0.001
Number	245	191	332	191	58	51	61	53

below, the effect of board service on the size and market value of equity stakes is quite large in economic terms.)

3.2.3. Underpricing

Table 5 presents underpricing regressions. Muscarella and Vetsuypens (1989) and Ritter (1987) view underpricing as a cost that companies bear when they go public because of the uncertainty surrounding the true value of the offering. Younger companies have more uncertainty and hence greater underpricing. I use two specifications to control for the reputation of the venture capital firm. In all regressions, IPOs backed by young venture capital firms are associated with greater underpricing (whether new venture capital firms are defined as firms under six years old or using the logarithm of venture firm age). When the logarithm of the length of board service and the age of the offering company at IPO are included, the size and significance of the reputation coefficients change very little. Of the two variables that represent early IPOs, length of board service has the larger impact on underpricing although it is only marginally significant. When underwriter rank is included in the regressions (third and sixth columns), the size and significance of the coefficients on the reputation variables are greatly reduced. Although companies brought to market by established venture firms are less underpriced, the difference is largely due to higher underwriter reputation. Finally, greater IPO market liquidity, smaller offering sizes, and less uncertainty reduce underpricing.

3.2.4. Venture capitalists' equity stakes

Table 6 reports results for regressions examining a direct measure of the cost of grandstanding: the fraction of the company's equity held by all venture capitalists prior to the IPO. If young venture firms incur costs by rushing companies to the IPO market, the percent of equity held by venture capital investors should be lower.

The regressions show that young venture capital firms (using either firms that are under six years old or the logarithm of age to control for reputation) receive a significantly smaller fraction of the company's equity. The offering size has little impact on the venture capitalists' equity stake. The most important factor in the percentage of equity held prior to the IPO is the length of board service for the lead venture capital firm. In fact, when length of board service is included, the size and significance of the venture capital reputation variables are reduced, indicating that shorter relationships (and hence earlier IPOs) are the cause of reduced equity stakes as predicted by the grandstanding hypothesis. The longer the venture capital firm has been on the board of directors, the larger is its equity stake. The results in Table 6 indicate that the 12-14 month shorter board service by young lead venture capital firms estimated in Table 4 accounts for more than half of the smaller equity stake of young venture firms (nearly 3% of the 4.7% difference).

Table 5
Regressions for underpricing of the IPO

The sample is 433 venture-backed IPOs from 1978–1987. The dependent variable is underpricing of the IPO (i.e., the first-day return on the IPO firm). Independent variables include a dummy variable that equals one if the venture organization is less than six years old, the logarithm of the lead venture capitalist firm's age in months, the cumulative number of IPOs (both venture-backed and nonventure-backed) in the previous four months, the logarithm of IPO offering size, the standard deviation of the stock returns from day 2 to day 20 after the IPO, the natural logarithm of the IPO company's age in months, the logarithm of the number of months that the lead venture capitalist has been on the company's board of directors, the Carter and Manaster (1990) underwriter rank, and the capital under management at the lead venture capitalist firm. All regressions include industry dummy variables to control for any fixed effects. Coefficients on industry dummies are not reported (*t*-statistics are in brackets).

Independent variables	Dependent variable					
	First-day return – Underpricing					
Venture firm less than six years old	0.076 [3.82]	0.088 [3.49]	0.031 [0.98]			
Logarithm of venture firm age				–0.040 [–3.89]	–0.052 [–4.07]	–0.020 [–1.18]
Number of IPOs in previous four months	–0.001 [–4.91]	–0.001 [–4.90]	–0.001 [–3.70]	–0.001 [–4.82]	–0.001 [–4.78]	–0.001 [–3.70]
Logarithm of IPO offering size	0.037 [3.26]	0.062 [4.49]	0.072 [4.05]	0.036 [3.19]	0.061 [4.50]	0.071 [4.03]
Standard deviation of stock return	1.77 [3.28]	2.22 [3.35]	1.40 [1.95]	1.75 [3.24]	2.15 [3.29]	1.37 [1.94]
Logarithm of IPO company age		0.002 [0.15]	–0.008 [–0.49]		0.002 [0.17]	–0.007 [–0.45]
Logarithm of length of board service		–0.015 [–1.64]	–0.004 [–1.23]		–0.018 [–1.69]	–0.005 [–1.31]
Underwriter rank			–0.022 [–2.50]			–0.22 [–2.51]
Venture capital under management			–0.0001 [–1.68]			0.000 [1.94]
Constant	–0.548 [–2.89]	–0.910 [–3.66]	–0.861 [–2.97]	–0.424 [–2.29]	–0.744 [–3.15]	0.767 [–2.80]
R^2	0.248	0.339	0.363	0.249	0.352	0.365
<i>p</i> -value of <i>F</i> -test	0.000	0.000	0.000	0.000	0.000	0.000
Number	337	241	190	337	241	190

Table 6

Regressions for the percentage equity held by all venture capital firms prior to IPO

The sample is 433 venture-backed IPOs from 1978–1987. The dependent variable is the percentage of the offering company's equity held by all venture capital suppliers prior to the IPO (as listed in the IPO prospectus). Independent variables include a dummy variable that equals one if the lead venture organization is less than six years old, the logarithm of the venture capital firm's age in months, the cumulative number of IPOs (both venture-backed and nonventure-backed) in the previous four months, the logarithm of IPO offering size, the natural logarithm of IPO company age in months, the logarithm of the number of months that the lead venture capitalist has been on the IPO company's board of directors, the Carter and Manaster (1990) underwriter rank, and the capital under management at the lead venture capital firm. All regressions include industry dummy variables to control for any fixed effects. Coefficients on industry dummies are not reported (*t*-statistics are in brackets).

Independent variables	Dependent variable			
	Percentage equity held by all venture firms prior to IPO			
Venture firm less than six years old	– 4.73 [– 2.27]	– 2.83 [– 0.70]		
Logarithm of venture firm age			0.973 [1.70]	0.536 [0.24]
Number of IPOs in previous four months	0.010 [0.44]	0.008 [0.25]	0.009 [0.40]	0.006 [0.019]
Logarithm of IPO offering size	2.918 [1.96]	0.144 [0.06]	3.266 [2.14]	0.256 [0.12]
Logarithm of IPO company age		– 2.65 [– 1.25]		– 2.39 [– 1.13]
Logarithm of length of board service		8.14 [4.04]		8.27 [4.12]
Underwriter rank		0.784 [0.71]		0.797 [0.73]
Venture capital under management		0.010 [0.85]		0.011 [0.92]
Constant	– 7.93 [– 0.31]	16.65 [0.45]	– 17.08 [0.68]	11.44 [0.32]
R^2	0.125	0.270	0.118	0.268
<i>p</i> -value of <i>F</i> -test	0.005	0.003	0.005	0.002
Number	338	190	338	190

The evidence on equity stakes is consistent with young venture capital firms incurring costs by bringing IPOs to market earlier than established venture capital providers. Much of the difference between young and old venture capital firms in percentage equity stakes is explained by the length of board service, an indication that young venture capital firms incur costs by taking companies public earlier. To test whether early IPOs have differential costs on young and old venture firms, I include interaction terms between reputation measures and IPO maturity in the regressions of Tables 5 and 6, but these interaction terms are insignificant.

4. Alternative explanations

Meggison and Weiss (1991) and Barry, Muscarella, Peavy, and Vetsuypens (1990) offer evidence that venture-backed firms go public earlier than nonventure-backed firms because venture capitalists certify the quality of offerings. Venture capitalists repeatedly bring companies to the IPO market and can credibly commit not to offer overpriced shares. Their conclusions are similar to Carter and Manaster's (1990) findings about the reputation of underwriters and the underpricing of public offerings. Certification by venture capitalists is potentially consistent with grandstanding. Meggison and Weiss examine venture-backed versus nonventure-backed IPOs, but they do not directly test for differences between types of venture capitalists. The grandstanding hypothesis has important implications for the IPO timing of young and old venture capital firms. Venture capital certification could lower underwriting costs and underpricing on average, but young venture capital firms may still have incentives to bring IPOs to market earlier than established venture capital firms in order to establish a track record and raise new capital.

Another explanation of earlier venture-backed IPOs is that investors recycle money within asset classes. Venture capitalists bring companies public to provide liquidity for previous investments. If investors reinvest the profits from previous venture capital investments into new venture capital funds, the venture capital firm can receive capital sooner by returning cash to investors.

However, only the grandstanding hypothesis implies that young venture capital firms have an incentive to perform early IPOs. The certification predicts that older venture capital firms should be associated with IPOs that are earlier or at least not later than those of new venture firms. If certification affects the cost but not the timing of IPOs, then there should be no difference between the two groups. The recycling hypothesis also predicts no difference in IPO timing between old and young venture capital firms. The results in Section 3, however, show that young venture firms do take companies public earlier, supporting the existence of grandstanding.

Grandstanding also predicts that young venture capital firms have an incentive to incur the costs of early IPOs because their fundraising is significantly more sensitive to performance than is an older firm's fundraising. Consequently, the duration of board service or the age of the offering company should explain a portion of the differences in underpricing and equity stakes. Certification implies that older venture capital firms have more reputational capital and hence lower costs of going public early. Neither the certification nor recycling hypothesis predicts that the length of board service at IPO explains the differences in underpricing and equity stakes between young and old venture firms. The results in Section 3 establish that a portion of the underpricing and equity stake differences is explained by length of board service, supporting the predictions of the grandstanding hypothesis.

5. Conclusion

Reputational concerns affect the IPO timing decisions of young venture capital fund managers. Young venture capital firms raise money for a new fund sooner after an IPO and the size of a young firm's next fund is more dependent on the number of IPOs it has financed previously than is the size of an old venture firm's next fund. Companies backed by new venture capital firms are younger at IPO than those backed by established venture capital firms, and the young venture capitalists have been on their boards for a shorter time. However, young lead venture firms bear the costs of early IPOs by receiving smaller equity stakes. These differences are consistent with the predictions of grandstanding.

The issues addressed by the grandstanding hypothesis and the empirical results provide insights for the venture capital industry. Signaling seems to cause real wealth losses. Limited partners bear a large fraction of the costs from early IPOs. More than 400 new venture capital firms entered the industry after 1978. The tremendous entry of new venture capital firms and the incentives to grandstand potentially explain some of the declining returns on venture capital in the 1980s.

Because the venture capitalist typically receives a fixed fee compensation based on the size of the fund (2–3% of assets under management per annum) in addition to 20% of the fund's profits from investing, the venture capitalist has incentives to grow the firm's capital under management by starting large follow-on funds. Gompers and Lerner (1995b) show that the present value of the annual fee is typically as large as the present value of the profits. Annual fixed fees are four to six times larger than the fees received by public market money managers documented by Lakonishok, Shleifer, and Vishny (1992). The desire to increase the size of the funds in turn increases the incentive to grandstand. Reduced fixed fees and increased profit sharing in large funds might better align the incentives of venture capitalists with the goals of investors.

Future research should examine the effects of venture capital on the long-run prospects of entrepreneurial projects and its relation to underpricing and investment characteristics. Entrepreneurs have little information on the IPO market in general or venture capitalists' role in that process in particular. While this paper does not address the reasons entrepreneurs seek financing from young venture capital firms who then rush them to the IPO market, the issue deserves greater attention by examining the relation between venture capitalists and entrepreneurs, the decision to accept venture financing, the process of deciding to go public, and the long-term impact of venture capital financing in general and grandstanding in particular on the life cycle and performance of companies. For example, what is the impact of venture capital financing on pre- and post-IPO sales, earnings, and asset growth rates? Mikkelsen, Partch, and Shah (1995) examine accounting performance in a sample of venture-backed and nonventure-backed IPOs and find no long-run differences, but costs of early IPOs could exist. Assessing these other costs would be an important addition not only to the literature on venture capital investments, but also to the knowledge about the decision to go public.

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