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# Venture Capitalists and Closely Held IPOs: Lessons for Family-Controlled Firms

Joseph H. Astrachan

*Kennesaw State University*, [jastrach@kennesaw.edu](mailto:jastrach@kennesaw.edu)

Daniel L. McConaughy

*California State University Northridge*

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# Venture Capitalists and Closely Held IPOs: Lessons for Family-Controlled Firms

Joseph H. Astrachan, Daniel L. McConaughy

*This study examines how the presence of venture capitalists (VCs) in closely held IPOs relates to their performance. It also identifies other factors that are related to the performance of closely held IPOs. Closely held firms in this study had an average of 88% insider ownership before the IPO. In general, we find that closely held IPOs benefit from associations with VCs. This finding suggests that VCs' outside expertise and connections are valuable assets. Because it takes time for VCs to effect changes and because beneficial changes generally occur gradually, firms contemplating IPOs must plan well in advance to maximize firm value. Family-controlled firms contemplating growth or liquidity options through the IPO, VCs, or other outside capital should consider the findings of this study because it identifies factors that are associated with more successful IPO outcomes.*

## Introduction

This study examines how the presence of venture capitalists in closely held IPOs relates to their performance. Closely held firms in this study are those that had above-the-sample-median insider ownership before the IPO. Insider ownership is the percentage holdings of officers and directors as reported to the Securities and Exchange Commission. These firms had an average of 88% insider ownership before the IPO. The study also identifies other factors that are related to the performance of closely held IPOs.

Family-controlled firms contemplating growth or liquidity options through the IPO, venture capitalists (VCs), or other outside capital should consider this study because it identifies factors that are associated with more successful outcomes. Shanker and Astrachan (1996) estimate that 61% of closely held firms are family controlled. Thus, the experiences of closely held firms should be relevant to the managers and owners of family-controlled firms who are at the juncture of deciding on how to finance the next step in their firms' growth.

In general, we find that closely held IPOs benefit from associations with VCs. This finding suggests that outside expertise is beneficial. Another implication is that these events must be planned for well in advance to maximize firm value because beneficial changes generally occur gradually.

To understand better the significance of studying closely held companies and the impact of venture capital, we review the theoretical and empirical studies related to the subject at hand. The remainder of this section looks at the relevant literature.

Because of the incentives it provides, insider ownership often is thought to be related to company performance. Jensen and Meckling (1976) show that the higher the level of insider ownership, the more valuable the firm because of the incentives provided by ownership. However, Stulz (1988) suggests that insider ownership over 50% may lead to entrenchment and, thus, a lower value. Morck, Schleifer, and Vishney (1988) find evidence to support Jensen and Meckling (1976), whereas McConnell and Servaes (1990) lend

empirical support to Stulz (1988). These studies are consistent with the notion that insider ownership provides incentives that are related to value and performance.

The insider ownership of a firm also may provide information about the firm's quality. Insiders, who have better information than outside investors, are more willing to hold shares if they expect the company to have good future prospects. Leyland and Pyle (1977) suggest this in the sense that the level of insider ownership will provide a signal of quality and mitigate information asymmetries. They provide a model showing that others are more willing to invest in a venture where the insiders own more. Downes and Heinkel (1982) provide supporting evidence by observing that firms where insiders retain greater ownership after the IPO are more valuable at their IPOs.

Similarly, the presence of venture capital investors in a firm may provide a signal of quality. VCs are sophisticated and well-informed investors; so the fact that they have made investments in a company serves to certify company quality, much like bank loans are a signal of quality because of the due diligence analysis a bank undertakes before lending (James, 1987). Further, VCs often provide managerial and strategic expertise, which adds value to the firms in which they invest.

Meggison and Weiss (1991) examined IPOs over the 1983 to 1987 time period. They present evidence consistent with the notion that VCs play a certification role in IPOs. They find that VC-backed IPOs had lower spreads and initial returns. In other words, VCs lower the costs of going public and increase the proceeds to the offering firm. Likewise, Brav and Gompers (1997) find that VC-backed IPOs over the 1972 to 1992 period outperformed non-VC-backed IPOs on an equally weighted returns basis.

Closely held firms are less likely to have professional management because with such a large stake, the founding family or owner group is likely to be quite active in the company. Thus, VCs may play an important and beneficial role in these firms.

This study looks at the characteristics and performance of closely held IPOs vis-à-vis those not closely held, as well as the relation of VCs to these variables. In this study, the insiders in closely held IPOs held a mean of 88.3% (median of 89.3%) of the shares before the IPO compared to a mean insider ownership of 40.3% (median of 43.4%) in nonclosely held firms. It examines IPOs that occurred over the period of 1970 to 1998 for which there were insider ownership data.<sup>1</sup> We find that closely held IPO firms had higher ROA (return on assets) and debt-to-assets and lower profit margins before the IPO and that they were valued lower at the IPO in terms of market-to-book and pro forma price-to-earnings but higher on the basis of price-to-sales.

We also observe that the percent owned after the IPO is positively related to pro forma ROE (return on equity), price-to-earnings, and market-to-book. We also observe that the presence of VCs is generally positively related to performance and value and negatively related to gross underwriting spread. Our results suggest that well before the IPO, closely held firms should work with VCs or others who can provide expertise and strategic guidance in helping them harvest the fruits of their labors through an IPO.

## IPO Sample and Data

This study looks at IPOs over the 1970 to 1998 time period. The sample includes IPOs for which ownership data are available. This study focuses on IPOs that are closely held because of the powerful roles that insider owners play. For the purpose of this study, we define *closely held IPOs* as those that have above-sample-median insider ownership prior to the IPO. Because ownership data are lacking almost completely for the earliest years, most of the sample dates from the late 1980s.

To get a broad view of the performance of IPOs in the sample, and specifically closely held

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<sup>1</sup>There were approximately 10,000 IPOs in the sample, but many had missing data. Most of the sample IPOs occurred since the late 1980s.

IPOs and the role of VCs, we examine the offering characteristics of the IPO firms, the insider ownership characteristics, firm characteristics both before and after the IPO, and stock market performance. We also employ some of these characteristics as control variables to ascertain the special characteristics of closely held IPOs and the role of VCs.

Below, we provide a list of the data used and their descriptions.

Offering characteristics:

- *Venture backed*. A dummy variable taking the value of 1 when VCs were involved, 0 otherwise. VC-backed firms may be higher quality due to the certification that comes from having informed investors.
- *% shares offered by over-allotment option*. The percent of shares sold through the over-allotment option as a percent of total shares sold. The over-allotment option (i.e., the Green Shoe Option) is a common feature in IPOs. It allows the underwriter to sell more shares at the market price and yet pay the issuing firm the offering price. If the issue does well, the over-allotment option is exercised. It indicates quality in that it signals to the market that the underwriters have an incentive to price the issue to do well so that they can sell over-allotment shares into the market and make a profit, possibly a large profit.
- *% spread*. Calculated as the ratio of the underwriter discount as a percent of total offering amount before payouts. The percentage spread is a measure of the total direct costs of going public. Generally, due to the many fixed costs associated with going public, the percentage spread is higher for smaller issues. Lower spreads, other things being equal, indicate that the proceeds go to the company.
- *Offers syndicated*. A variable that takes the value of 1 when the IPO was underwritten by a syndicate of underwriters, 0 otherwise.
- *Lockup duration*. The number of days that insiders' shares are restricted. Longer

lockups may indicate a higher quality issue because the insiders are bonded to the firm more closely.

- *Lockup*. A dummy variable taking the value of 1 when there was a lockup of insider shares, 0 otherwise.
- *Proceeds*. The amount of money that went to the company after the underwriter's discount. This is reported in millions of dollars.

Ownership characteristics:

- *% own after*. The percentage of insider ownership after the IPO. Higher quality IPOs would be expected to have higher values.
- *% own before*. The percentage of insider ownership before the IPO.
- *Closely held IPO*. A dummy variable taking the value of 1 when the firm's insider ownership was above the sample median, 0 otherwise.
- *% holdings divested*. The percentage of insider shares sold as a proportion of those held before the IPO. It would be expected that higher quality companies would have lower rates of divestiture because there is less risk for the insiders.

Company characteristics:

- *Sales*. Reported in millions of dollars as reported for the year before the IPO. Size is an important measure due to scale and scope effects as well as being a measure of success. It is an important control variable.
- *Debt-to-assets*. Total debt-to-total assets at the time just before the IPO. High levels may indicate that the firm is capital constrained and must go to the equity market to get funds.
- *Price-to-earnings*. Calculated as IPO price-to-earnings the year before the IPO. It is a measure of relative value and may be related to quality.
- *Price-to-sales*. Calculated as IPO price-to-sales the year before the IPO. It is a mea-

sure of relative value and may be related to quality.

- *Profit margin.* Net income as a percent of sales the year before the IPO.
- *Total asset turnover.* Calculated as sales divided by assets. It is a measure of asset use efficiency. Generally, higher turnover ratios, other things being equal, are better.
- *ROA.* Return on assets in percent before the IPO. Higher values indicate a higher quality company. The DuPont Identity<sup>2</sup> shows that ROA is the product of profit margin and total asset turnover. Therefore, it is the interaction of the two factors.
- *ROE.* The return on pro forma book equity. Higher values indicate a higher quality company. The DuPont Identity shows that ROE is the product of ROA and leverage as expressed by total assets-to-total equity. Therefore, it shows the impact of leverage on profitability to shareholders.

Stock market performance:

- *Stock market returns.* Expressed in percent for the time periods indicated.
- *NASDAQ-adjusted stock returns.* Calculated as the difference between the company's return over the specified time period less the return on the NASDAQ stock market index over the same time period. This gives a relative, market-adjusted performance measure that will show the firm's own returns in a more meaningful context.
- *Priced above high.* A dummy variable taking the value of 1 when the IPO price was above the high end of the range in the prospectus, 0 otherwise. Offers that are priced above the high end of the range are ones where demand was greater. Thus, this variable is an indicator of company quality.

- *Priced below low.* A dummy variable taking the value of 1 when the IPO price was below the low end of the range in the prospectus, 0 otherwise. Offers that are priced below the low end of the range are ones where demand was low. Thus, this variable is an indicator of company quality.
- *Market-to-book equity.* Calculated as IPO market value of equity to pro forma book equity at the IPO. It is a measure of relative value. Higher quality firms or those with more growth opportunities are expected to have higher values.

**Types of Analysis.** We employ both univariate and multivariate analyses. Because closely held firms are generally smaller and may differ systematically from nonclosely held firms, a multivariate analysis provides a clearer profile of closely held firms versus their more diffusely held counterparts. The analyses are in terms of event time. In other words, for each IPO issue, the zero time is the IPO date.

## Closely held vs. Nonclosely held IPOs

This section discusses the empirical results of the study. First, we present the descriptive statistics that compare closely held with nonclosely held IPOs. Then we employ multivariate analyses to examine more closely the differences between closely held and nonclosely held IPOs. Multivariate analyses control for a variety of factors so that the distinctive characteristics of the closely held IPOs and the roles of VCs are profiled. Finally, we examine the closely held IPOs with the same type of multivariate analysis to determine which characteristics add value to these firms.

**Descriptive Statistics.** Closely held and nonclosely held IPOs do not differ significantly with respect to two-digit SIC (Standard Industrial Code) industry concentrations. This means that when making comparisons, any differences observed should not be based on industry factors. Statistical tests indicated that there are no differences in the distributions of the two-digit

<sup>2</sup>The DuPont Identity is: return on equity, which is (net income/equity) = (net income/sales) x (sales/assets) x (assets/equity). Note that (net income/sales) x (sales/assets) = (net income/assets), which is return on assets.

**Table 1. Univariate Analysis of Sample Characteristics:  
Closely Held vs. Nonclosely Held IPOs  
(p-values based on two-tailed tests)**

**Panel A: Size Characteristics of Firms Prior to IPO (\$ millions)**

<i>Sales Before IPO</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	34.8	37.6
Mean	83.4	105.7
p <	.09	
n	979	712

p-values are based on two-tailed tests of sample mean differences.

<i>Assets Before IPO</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	15.7	15.6
Mean	76.4	200.1
p <	.16	
n	1,408	1,419

<i>Net Income Before IPO</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	2.2	2.5
Mean	4.7	7.8
p <	.01	
n	995	727

**Panel B: Offering Characteristics**

<i>Proceeds (\$ millions)</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	24.0	25.0
Mean	45.2	42.7
p <	.59	
n	1,477	1,474

<i>% of Shares Offered by Overallotment Option</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	1.3	1.4
Mean	3.7	3.0
p <	.34	
n	981	941

<i>% Priced Above High End of Range</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Mean	19.5	21.2
p <	.26	
n	1,477	1,474

<i>% Priced Below Low End of Range</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Mean	25	26
p <	.59	
n	1,477	1,474

**Table 1. Univariate Analysis of Sample Characteristics, *continued***

<i>% Offers Syndicated</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Mean	81	81
p <	.87	
n	1,477	1,474
<i>% Offers Venture-Capital Backed</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Mean	24.5	41.5
p <	.000	
n	1,477	1,474
<i>% Offers with Lockup</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Mean	92.0	93.9
p <	.05	
n	1,477	1,474
<i>Duration of Lockup (days)</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	180	180
Mean	276	245
p <	.000	
n	1,355	1,382
<i>% Underwriters' Spread</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	7.00	7.00
Mean	7.76	7.53
p <	.000	
n	1476	1474
<b>Panel C: Insider Shareholdings</b>		
<i>% Owned Before Offer</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	89.3	43.4
Mean	88.3	40.3
p <	.000	
n	1,477	1,474
<i>% Owned after Offer</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	58.7	28.7
Mean	57.1	27.7
p <	.000	
n	1,477	1,474
<i>% Holdings Divested</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	32.4	28.8
Mean	34.7	29.0
p <	.000	
n	1,477	1,474

**Table 1. Univariate Analysis of Sample Characteristics, *continued***

**Panel D: Firm Characteristics Prior to Offer**

<i>% Profit Margin Before Offer</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	6.16	6.53
Mean	8.66	9.95
p <	.01	
n	991	725
<i>Total Asset Turnover Before Offer</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	1.77	1.44
Mean	2.11	1.56
p <	.000	
n	955	702
<i>% Return on Assets Before Offer</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	9.72	7.65
Mean	22.8	17.9
p <	.000	
n	969	718
<i>Debt-to-Assets Before Offer</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	0.168	0.120
Mean	0.247	0.221
p <	.002	
n	948	945

**Panel E: Firm Characteristics after Offer**

<i>% Return on Equity after Offer</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	10.25	8.69
Mean	14.15	13.18
p <	.000	
n	995	727
<i>Market-to-Book Equity after Offer</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	3.46	3.08
Mean	5.93	6.20
p <	.001	
n	1,464	1,449
<i>Price-to-Earnings Pro Forma</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	25.0	26.7
Mean	53.4	66.6
p <	.38	
n	884	655



**Table 1. Univariate Analysis of Sample Characteristics, *continued***

<i>Price to Sales</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	2.21	1.59
Mean	15.44	8.18
p <	.13	
n	978	711
p-values calculated using the Mann-Whitney U-test statistic for firm characteristics ratios.		
<b>Panel F: Stock Market Performance</b>		
<i>% First-Day Return</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	9.13	8.33
Mean	16.73	14.97
p <	.11	
n	701	665
<i>% Two-Week Return</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	11.46	11.25
Mean	19.77	19.80
p <	.97	
n	1,257	1,254
<i>% Return One Year</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	42.5	40.0
Mean	63.4	61.0
p <	.54	
n	894	916
<i>% Return Two Weeks, NASDAQ Adjusted</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	9.33	9.02
Mean	17.19	17.16
p <	.97	
n	1,257	1,254
<i>% Return One Year, NASDAQ Adjusted</i>	<i>Closely Held</i>	<i>Nonclosely Held</i>
Median	24.17	21.12
Mean	43.89	41.75
p <	.57	
n	892	913

SICs for the two groups.

Table 1, Panel A, shows that closely held IPOs are smaller than nonclosely held IPOs. The average closely held IPO had average sales, assets, and net income (in millions) of \$83.4, \$76.4 and \$4.7, respectively, compared to \$105.7, \$200.1, and \$7.8, respectively, for the average nonclosely held IPO. The mean and median

values differ quite a lot, especially for the nonclosely held firms, suggesting that there were some quite large nonclosely held IPOs that tended to skew the statistics.<sup>3</sup> However, the ob-

<sup>3</sup>To deal with this, we use nonparametric tests of differences, where appropriate. These types of tests focus more on the median of the sample rather than the mean. Also, in the regression analyses, we utilize logarithmic transformations to deal with this problem.

servation still holds that the average nonclosely held IPO firm was larger than the average closely held IPO firm.

The offering characteristics of the two groups show some similarities and some differences. Panel B shows that the proceeds from the IPO, percent shares offered by the overallotment option, percent priced above or below the expected price range, and the percent of offers syndicated are not statistically significantly different from each other. However, the percent of offers that are venture capital backed are significantly higher for the nonclosely held firms: 41.5% vs. 24.5%. This finding may be due to insiders owning more of the stock and, therefore, having less need for venture capital infusions. Closely held firms' IPOs also had longer share lockups and wider spreads.

Panel C shows that insiders' holdings in closely held IPOs were higher both before and after the IPO than nonclosely held IPOs: 88.3% and 57.1%, respectively, compared to 40.3% and 27.7%, respectively. We also note that the percentage of holdings divested through the IPO is higher for the closely held IPOs: 34.7% vs. 29.0%. However, note that a characteristic of closely held businesses is that the insiders still retain majority control after the IPO. This fact may help explain why they are more efficient.

Closely held businesses appear to be more efficient before the IPO. Panel D shows that closely held firms had higher average returns on assets: 22.8% vs. 17.9%. They achieved this through much higher turnovers (2.11 vs. 1.56), even though profit margins were somewhat lower (8.66% vs. 9.95%). These results suggest that the closely held firms tended to rely more on operating efficiency than pricing power.

Leverage differences exist between closely held and nonclosely held firms. Interestingly enough, closely held firms carry more debt before the IPO than do the nonclosely held firms. Closely held firms' total debt-to-total assets averaged 0.247, compared to 0.221 for nonclosely held firms. This observation suggests that one reason closely held firms go public is that they have maximized their use of debt capital and are

forced to go to the market to raise equity capital.

Closely held firms also differ from nonclosely held firms after the public offering. Panel E shows that closely held firms have higher ROE, market-to-book equity, and price-to-sales.<sup>4</sup> There is little difference in the P/E (price-to-earnings) ratios. Likewise, McConaughy (1994) finds that closely held controlled firms had much higher market-to-book ratios but were not different with respect to P/Es when compared to nonclosely held controlled firms.

Please note that very few IPO firms paid dividends: 1.8% of the closely held firms and 1.2% of the nonclosely held firms paid dividends. Given the small sample of firms that paid dividends, trying to make a statistical distinction between the dividend yields is not recommended and we did not, therefore, include it in the tables. With regard to stock market performance, Panel F shows that closely held firms earn higher returns on the first day and over the first year than nonclosely held firms. Given the relatively small performance differential (about 2%) and the many factors that affect returns, we will return to this later.

***Analysis of Factors Associated with Sample Characteristics.*** Univariate comparisons may not reliably indicate differences between closely held and nonclosely held IPOs if other factors associated with closely held control are related to the variable of interest. For instance, closely held firms are smaller and have higher underwriting spreads. Because spreads are wider for smaller issues, closely held firms may have higher spreads due to their size and not to the fact that they are closely held. Controlling for multiple variables simultaneously with closely held control allows us to determine more reliably whether closely held IPOs differ from nonclosely held IPOs.

Table 2, Panel A presents details regarding some of the offering characteristics. For example,

<sup>4</sup>Closely held firms' mean market-to-book equity was lower, but their median value was higher, indicating that the data are skewed and that median values are better descriptors of the central tendency. The nonparametric Mann-Whitney U-test finds that closely held IPO firms have significantly higher market-to-book ratios than do nonclosely held IPOs.

*closely held* does not relate to the proportion of IPOs priced above or below the offering range or to the number having lockups. Interestingly enough, we observe that venture-backed firms are more likely to be priced above the range and less likely to be priced below the expected price range. We also observe that larger firms are more likely to have a lockup provision and that venture-backed firms are less likely to have a lockup. Because venture investors are interested in harvesting their investment, it is not surprising to see that venture-backed firms are less likely to have a lockup.

Panel B looks at insider ownership after the IPO, whether the IPO is venture backed, proceeds, and sales to determine whether closely held IPOs differ from nonclosely held IPOs with respect to lockup duration, percentage spread, and the percentage of shares offered through the overallotment option. We find that the lockup duration, percentage spread, and percentage shares offered through the overallotment option are all positively related to being closely held. When closely held firms go public, outsiders may question why controlling insiders want to share the wealth; so a longer lockup may be needed to assure the market of the quality of the firm and the commitment of the insiders to run the firm efficiently. It is also interesting to note that firms that have greater insider ownership after the IPO are venture backed, and those that are larger, have shorter lockup periods.

After controlling for relevant factors, closely held IPOs have only a slightly higher spread. Because they are less likely to be venture backed, it may suggest that underwriters experience extra costs and difficulties while working with the controlling insiders, who may have less professional managerial experience or less experience working with outside investors or the capital markets.

The overallotment option can be viewed as a signal of quality, given that the underwriters cannot exercise it unless the issue remains above the offer price so that exercising the option has value. The overallotment option is like a call option with a strike price equal to the issue price.

Underwriters will make more exercising the overallotment option the better the issue does in the aftermarket. The fact that closely held IPOs issue more through the overallotment option than nonclosely held firms may be due to the fact that the issues experience higher returns. It may be that closely held firms use the overallotment option as a way to reassure investors that the issue is a quality one and that the closely held firm will wait until the issue begins to trade and sell more only if it does well. Because we do not have the data to tell us how many firms had overallotment options that were not exercised, we cannot say whether the option is more frequent among closely held controlled firms. It is possible to observe only that more shares are sold this way.

Panel C shows that, as expected, closely held IPOs have more concentrated insider ownership both before and after the IPO, even after controlling for firm size, profitability (ROA), and venture backed. The percentage owned before is negatively related to venture backed, but not to sales or profitability. However, the percentage owned after is positively related to profitability and size, but not venture backed. This finding suggests that insiders are more likely to hold onto more profitable firms—which is not surprising.

Size may be related to quality and, therefore, insiders are more likely to hold onto shares after the IPO. Likewise, the percentage of holdings divested is negatively related to size (sales), profitability (ROA), and venture backed. In other words, insiders may be more willing to retain shares in larger (perhaps less risky) and more profitable firms. Likewise, the presence of VCs and their expertise may reduce the risk associated with insider share holdings.

Panel D reinforces what we observed in the univariate statistics—that closely held firms had lower margins, higher turnover, and higher ROA than nonclosely held firms. However, after controlling for venture backed and size, closely held firms' leverage ratios are not significantly different from those of nonclosely held firms. Given that one might expect closely held firms to have less debt, the fact that they even have about the

**Table 2. Analysis of Factors Associated with Sample Characteristics**

<b>Panel A: Offering Characteristics</b>	<i>Priced Above High</i>	<i>Priced Below Low</i>	<i>Lockup</i>	<i>Venture Backed</i>
Constant	-0.976 (.000)	-0.625 (.000)	1.289(.000)	-0.170(.111)
Closely held	—	—	—	-0.593(.000)
Venture backed	0.146 (.05)	-0.096 (.07)	-0.261(.000)	
Sales	0.036 (.57)	—	0.294(.001)	0.002(.972)
n	1691	2951	1691	1691
Chi-sq. p-value	.12	.07	.000	.000

Binomial probit analysis of the dependent variables *Priced Above High*, *Priced Below Low*, *Lockup*, *Closely Held IPO*, and *Venture Backed*, which are dummy variables taking the value of 1 when the condition holds, 0 otherwise. *Sales* is the logarithm of sales in \$ millions. ‘—’ indicates that inclusion of variable reduces chi-sq. statistic. P-values are in parentheses and based on two-tailed tests.

<b>Panel B: Offering Characteristics</b>	<i>Lockup Duration (days)</i>	<i>% Spread</i>	<i>% Shares Offered by Overallotment Option</i>
Constant	435.24 (.000)	9.19 (.000)	0.133 (.000)
Closely held	55.29 (.000)	0.111 (.115)	0.032 (.032)
% owned after	-1.13 (.000)	0.005 (.003)	-0.001 (.032)
Venture backed	-63.23 (.000)	-0.377 (.000)	0.017 (.123)
Proceeds (\$ millions)	—	-0.012 (.579)	-0.047 (.000)
Sales	-101.2 (.000)	-1.236 (.000)	0.037 (.000)
n	1593	1691	1163
Adjusted R <sup>2</sup>	.21	.36	.096

OLS regression analysis of the dependent variables *Lockup Duration*, *% Spread* and *% Shares Offered by Overallotment Option*. *Sales* and *Proceeds* are the logarithm of those values. ‘—’ indicates that inclusion of variable reduces Adjusted R<sup>2</sup> statistic. P-values are in parentheses and based on two-tailed tests.

same level as nonclosely held firms also suggests that the closely held firms may have extended themselves on debt and, therefore, are going to the capital markets to reduce their risk exposure. Mishra and McConaughy (1999) show that even very large family-controlled firms are more averse to financial risk after controlling for factors that are associated with risk. They suggest that it is the risk of the loss of control through financial distress that is important, given that business risk

was controlled for.

Panel E shows that closely held firms have lower ROE (based on common equity immediately after the offering and the previous year’s net income), pro forma P/E, and market-to-book equity. The evidence from Table 1 may explain this. The data show that the closely held firms are smaller, yet the proceeds are similar. This would increase the equity base more in closely held firms and lower the ROE and market-to-

**Table 2. Analysis of Factors Associated with Sample Characteristics, *continued***

<b>Panel C: Insider Ownership Characteristics</b>			
	<i>% Owned Before</i>	<i>% Owned After</i>	<i>% Holdings Divested</i>
Constant	41.05 (.000)	20.02 (.000)	0.413 (.000)
Closely held	49.09 (.000)	30.69 (.000)	0.042 (.000)
Venture backed	-2.77 (.058)	0.827 (.299)	-0.026 (.014)
Sales	-0.946 (.432)	2.06 (.002)	-0.047 (.000)
ROA	0.878 (.164)	2.18 (.000)	-0.17 (.000)
n	1634	1634	1634
Adjusted R <sup>2</sup>	.46	.53	.04

OLS regression analysis of the dependent variables *% Owned Before*, *% Owned After*, and *% Holdings Divested*. *Closely Held*, and *Venture Backed* are dummy variables taking the value of 1 when the condition holds, 0 otherwise. *Sales* is the logarithm of sales. *ROA* is the logarithm of return on assets in percent before the IPO. P-values are in parentheses and based on two-tailed tests.

**Panel D: Firm Characteristics Prior to Offer**

	<i>Profit Margin</i>	<i>Total Asset Turnover</i>	<i>Return on Assets</i>	<i>Total Debt-to-Total Assets</i>
Constant	2.84 (.000)	-0.484 (.000)	2.356 (.000)	-2.158 (.000)
Closely held	-0.144 (.002)	0.423 (.000)	0.271 (.000)	0.027 (.729)
Venture backed	-0.195 (.000)	0.295 (.000)	0.112 (.051)	-0.622 (.000)
Sales	-0.571 (.000)	0.265 (.000)	-0.308 (.000)	0.115 (.087)
n	1691	1634	1634	1195
Adjusted R <sup>2</sup>	.12	.07	.04	.05

OLS regression analysis of the dependent variables *Profit Margin*, *Total Asset Turnover*, *Return on Assets*, and *Total Debt-to-Total Assets*. They are calculated as the logarithms of those values. *Closely Held* and *Venture Backed* are dummy variables taking the value of 1 when the condition holds, 0 otherwise. *Sales* is the logarithm of sales. P-values are in parentheses and based on two-tailed tests.

book equity. Although closely held control is associated with higher price-to-sales when sales are not controlled for, the impact is quite small and very little of the variation in price-to-sales is explained without including sales. When sales is included, no other factors show up as being significant. The results in this panel show that larger firms sell at lower multiples.

That the P/E is lower for closely held firms may be explained by the fact that they are more

profitable (ROA) and, therefore, have more earnings, lowering the ratio. This profitability may explain the lower market-to-book equity at the offering because more profitable firms, if they retain earnings, will have more book equity, lowering market-to-book.

Panel F shows that VCs are associated with more successful IPOs. VCs not only choose in which firms they invest, they also can influence the outcome by virtue of their board seats. This

**Table 2. Analysis of Factors Associated with Sample Characteristics, *continued***

**Panel E: Firm Characteristics after Offer**

	<i>Return on Equity</i>	<i>Price-to-Earnings Pro Forma</i>	<i>Price to Sales</i>	<i>Market-to-Book Equity</i>
Constant	1.117 (.000)	3.523 (.000)	4.338 (.000)	1.181 (.000)
Closely held	-0.223 (.000)	-0.220 (.002)	0.065 (.474)	-0.152 (.011)
Venture backed	-0.058 (.359)	0.332 (.000)	-.031 (.651)	-0.026 (.557)
Sales	0.510 (.000)	-0.247 (.000)	-2.274 (.000)	-0.389 (.000)
% owned after	0.007 (.000)	0.006 (.000)	-0.002 (.275)	0.013 (.000)
n	1691	1433	1689	1691
Adjusted R <sup>2</sup>	.13	.06	.50	.12

OLS regression analysis of the dependent variables *Return on Equity*, *Price to Earnings*, *Price to Sales*, and *Market-to-Book Equity*. They are calculated as the logarithms of those values. *Closely Held* and *Venture Backed* are dummy variables taking the value of 1 when the condition holds, 0 otherwise. *Sales* is the logarithm of sales. P-values are in parentheses and based on two-tailed tests.

**Panel F: Stock Market Performance**

	<i>1-Day Return</i>	<i>2-Week Return</i>	<i>1-Year Return</i>	<i>2-Week Return, NASDAQ Adjusted</i>	<i>1-Year Return, NASDAQ Adjusted</i>
Constant	14.83 (.000)	16.37 (.000)	42.62 (.000)	3.10 (.000)	26.08 (.016)
Closely held	-3.17 (.101)	-7.07 (.000)	-14.66 (.041)	-0.10 (.702)	-10.77 (.127)
Sales	-4.71 (.000)	-4.79 (.000)	-9.32 (.050)	0.011 (.947)	-8.89 (.058)
Venture backed	4.04 (.004)	6.98 (.000)	22.63 (.000)	-0.404 (.037)	22.76 (.000)
% owned after	0.124 (.007)	0.221 (.000)	0.59 (.000)	0.002 (.767)	0.48 (.003)
ROA	1.28 (.036)	1.18 (.039)	5.47 (.019)	-0.24 (.004)	5.30 (.021)
n	801	1506	1123	1631	1121
Adjusted R <sup>2</sup>	.04	.06	.04	.01	.04

OLS regression analysis of the dependent variables associated with stock returns as indicated above. Returns are expressed in percent. *Closely Held* and *Venture Backed* are dummy variables taking the value of 1 when the condition holds, 0 otherwise. *Sales* is the logarithm of sales. *ROA* is the logarithm of return on assets in percent before the IPO. P-values are in parentheses and based on two-tailed tests.

panel also shows that firms that are more productive, as measured by ROA, do better in the aftermarket.

***Factors Associated with the Performance of Closely Held IPOs.*** The above analysis shows

that closely held IPOs differ from those that are not. Market performance and value are always major concerns of any company going public and perhaps more so when they are closely held due to the large, undiversified financial stakes of the

**Table 3. Factors Associated with the Performance of Closely Held IPOs****Panel A: Stock Market Performance**

	<i>1-Day Return</i>	<i>2-Week Return</i>	<i>1-Year Return</i>	<i>2-Week Return, NASDAQ Adjusted</i>	<i>1-Year Return, NASDAQ Adjusted</i>
Constant	10.98 (.010)	12.31 (.002)	17.67 (.281)	9.06 (.023)	8.99 (.580)
Sales	0.80 (.647)	-0.263 (.877)	-3.60 (.615)	-0.194 (.910)	-4.29 (.545)
Venture backed	1.50 (.413)	3.62 (.047)	20.19 (.005)	3.90 (.033)	20.65 (.004)
% owned after	.012 (.038)	0.195 (.000)	0.813 (.000)	0.194 (.000)	0.676 (.002)
ROA	4.58 (.000)	5.09 (.000)	7.77 (.039)	5.25 (.000)	7.38 (.048)
ROE	-6.23 (.000)	-7.27 (.000)	-7.04 (.151)	-7.16 (.000)	-7.092 (.145)
n	478	864	631	864	629
Adjusted R <sup>2</sup>	.076	.073	.037	.073	.031

Returns are expressed in percent. *Closely Held* and *Venture Backed* are dummy variables taking the value of 1 when the condition holds, 0 otherwise. *Sales* is the logarithm of sales. *ROA* is the logarithm of return on assets in percent before the IPO. *ROE* is the logarithm of return on pro-forma book equity. P-values are in parentheses and based on two-tailed tests.

**Panel B: Stock Market Performance of Closely Held Firms with a Lockup Greater than or Equal to 180 Days**

	<i>1-Day Return</i>	<i>2-Week Return</i>	<i>1-Year Return</i>	<i>2-Week Return, NASDAQ Adjusted</i>	<i>1-Year Return, NASDAQ Adjusted</i>
Constant	0.635 (.915)	2.10 (.715)	46.41 (.060)	-1.42 (.807)	37.63 (.123)
Sales	3.94 (.052)	1.50 (.463)	-11.63 (.184)	1.621 (.432)	-11.81 (.173)
Venture backed	2.13 (.270)	4.96 (.012)	15.07 (.060)	5.265 (.008)	14.89 (.060)
% owned after	0.121 (.057)	0.23 (.000)	0.817 (.002)	0.227 (.000)	0.668 (.012)
ROA	6.43 (.000)	6.23 (.000)	7.932 (.075)	6.34 (.000)	8.05 (.068)
ROE	-7.43 (.000)	-7.96 (.000)	-7.273 (.187)	-7.86 (.000)	-7.782 (.154)
Lockup duration	0.015 (.044)	0.02 (.022)	-0.059 (.045)	0.018 (.013)	-0.059 (.043)
n	434	775	560	775	558
Adjusted R <sup>2</sup>	.11	.09	.04	.09	.04

Returns are expressed in percent. *Closely Held* and *Venture Backed* are dummy variables taking the value of 1 when the condition holds, 0 otherwise. *Sales* is the logarithm of sales. *ROA* is the logarithm of return on assets in percent before the IPO. *ROE* is the logarithm of return on pro-forma book equity. *Lockup Duration* is measured in days. P-values are in parentheses and based on two-tailed tests.

**Table 3. Factors Associated with the Performance of Closely Held IPOs, *continued***

	<i>Price-to-Earnings Pro Forma</i>	<i>Price-to-Sales</i>	<i>Market-to-Book Equity</i>
Constant	3.73 (.000)	1.448 (.000)	0.861 (.000)
Sales	-0.303 (.000)		-0.384 (.000)
% owned after	0.008 (.000)	-0.022 (.000)	0.012 (.000)
ROA	-0.224 (.000)	0.182 (.000)	0.093 (.001)
Venture backed	0.390 (.000)	0.103 (.471)	-0.053 (.421)
n	801	942	943
Adjusted R <sup>2</sup>	.12	.04	.11

OLS regression analysis of the dependent variables *Price to Earnings*, *Price to Sales*, and *Market-to-Book Equity*. They are calculated as the logarithms of those values. *Closely Held* and *Venture Backed* are dummy variables taking the value of 1 when the condition holds, 0 otherwise. *Sales* is the logarithm of sales. P-values are in parentheses and based on two-tailed tests.

insiders. Thus, an examination of the market performance and valuation of these firms may provide insights and guidance for those who contemplate going public. We do this by examining the closely held firms in the sample.

Table 3, Panel A, examines the stock market performance of closely held IPOs and shows which factors contribute to higher performance. With respect to venture capital involvement, there is no impact on the first day's returns, but the impact of venture capital involvement increases over time. This interesting observation suggests that initial investors do not fully anticipate all of the future benefits of VC involvement and that the benefits continue to accrue after the IPO. VCs provide not only capital, but also managerial expertise, sit on the board, and often are experienced in dealing with the outside capital markets. The results here suggest that the involvement of VCs in the firm have benefits that do not cease after the IPO. Closely held firms without this kind of expertise may not do as well when they go public because they are not used to the scrutiny of the outside investors.

Another factor that positively impacts the

stock market performance of closely held firms is a higher level of insider ownership. Because it is expected that insiders of higher quality firms would hold onto their shares, their ownership level sends a signal to the capital markets regarding the quality of the firm's future prospects. It also signals the commitment of management given that insider share holdings often are restricted and provide incentives for managers to maximize firm value.

ROA also is positively related to stock market performance. Apparently, the quality of earnings is not fully priced at the offering, and quality earnings continue to please investors. That ROE is negatively related to performance, after controlling for ROA, suggests that higher leverage interacts with profitability to have a negative impact on share performance.<sup>5</sup> This suggests that the IPOs of overleveraged firms are not as successful because the IPO may be a remedy to overleveraging—that is, to pay down debt—rather than a means to acquire growth capital.

<sup>5</sup>ROE = ROA x (assets/equity), where (assets/equity) is a measure of leverage, the equity multiplier.



Lockup requirements are a way of bonding insiders to the firm by restricting their ability to sell shares. Lockups of 180 days are most common; so we eliminated those with lockups of less than 180 days and reran the analyses in Panel A. Most of these firms had zero lockup periods. The effect of this is to examine whether increasing the lockup beyond the typical 180 days was associated with any difference in performance.

Panel C shows that larger closely held firms sell at lower multiples, whereas in Panel A, size had no relation to returns. The level of insider ownership had an economically small, but statistically significant, impact on price multiples. ROA was positively related to price-to-sales and market-to-book equity, but negatively related to P/E. The negative relation was discussed above, where more profitability would translate into lower P/Es because of larger denominators (Es). Venture capital involvement positively impacted the P/Es at which closely held firms sold. Venture Capital involvement was unrelated to price-to-sales and market-to-book equity.

## **Conclusion**

Our results support Stulz's (1988) notion that closely held IPOs do not perform as well in the stock market in spite of their higher ROA before the IPO. This may reflect market concerns regarding insider entrenchment, given that the market for corporate control is ineffective in firms where insiders holding a majority of the shares have control. Our finding that the percentage owned after the IPO is positively related to value and stock market performance is consistent with the signaling hypothesis of Leyland and Pyle (1977). Further, the positive impact of VCs on performance and value is consistent with Brav and Gompers (1997) and Megginson and Weiss (1991), who hypothesize that VCs provide a certification of quality.

Closely held firms would do well to consider getting VCs involved well in advance of a contemplated public offering. Although closely held firms tend to have higher ROA and asset turnover, they do not sell at a premium and their stock

returns are lower than those that are not as closely held. However, the impact of VCs can serve to increase the value of the firm. Their contributions come in the form of experience with grooming the firm for sale as well as reducing the holdings of the insiders, making them more accountable to investors.

The results of this study have implications for family-controlled firms, a not insignificant group of firms that is not addressed by any IPO study. The main reason for this is that the determination of family control in IPOs is difficult, time consuming, and somewhat subjective. [Objective measures, such as the ones McConaughy, Walker, Henderson, and Mishra (1998) and McConaughy, Matthews, and Fialko (2001) used, tend to be incomplete and biased against finding results because not all family-controlled firms are identified. The bias against finding results, however, strengthens any significant finding.] Related to the issue of closely held IPOs, Shanker and Astrachan (1996) estimate that about 61% of closely held corporations are family controlled. Thus, closely held IPOs may proxy for family control, making the results relevant to family-controlled firms.

One main issue of family-controlled firms is that of liquidity. Liquidity needs among family-controlled firms extend beyond the need for growth capital. These firms also deal with the liquidity needs of senior generations to "cash out" or the needs associated with estate taxes. Family-controlled firms with multiple generations of family members also face the problem that some other family members may not be as interested in holding shares in a private company and, therefore, desire liquidity. Because a public offering is one way to obtain liquidity, the factors we examined may help family firms focus on what matters and contribute to more successful IPOs for these generally closely held firms.

The results of this study have additional implications for family-controlled firms. First, planning and operational changes should be executed well in advance of a liquidity event to maximize value. The results also suggest that family firms should hire professional managers where needed.

Such a move might require outside consultants to assess the strengths and weaknesses of the incumbent managers. Likewise, family-controlled firms may want to offer stock-based incentives to increase shareholdings after the IPO and to retain top-quality management. Advanced planning and execution also increases the value of the company for the insiders by increasing the odds that the firm will be able and ready to take advantage of opportunities in the capital markets. In other words, proactive planning and execution is like having an additional put option available to the management. Opportunities in the financial markets can be fleeting and require preparation to realize, as the experiences of 1999 to 2000 show.

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*Joseph H. Astrachan is Wachovia Chair of Family Business and director of the Cox Family Enterprise Center at the Michael J. Coles College of Business at Kennesaw State University, Kennesaw, GA, and distinguished research chair in family business at Loyola University Chicago. Daniel L. McConaughy is an assistant professor in the Department of Finance, Real Estate, and Insurance and the founder and director of the CSUN Family Business Center at California State University Northridge.*

