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The Long-Term Performance of Initial Public Offerings (IPOs): Venture Capitalists, Reputation of Investment Bankers, and Corporate Structure

Halit Gonenc
Old Dominion University

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**THE LONG-TERM PERFORMANCE OF
INITIAL PUBLIC OFFERINGS (IPOs): VENTURE CAPITALISTS,
REPUTATION OF INVESTMENT BANKERS,
AND CORPORATE STRUCTURE**

by

Halit Gönenç

A Dissertation submitted to the Faculty of
Old Dominion University in Partial Fulfillment of the
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Approved by:

John Doukas (Director)

Eric Anderson (Member)

Kenneth Yung (Member)

ABSTRACT

THE LONG-TERM PERFORMANCE OF INITIAL PUBLIC OFFERINGS (IPOs): VENTURE CAPITALISTS, REPUTATION OF INVESTMENT BANKERS, AND CORPORATE STRUCTURE

Halit Gönenç
Old Dominion University
Director: Dr. John Doukas

The Initial Public Offerings (IPOs) literature has uncovered the underpricing, hot issue markets, and long-term underperformance anomalies. The long-term underperformance of IPO firms has gained the focus of recent academic attention. Recent studies document that venture capitalists, and the reputation of investment bankers are associated with the long-term performance of firms going public. The lack of venture capitalists has been shown to relate with the long-term underperformance of IPO firms. On the other hand, IPO firms underwritten by less reputable underwriters have been found to experience more negative long-term market adjusted returns. Unlike previous studies, this study examines the interactive effects of venture capitalists, and the reputation of investment bankers on the long-term performance of IPOs using alternative performance measures. Moreover, we examine the possible interactive effects of institutional ownership with venture capitalists and the reputation of investment bankers. It is argued that the investigation of the joint effects of venture capitalists, reputation of investment bankers, and institutional investors on the long-term performance of IPO firms is more likely to throw additional light on the long-term underperformance of IPO firms than examining the role of these factors independently. In addition, this study investigates whether the corporate structure of the firm is associated with the long-term performance of IPOs. This investigation relies on 456 IPO transactions over the period of 1989-1994. Results based on raw and adjusted buy-and-hold returns show that

the reputation of investment bankers on the long-term performance of IPO firms is negligible, if any. These results are inconsistent with the findings of Carter, Dark, and Singh (1998). However, venture backed IPOs with considerable institutional ownership experience superior long-term performance. Consistent with Brav and Gompers (1997), our evidence shows that long-term performance of IPO firms is not significantly different from counterpart IPO firms. Size/book-to-market/industry adjustment not only decreases underperformance of non-venture backed IPO firms, but also eliminates the superior performance of venture-backed IPO firms relative to both, market and non-venture backed IPO firms. Finally, the analysis provides little evidence in support of the corporate diversification hypothesis which states that diversified IPO firms have lower long-term performance in comparison to focused IPO firms.

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1. INTRODUCTION

Since Ritter (1991) and Loughran and Ritter (1995) documented the long-term return anomaly for Initial Public Offerings (IPOs), a growing body of the literature has been trying to develop an explanation for the long-term underperformance of IPOs against several comparison groups. Previous theoretical and empirical studies identify several factors behind the long term performance of firms going public. Factors such as venture capitalists, and the reputation of investment bankers have been found to be associated with the long-term underperformance of IPOs.

In a recent study, Brav and Gompers (1997) examine the differences in the long-term performance between venture-backed and nonventure-backed IPOs. They find that venture-backed IPOs outperform nonventure-backed IPOs in the five years after the offering. A wide difference occurs between two groups in terms of equally weighted returns and wealth relatives against the several comparable benchmarks¹. Using Fama-French (1993) three factor asset pricing model, Brav and Gompers conclude that venture-backed IPO firms do not significantly underperform, while the smallest nonventure-backed IPO firms do. One of their possible explanations for the underperformance of small nonventure-backed IPO firms is investor sentiment. Specifically they argue that the equity of small nonventure-backed IPOs is held primarily by individuals, and individuals are more likely to be influenced by fads or lack complete information. In addition, Megginson and Weiss (1991) show that institutional ownership after an IPO is substantially higher for venture-backed IPOs than nonventure-backed IPOs. The implication of this explanation is that since venture-backed IPOs

¹ Brav and Gompers (1997) show that performance differences between venture-backed and nonventure-backed IPOs is significantly reduced by using the value weighted returns. Value weighting also reduces underperformance for nonventure-backed IPOs.

overperform nonventure-backed IPOs, most institutional investors will not significantly lose by investing in IPOs because they usually do not buy the small issues that perform the worst. Brav and Gompers also argue that asymmetric information could be another reason for the underperformance of small nonventure-backed IPOs, referring to the reputation of underwriters, since Barry, Musceralà, Peavy, and Vetsuypens (1990) show that small nonventure-backed firms go public with lower tier underwriters than similar venture-backed firms.

On the other hand, Carter, Dark, and Singh (1998) examine the effect of the reputation of investment bankers on long-term performance of IPOs. They argue that high reputable underwriters attempt to market IPOs that will experience the least negative long-term market adjusted returns. Since investors will measure the quality of the firm with the investment bankers' past performance, by marketing IPOs that have relatively better long-term performance, investment bankers protect their reputation. Carter, Dark, and Singh show that the long-term performance of IPOs is related to the reputation of underwriters. IPOs underwritten by more prestigious investment bankers experience, on average, a less negative performance over the three-year period. Their results imply that \$132 would need to be invested in the IPOs offered by low reputable underwriters to achieve the same payoffs as \$100 put in the IPOs underwritten by high reputable investment bankers for a three-year holding period.

While these studies provide new insights into the IPO underperformance literature, it is unlikely that venture capitalists or investment bankers act independently. It is quite possible that high reputable investment bankers select to underwrite the offerings of firms

financed by venture capitalists. In light of the recent evidence by Ritter and Chen (1998)² that investment bankers do not compete on price in the supposedly highly competitive investment banking market, high reputable investment bankers are likely to select IPOs on the basis of venture capitalists³. If there is no price difference between high and low reputable investment bankers, firms going public would prefer high reputable investment bankers for their IPOs, instead of low reputable underwriters. IPO firms expect that high reputable investment bankers can raise funds at more favorable terms. However, high reputable investment bankers will be selective in protecting their reputation by underwriting venture-backed IPOs that have high growth prospects. Another reason would be reducing asymmetric information between investment bankers and issuer firms because the presence of venture capitalists can also reduce the uncertainty of a firm's true value. Thus, investment bankers can manage to underwrite IPOs without having to sell them at deep discounts.

One could also argue that venture capitalists decide to back IPOs that are in the process of being underwritten by reputable underwriters. This is probably because they may have concerns about the underwriting procedure especially in the pricing process for stocks that they back.

On the other hand, venture-backed IPOs can be underwritten by low reputable investment bankers since these IPO firms may not need prestigious underwriters to certify firm quality and future cash flow prospects of the venture capitalists. Therefore, if venture capitalists act to send a credible signal to investors, there would not be any difference for

² see also Business Week November 9, 1998

³ Ritter and Chen (1998) show that there is a standard rate of 7% of the per-share offering price for the fees charged by investment bankers in most IPOs over the last six years. For instance, only about half of all IPOs had 7% fees between 1991 and 1994, while investment bankers charged 7% about 75% of the time in the last three years.

venture-backed IPOs to be underwritten either by more or less reputable investment bankers.

The above discussion suggests that venture-backed IPOs can be underwritten by high or low reputable investment bankers. Venture-backed IPOs are not those shown having the long-term underperformance in the recent literature, but IPOs underwritten by low reputable investment bankers are. In this case, we can ask a question of whether there is a difference in the long-term performance between venture-backed IPOs underwritten by high or low reputable investment bankers?

Nonventure-backed IPOs, however, are likely to seek certification through the reputation of investment bankers. Therefore nonventure-backed IPOs can also be underwritten by high or low reputable investment bankers. In this case, it would be interesting to see whether high reputable investment bankers mitigate the wealth hazard from underwriting nonventure-backed IPOs.

We argue that it is very important to examine the interactive effects of venture capitalists and the reputation of investment bankers on the long-term performance of IPOs using alternative performance measures to understand the long-term underperformance phenomenon of IPOs.

Our sample consists of 456 IPOs issued in 1989-94 period. In this sample, the numbers of IPOs indicating the interactive effects between venture capitalists and the reputation of investment bankers are as follows: There has been a high demand for high reputable underwriters; one hundred forty five of 456 (32 percent) venture-backed and one hundred seventy one (38 percent) nonventure-backed IPOs are underwritten by high reputable investment bankers. Fifty-two (12 percent) venture-backed and eighty (18 percent) non-venture backed IPOs are underwritten by low reputable investment bankers.

Empirical evidence also shows that the long-term underperformance of IPOs is associated with the low institutional ownership of IPO shares. Fields (1996) argue that long-term IPO performance is positively related to institutional holdings. She finds that, in the long-term, IPOs having larger institutional shareholdings significantly outperform those with smaller institutional shareholdings. Krigman, Shaw, and Womack (1998) test the hypothesis that information about the quality of issues appears to be available at flipping, which is defined as percentage of first day dollar volume 'sold' in block trades by institutional investors. They find that heavily flipped IPOs significantly underperform IPOs with less flipping over one year holding period. This result also implies that institutional investors bid and gain a larger allocation of stronger IPOs, leaving a disproportionate share of weaker IPOs for the smaller investors. Therefore, we investigate the joint effect of institutional ownership along with the reputation of investment bankers on the long-term performance of IPOs. We also look at the role of institutional ownership in connection with venture capitalist effect.

Several studies document that there is a relationship between firm value and diversification or focus strategies. Serveas (1996) find that diversified firms sell at a substantial discount when compared to single segment firms for several years in 1970s and 1980s. John and Ofek (1995) find that the improvement in performance is positively related to the increase in focus. Berger and Ofek (1995) show that diversified firms have values that average, during 1986-91, 13% to 15% below the sum of the imputed values their segments. The loss in value is less for related diversification. Comment and Jarell (1995) find a negative relation between abnormal stock returns and several measures of diversification. Lang and Stulz (1994) also show that there is a negative relation between Tobin's q and several diversification measures.

Finally, we try to create new approach in understanding of the long-term anomaly of IPOs. We investigate whether the long-term performance of a sample of IPOs is related to corporate structure of IPO firms. Since diversification is found as a value decreasing strategy, it could also be related to the long-term underperformance of IPOs. Therefore, we examine whether there is a link between the long-term performance of IPOs and corporate diversification. This is accomplished by dividing the sample into multi and single-segment firms.

Our empirical evidence shows that, consistent with the results of Brav and Gompers (1997), venture backed IPO firms outperform non-venture backed IPO firms in terms of raw and adjusted returns, based on value-weighted and S&P 500 index in all periods. When BHRs are adjusted by CRSP equally-weighted index and size/book-to-market/industry matched firms' returns, performance differences become insignificant between venture and non-venture backed IPO firms. Size/book-to-market/industry adjustment not only decreases underperformance of non-venture backed IPO firms, but also eliminates the superior performance of venture-backed IPO firms relative to both, market and non-venture backed IPO firms.

Results based on raw and adjusted buy-and-hold returns also show that the reputation of investment bankers on the long-term performance of IPO firms is negligible, if any. These results are inconsistent with the findings of Carter, Dark, and Singh (1998). Comparison of IPO firms with high institutional ownership and IPO firms with low institutional ownership indicate that institutional investors have an influence on the long-term performance of IPO firms over the 1-year and 3-year periods. Finally, our analysis provides little evidence in support of the corporate diversification hypothesis which states that diversified IPO firms

have lower long-term performance in comparison to focused IPO firms.

The simultaneous analysis of venture capitalists versus reputation of investment bankers generate evidence in support of the view that venture capital exerts more influence the long-term performance of IPO firms, while investment bankers' reputation does not appear to affect the long-term performance of IPO firms. Since venture capitalists play a more important role on the determination of the long-term performance of IPO firms, our simultaneous analysis demonstrates that investigating the role of reputation of investment bankers independently is likely to produce misleading results. Hence, the lower underperformance of IPO firms underwritten by high reputable investment bankers reported by Carter, Dark, and Singh (1998) may be driven by venture capital participation in these firms and not by investment bankers' reputation per se. We also find that institutional ownership is also an important factor in explaining the long-term performance of IPO firms.

Cross sectional regression results also reveal the importance of venture capital and institutional ownership on the long-term performance of IPO firms.

2. LITERATURE REVIEW

2.1 Underpricing

Early research related to Initial Public Offerings (IPO) documented evidence that, on average, new issues are underpriced. Early work by Ibbotson (1975) showed that IPOs were associated with positive abnormal returns (i.e., the difference between the first market price and the offer price). In his review of the empirical evidence on the initial public equity offerings, Smith (1986) concluded that the average underpricing appears to exceed 15 percent. This implies that underwriters consistently offer securities at substantial discounts from their values that are set in the after market.

Several theories have been developed to explain the underpricing phenomenon of new issues.

2.1.a Information Asymmetry

Information asymmetry hypotheses imply that the average underpricing is greater for issues with greater ex ante uncertainty about true value of firms. Rock (1986) argues that a winner's curse occurs because of information asymmetry between informed and uninformed potential investors. In order to avoid Akerlof's (1970) lemon's problem, issuers rationally underprice new issues because uninformed buyers will withdraw from a market if they do not have substantial premium to solve their informational disadvantage.

Ritter (1984) and Beatty and Ritter (1986) further develop and test the implications of Rock's model, namely suggested positive relationship between the degree of underpricing and the ex ante uncertainty. Ritter argues that the more uncertain the market is about the true

market value of the issuing firm, the higher the discount the company must offer to the uninformed investors to submit bids. Two variables are used as proxies for ex ante uncertainty. The annual sales of the issuing firm prior to the official listing and the volatility of its stock returns after market period. The results show a significant relationship between these two variables and the degree of discount. Beatty and Ritter introduce underwriters into Rock's argument. Investment bankers have an incentive to ensure that new issues are underpriced. Otherwise, they lose underwriting commissions in the future. If they underprice too much, they will lose business from issuers, or if they underprice too little, they will lose business from investors. As an empirical evidence of this argument, Beatty and Ritter find a significant positive relationship between the level of underpricing and the amount of ex ante uncertainty.

Baron (1982) argues that offer prices for new issues will be lower due to information asymmetry between issuing firms and the investment bankers. He assumes that investment bankers have better information than issuers about demand for the issue, and hence the ensuing market price. Since issuers delegate the offer price decision to the underwriter and cannot perfectly monitor the underwriter, the underwriters have an incentive to underprice in order to minimize their risk in selling the entire amount committed to outside investors. Muscarralla and Vetsuypens (1989) test the Baron's model by examining self marketed IPOs, i.e., IPOs of investment bankers who market their own securities. Since we cannot talk about information asymmetry in this case, there should not be any underpricing. Their evidence does not support Baron's hypothesis. They find that there is still underpricing even without information asymmetry.

2.1.b Legal Liability

Tinic (1988) develops an insurance hypothesis that underpricing serves as a form of insurance against legal liability and the associated damages to the reputations of investment bankers. The securities act of 1933 specifically identifies the parties that may be subject to civil liabilities on account of false or inadequate information presented in the registration statement. To recover damages, a purchaser of an IPO can sue every person who has signed the registration statement, including every investment banker that is associated with the offering. Tinic argues that underpricing of the offering may provide the issuer and the underwriter with protection against potential legal liabilities more efficiently. The insurance hypothesis claims that the IPOs issued after 1933 should exhibit substantially larger initial excess return than the new issues brought to the market before the enactment of the Securities Act.

Tinic (1988) tests the implication of the insurance hypothesis with data on IPOs that were issued before and after the Securities Act of 1933. The results indicate that the Act had a significant impact on the pricing of IPOs. While the initial excess returns on the pre-SEC sample of IPOs were significantly positive, the magnitude of the underpricing is less than excess returns generated by the IPOs issued after 1933.

2.1.c Signaling Theories

Signaling theories argue that the initial market price provides a signal of the quality of the IPO. IPOs are characterized by a great deal of uncertainty about their true value because of the scarcity of public information at the time of the initial offering. Underpricing

of an IPO reveals significant information that the firm is good to investors, because only good firms can be expected to recoup this loss after their performance is realized.

Several studies modeled a signaling game in which underpricing is the key-element. These models have in common that the firms' owner-managers know true value of the firm while the potential investors do not. The underpricing is deliberate and voluntarily to signal the true value, and it is justified to achieve a better price for a subsequent equity offering. In Welch' (1989) model, underpricing is a credible signal of good firms because it is costlier for bad firms due to other direct imitation costs and a probability of revelation between the two issues. Grinblatt and Hwang (1989) present a generalization of Leland and Pyle's (1977) model, in which the manager-owners signal both the expected return and variance of future earnings using the fraction retained by the owners and underpricing as signals. Allen and Faulhaber (1989) suggest that underpricing will lead investors to interpret subsequent dividend payments more favorably. The firm with higher probability of high earnings finds it thus cheaper to signal.

Clearly, signaling models would have little practical importance if companies do not follow a multiple-stage sale policy of an initial offering by subsequent equity offerings or insider sales. Jegadeesh, Weinstein and Welch (1993) test the signaling hypotheses empirically by assessing the likelihood of a Seasoned Equity Offering (SEO) as function of the IPO-underpricing. They find a small explanatory power of IPO-underpricing for the likelihood of SEOs, which cast doubt on the signaling hypotheses. Garfinkel (1993) tests the signaling hypothesis by looking whether the likelihood of insider selling increases as a function of underpricing. He finds no correlation, casting further doubt on underpricing signaling. Helwege and Liang (1996) track the 1983 IPO cohort and find that in any of the following

ten years, fewer than 4 percent of firms return the equity market, instead increase in investments was financed mainly by retained earnings and private debt in their first decade.

2.1.d Investment bankers' reputation

The prevailing belief in the marketplace holds that the choices of investment bankers affect the price of an IPO. Louge (1973) suggests that the choice of a prestigious rather than a non-prestigious investment bank might influence the price which investors are willing to pay for the shares sold. This statement reflects the belief that when a firm sells shares for the first time its true value is imperfectly known by investors and that the reputation of investment bankers chosen by firm's owner provides information to the market about the firm's true value. Titman and Trueman (1986) develop a model to demonstrate how the quality of the auditor or investment bank chosen can rationally be used by investors in valuing new issues. They argue that an entrepreneur with more favorable private information about his firm's value will choose a higher quality auditor or investment bank than will an entrepreneur with less favorable private information. Their model predicts that the higher the quality, the more favorable will investors infer the information to be and so the higher will be the price at which the new issue can be sold.

Carter and Manaster (1990) examine the effects of underwriter reputation on the initial performance of IPOs. They find a significant negative relation between the reputation of underwriters and the magnitude of the IPO underpricing. This result indicates that low dispersion firms are seen to use high prestigious underwriters to signal to the market that they are in fact low risk firms. In a recent study, Carter, Dark, and Singh (1998) find that each of reputational proxies used in the prior researches is significantly related to IPO initial returns;

the better the reputation of the underwriter, the less is the short-run underpricing.

2.1.e Venture Capitalists

The role of venture capitalists on the IPO underpricing was seen as an empirical evidence of both information asymmetry and signaling theories. In terms of asymmetry information, Megginson and Weiss Hanly (1991) state that venture capitalists can reduce the uncertainty of a firm's true value. They find that firms certified by venture capitalists experience on average lower underpricing at public offerings.

In another empirical work, Barry, Musceralla, Peavy, and Vetsuypens (1988) present evidence that IPOs of firms initially backed by venture capitalists are just as underpriced as those without such backing. Venture capitalists share at least some of the private information about prospects of the firms they back, and they come to the IPO market repeatedly. Therefore, the authors speculate, venture capitalists may have an even greater incentive to build a reputation, as the type that back good firms.

2.2 Hot Issue Markets

The past studies on the offering price argument of IPOs document that IPOs of firms' stocks are underpriced. What is even more puzzling is the fact that, in some time periods and some industries, underpricing appears to be systematically larger than in other periods. Empirical evidence suggests the existence of hot issue market for IPOs: in certain periods and in certain industries, new issues are underpriced. Ibbotson and Jaffe (1975) find that the underpricing phenomenon occurs only during particular periods. At the beginning and end of

the 1960s new issue markets are hot in the sense that there is significant underpricing. In the interim, however there is no evidence of underpricing. Ritter (1984) identifies a hot issue market in 1980. Ritter, for example, reports that the average return from the offer price to the first after market price is more than forty-eight percent for IPOs in 1980 and 1981. He presents evidence that underpricing is focused in particular industries, such as new issues by oil and gas firms (natural resource issues).

Allen and Faulhaber (1989) argue that as the costs of going public are lower and the benefits greater in certain periods and industries, a flotation could become so attractive that a firm would be willing to accept higher than usual underpricing. Thus, this kind of firm takes advantage of a good IPO climate.

2.3 Long-Term Underperformance

The initial market pricing of an IPO is an important informational event because it indicates the extent to which the assessment by the market deviates from the offer price set by firm and its underwriters. The evidence of studies mentioned above prove that all price adjustment takes place in the first trading day. This suggest that the IPOs market in the short-run is quite efficient. On the other hand, Aggarwal and Rivoli (1990) try to explain that the abnormal returns accruing to IPO investors may only be interpreted as evidence of underpricing by underwriters if it is shown or assumed that the aftermarket for IPOs is efficient. Thus, they indicate the importance of the long term price behavior of IPOs.

2.3.a Empirical Studies

Aggarwal and Rivoli (1990) find negative aftermarket performance of -13.73% in the first year following the initial offering for 1,435 IPOs over the period 1979-1984. This result suggest that IPOs are subject to overvaluation in early aftermarket trading.

The aftermarket performance of initial public offerings has received increased attention since Ritter's (1991) exposure of the potential wealth hazard of a buy-and-hold strategy toward investing in IPOs. He document that, in the long-term, IPOs appear to be overpriced. Using sample of 1,526 IPOs that went public in the U.S. in the 1975-84 period, he finds that in the 3 years after going public these firms significantly underperformed a comparison group of matching American Stock exchange (Amex) and New York Stock exchange (NYSE) firms by size and industry. While the average holding period return for the sample of IPOs is 34.47%, a control sample of 1,526 listed stocks, matched by industry and market value produces an average total return of 61.86% over the same 3 year holding period. He shows that there is tendency for firms with high adjusted initial returns to have the worst aftermarket performance. This tendency is stronger for smaller issues than larger issues. In addition to this, younger companies did even worse than average. His empirical evidence also give that there is substantial variation in the underperformance year to year (for example, mean three year after market returns are positive for 1975-1980 IPOs and negative for 1981-1984 IPOs) and across industries. He interprets these results as (1) investors are periodically overoptimistic about the earnings potential of young growth companies, and (2) firms take advantage of these "windows of opportunity".

Loughran (1993) finds that, on average, IPOs underperform during the six calendar years after going public. His sample includes 1,656 initial public offerings conducted during

the period from 1967 to 1987. The sample IPOs generate substantially lower returns than the Center of Research in Security Prices (CRSP) NASDAQ equally-weighted index. Additionally, Loughran stacks the IPO returns by calendar month to investigate the existence of seasonal patterns in raw returns. He finds no apparent pattern after the returns adjusted for market movements. This findings suggest that monthly seasonal regularities in IPOs are similar to those discovered in more traditional equity studies. However, Other seasonal patterns are not explored. Therefore, short term differences in IPO and seasoned security returns may still exist.

Loughran and Ritter (1995) examine long-term trends in stock returns of security issuance. They show that companies issuing stock during 1970 to 1990, whether an IPO or a seasoned equity offering (SEO), significantly underperform relative to nonissuing firms for five years after the offering date. They find that the average annual return during the five years after issuing is only 5% for firms conducting IPOs, and only 7% for firms conducting SEOs. Investing an equal amount at the same time in a nonissuing firm with approximately the same market capitalization, and holding it for an identical period, would have produced an average compound return of 12% per year for IPOs and 15% for SEOs. The magnitude of the underperformance is large: it implies that 44% more money would need to be invested in the issuers than in nonissuers to be left with the same wealth five years later. As in Ritter (1991) study, they also document that the degree to which issuing firms underperform varies over time. They entertain a number of possible explanations for the poor subsequent performance of issuing firms. They focus on following statement: It is found by previous studies that most issuing firms with low book-to-market ratios, and firms with low book-to-market ratios have had low returns in recent decades (for instance, Fama and French (1992)). So that, while the

average raw return on new issues is very low and firms selling equity underperform nonissuing firms of the same market capitalization, it is valuable to examine whether the appropriate benchmark for measuring abnormal performance is size-matched firms. They address this by presenting both cross-sectional and time-series multiple regression results, using monthly returns controlling for both size and book-to-market effects. Cross-sectional regressions show that there are economically and statistically significant book-to-market and new issue effects. They perform time-series regressions of monthly portfolio returns on three factors (market return, SMB: the return on small firms minus the return on large firms, and HML: the return on high book-to-market stocks minus the return on low book-to-market stocks) as used in Fama et al. (1993). They state that if the poor performance of issuing firms depend on confounding effects (i.e., differences in book-to-market ratios, differences in size, and differences in book-to-market ratios) then the intercepts in the regression should be statistically indistinguishable from zero. Comparing the regressions that cover return difference between issuers and nonissuers, they find that issuing firms have lower subsequent returns than nonissuers, holding both size and book-to-market ratio constant. They interpret these results as the consistency with a market where firms take advantage of transitory windows of opportunity by issuing equity when, on average, they are substantially overvalued. Thus, they left this topic out as, with their definition, “the new issues puzzle”.

Loughran and Ritter also report that for both groups of issuers, there is no underperformance during the six months after the offering. They only state that because the underperformance is delayed, the connection with issuing firms is less obvious to the market. Graves, Hegde and Miller (1996) try to show that the direction of this early aftermarket trend can be conditional on the initial signal. Their results indicate that adjusted returns in the first

three months following the offering are, on average, in the same direction as the initial mispricing - positive for the underpriced group and negative for the overpriced IPOs. This evidence shows that market prices adjust rather slowly to the information revealed by the initial mispricing of IPOs. However, following the first three months of trading, they find that there are no significant differences in the abnormal returns of underpriced and overpriced IPOs and both groups exhibit significant underperformance from months 6 to 24, consistent with Ritter and Loughran and Ritter's result.

In contrast to Loughran and Ritter's (1995) investor perspective, Jain and Kini (1994) attempt to measure the operating performance of IPO firms. They find that IPO firms exhibit decline in post-issue operating performance, as measured by the operating return on assets and operating cash flows deflated by assets for years 0, +1, +2, and +3 relative to their pre-IPO levels, year -1, both before and after industry adjustment.

2.3.b The Role of Ownership Structure

Jain and Kini (1994) show that IPO firms exhibit high growth in sales and capital expenditures relative to firms in the same industry in the post-IPO period. Thus, declining operating performance of IPO firms cannot be attributed to lack of sales growth opportunities or cutbacks in post-IPO capital expenditures. They test two possible explanations for the decline in the post-issue operating performance of IPO firms. 1- They find a positive relation between managerial ownership retention and post issue operating performance. Here managerial ownership is entrepreneurial ownership for IPO firms. They interpret this result as being consistent with Jensen and Meckling (1976) agency hypothesis and the Lelan and Pyle (1977) signaling hypothesis. According to agency hypothesis, higher ownership retention by

managers reduces their incentives to undertake nonvalue maximizing projects. Leland and Pyle suggest that, by retaining a significant ownership stake in the firm, entrepreneurs can signal project quality since false representation can be costly. Both hypotheses, therefore, predict relatively superior operating performance of IPO firms with higher entrepreneurial ownership. However, they were not able to separate the individual effects of these two hypotheses. 2- On the other hand, they find no relation between post-issue changes in operating performance and initial returns at the IPO. Signaling models of underpricing predict that IPO firms that underprice should exhibit superior operating performance in comparison to those that do not. Thus they interpret the absence of a positive relation between the change in operating performance and underpricing as being inconsistent with the signaling explanation for underpricing.

Hensler, Rutherford, and Springer (1997), in contrast to above studies, focus on issuers and their ability to survive in the aftermarket. They examine the survivability of IPO stocks in the aftermarket and the relation between IPO characteristics and time-to-failure. Their results indicate that the survival time for IPO activity increases with size, age of the firm at the offering, the initial return, IPO activity level in the market, and the percentage of insider ownership. Even if we accept the survival time as long term over or underperformance determined by above studies, which is not possible, the results about size, age and initial return are inconsistent with the previous evidence. Therefore, the positive relationship between survival time and percentage of insider ownership is very weak to explain long term underperformance of IPO firms.

Mikkelson, Partch, and Shah (1997) examine the relation between ownership characteristics and operating performance up to ten years after going public for a sample of

283 IPOs in 1980-1983 period. They find that operating income scaled by assets or by sales exceeds the performance of matched publicly traded firms before going public and then after two years going public declines to a level that is below the performance of matched firms. However, performance does not decline appreciably further during the second through tenth years of public trading. Investigation of whether the operating performance of IPO firms is explained by changes in stock ownership characteristics, they find that neither the level of performance after going public nor the change in performance from before to after going public is related systematically to various measures of ownership by officers and directors and other blockholders, such as venture capitalists or parent companies. They conclude that the changes in equity ownership that result from going public do not lead to changes in incentives that affect operating performance.

In terms of the evidence that the presence of venture capital backing influences investors' valuation of companies, they report that offerings with venture capital backing experience a smaller decline in performance from year -1 to year 1, but the longer intervals provide no evidence of superior operating performance of firms that go public with the backing of a venture capitalist. Their evidence shows that variation in operating performance after going public is explained mostly by the size and age of the companies and by the presence of secondary sales. The median performance of small (measured by the size of total assets) startup companies is significantly below the performance industry-matched firms after going public, while larger and more established companies' median performance is not different from the performance of industry-matched firms after going public.

2.3.c Security Analysts' Overoptimism

Rajan and Servaes [R&S (1997)] examine whether the behavior of analysts is related to the IPO anomalies, which are underpricing, hot issue markets, and long-term underperformance. In terms of long run underperformance of IPO firms, they hypothesize that the best way to answer the question of whether the underperformance is because of institutional constraints -such as short sale restrictions- in the IPO market or whether it is because of systematic over-optimism on the part of investors is to look at investor expectations. Since brokerage house analysts reflect or drive investor expectations, R&S use data on analyst following and forecast accuracy to explore this issue.

First, R&S find that more underpriced issues attract larger analyst following. Analysts then systematically overestimate the earnings of these companies, with forecast errors averaging 5 percent of the firm's stock price. As the forecast window increases, so does the forecast error. Thus, analysts are more overoptimistic about a firm's long term prospects than a firm's short term prospects. These forecast errors are lower, but they still remain significant after size and market adjustments. This indicates that the overoptimism of analysts for IPOs is only partly a reflection of their overoptimisim in general. Then, R&S study long-term (five years) earnings growth forecasts and find that analysts are also overoptimistic about the long term growth opportunities of IPOs.

Second, R&S find a positive relation between the number of IPOs coming to market in a given industry in a given quarter and several measures of analyst long-term earnings growth projections for recent IPOs in these industries. Since these growth projections are overly optimistic, they interpret this result as consistent with window of opportunity arguments and the investor sentiment.

Finally, R&S look at the relationship between analyst long term growth projections and the aftermarket stock price performance of IPOs. They find that firms with the highest projected growth substantially underperform three benchmarks (1. the NYSE/AMEX value weighted index; 2. the smallest decile of the NYSE/AMEX firms; 3. size and industry matched firms.) However, firms with the lowest growth projections outperform these benchmarks. These results indicate that investors appear to believe the inflated long-term growth.

2.3.d The Role of Venture Capitalists

Brav and Gompers [B&G (1997)] examine the differences in the long-term underperformance between venture-backed IPOs and nonventure-backed IPOs. Their hypothesis is whether venture capitalists, who specialize in financing promising startup companies and bringing them public, affect the long-term performance of newly public firms. Venture capitalists have important roles for a company going to the public. Going public is simply a stage in the growth of a company. Venture capital firms specialize in collecting and evaluating information on startup and growth companies. For a newly public firm with high growth opportunities, there are two difficulties that venture capitalists can take care of; 1) potential capital constraints, and 2) asymmetric information. Venture capitalists take care of the difficulty of potential capital constraint by providing access to top-tier national investment and commercial bankers. Since this is so, the investment behavior of venture-backed firms would be less dependent upon internally generated cash flows. This also partly takes care of informational asymmetries that are associated with startup companies. These abilities that venture capitalists have create different expectations in the price of the offering between

venture-backed and nonventure-backed firms.

Long-term stock price performance is expected to be different for two groups because venture capitalists stay on the board of directors long after the IPO and may continue to provide access to capital that nonventure-backed firms lack. In addition to this, venture capitalists may affect who holds the firm's shares after an IPO. Venture capitalists continue to have contacts with top-tier, national investment bankers and may be able to provide more and higher quality analysts to follow their firms, thus lowering potential asymmetric information between the firm and investors. Similarly, because institutional investors are the primary source of capital for venture funds, institutions may be more willing to hold equity in firms that have been taken public by venture capitalists with whom they have invested. Another possible explanation for the superior long-term performance of venture-backed IPOs, is venture capitalists' reputational concerns. Because venture capitalists repeatedly bring firms public, if they become associated with failures in the public market, they may ruin their reputation and ability to bring firms public in the future. Venture capitalists may consequently be less willing to overprice it or follow a stock.

In data analysis, B&G calculate five year equally and value weighted buy-and-hold performance for each IPO and their benchmarks. Several benchmarks are utilized. These are four broad market indexes (the S&P 500, Nasdaq value weighted composite index, NYSE/AMEX value weighted index, and NYSE/AMEX equal weighted index), Fama-French (1994) industry portfolios and size and book-to-market matched portfolios that have been excluded recent IPO and seasoned equity offering (SEO) firms. Then, they calculate wealth relatives by taking the ratio of one plus the IPO portfolio return over one plus the return on the chosen benchmark. Wealth relatives less than one mean that the IPO portfolio has

underperformed relative to its benchmark.

B&G find that venture-backed IPOs outperform nonventure-backed IPOs. There is wide difference between two groups in terms of equally weighted returns and wealth relatives against the alternative benchmarks. Nonventure-backed IPOs perform worse than Loughran and Ritter's (1995) results. However, value weighted performance looks similar for the two groups with little overall underperformance. Results from controlling for industry returns show performance differences as well. On the other hand, wealth relatives versus size and book-to-market portfolios demonstrate that underperformance is not an IPO effect. When IPOs and SEOs are excluded from size and book-to market portfolios, they find that venture-backed IPOs significantly outperform their relative portfolio returns while nonventure-backed IPOs perform as well as the benchmark portfolios.

Fama-French (1993) three factor time series regressions is used to see whether underperformance of IPO firms is captured by three factors [RMRF: the value weighted market return on all NYSE/AMEX/Nasdaq (RM) minus the risk free rate (RF), SMB (small minus big): the difference each month between the return on small firms and big firms, HML (high minus low): the difference each month between the return on a portfolio of high book-to-market stocks and the return on a portfolio of low book-to-market stocks] since a three factor model may explain the cross section of stock returns. On the other hand, if IPOs underperform on a risk adjusted basis, portfolios of IPOs should consistently underperform relative to this three factor asset pricing model. Consistent with Loughran and Ritter (1995), B&G also use the regression intercept as an indicator of risk-adjusted performance. The intercepts from the regressions of the equal and value weighted venture-backed IPO portfolios are insignificant showing that the three factor model is not rejected. When the

nonventure-backed returns are weighted equally, the intercept is significantly negative indicating severe underperformance. Value weighting non-venture capital returns produces a smaller negative intercept. Partitioning the nonventure-backed sample on the basis of size demonstrates that underperformance primarily resides in small non-venture-backed issuers. Fama-French's three factor model cannot explain the underperformance of these small, non-venture-backed firms.

Finally, B&G show that underperformance documented by Loughran and Ritter is not unique to firms issuing equity. When issuing firms are matched to size and book-to-market portfolios that exclude all recent firms that have issued equity, IPOs do not underperform. Underperformance is a characteristic of small, low book-to-market firms regardless of whether they are IPO firms or not.

B&G also provide various explanations on the sources of the underperformance of small, low book-to-market firms. First, unexpected shocks may have hit small growth companies in the early and middle 1980s. They find that returns of IPO firms are highly correlated in calendar time even if the firms go public in different years. Underperformance for the venture capital sample is primarily concentrated from 1983 through 1986 and is concentrated from 1981 through 1987 for the nonventure capital portfolio.

A second explanation for the underperformance of small, low book-to-market firms is investor sentiment. Small nonventure-backed IPOs are more likely to be held by individuals. Individuals are more likely to be influenced by fads or lack complete information. Megginson and Weiss (1991) show that institutional holdings of equity after an IPO are substantially higher for venture-backed IPOs than they are for nonventure-backed IPOs. The relatively higher institutional holdings may occur because institutions have greater information on small,

venture-backed firms through their investment in venture capital funds. Fields (1996) has shown that long-term IPO performance is positively related to institutional holdings. She finds that, in the long-term, IPOs having larger institutional shareholdings significantly outperform those with smaller institutional shareholdings.

Asymmetric information is also likely to be more prevalent for small firms because individuals spend considerably less time tracking returns than institutional investors do. Barry, Musceralla, Peavy, and Vetsuypens (1990) show that small nonventure-backed firms go public with lower tier underwriters than similar venture-backed firms. These firms may also have fewer and lower quality analysts following the company after the offering. More importantly Carter, Dark, and Singh (1998) show that the reputation of the underwriter is related to long-term performance of IPOs, consistent with greater asymmetric information being associated with lower returns.

Finally, individuals might derive utility from buying the shares of small, low book-to-market firms because they value them like a lottery ticket. Returns on small nonventure-backed IPOs are more highly skewed than returns on either large IPO firms or similar sized venture-backed IPO firms.

With all of these results and explanations, they stated that most institutional investors will not be significantly hurt by investing in IPOs. They usually do not buy the small issues that perform the worst. However, underperformance of small growth companies may be important for capital allocation. If the cost of capital for small growth companies is periodically distorted, their investment behavior may be adversely affected.

2.3.e The Role of Investment bankers' reputation

Carter, Dark, and Singh (1998) examine the initial returns and three-year returns following the IPOs and the relationship of those returns with investment bankers' reputation. In this context, they use three existing measures of underwriter prestige and provide a comparative evaluation of those measures.

First of all they find that each of the reputation proxies is significantly related to IPO initial returns as widely documented, in fact, in previous IPO literature; the better the reputation of the underwriter, the less is the short-run underpricing. They show that among three alternative reputation proxies, the Carter-Manaster (CM) measure explains more of the variation in the initial returns compared to the Johnson-Miller or the Megginson-Weiss measures.

In terms of long-term performance, they hypothesize that high reputable underwriters attempt to market IPOs that will experience the least negative long-term market adjusted returns. Investors use the investment bankers' past performance, as measured by the quality of firms in which they have previously sold equity, to assess their credibility. By marketing IPOs that have relatively better long-term performance, investment bankers protect their reputation. Therefore, in a OLS (Ordinary Least Square) regression, the coefficients for underwriter prestige measures are expected to be positive when the long-term market adjusted return is used as the independent variable.

They find that IPOs underwritten by more prestigious investment bankers have, on average, a less negative performance over the three year period. The results indicate that when the reputation proxies are evaluated simultaneously, only the CM measure is significantly related to the IPO stocks' three-year returns. Additionally, their results imply

that \$132 would need to be invested in the IPOs offered by low reputation underwriters to achieve the same payoffs as \$100 put in the IPOs underwritten by high reputation investment bankers for a three-year holding period.

2.3.f The Role of Institutional Ownership

Recently, two studies examine the role of institutional investors in ownership structure on initial and future performance of IPOs. In a theoretical paper, Stoughton and Zechner [S&Z (1998)] analyze the effect of different IPO mechanisms on the structure of share ownership. They address the question of how the IPO process determines the equilibrium structure of shareholdings. There has been enough empirical evidence showing that ownership structure affects the efficiency of corporate governance and thus the intrinsic value of the firm. In addition to this, there is a growing empirical literature on the relation between the fraction of shares owned by large investors and firm performance. In their model, underpricing and rationing may be rational phenomena from the standpoint of the issuer. S&Z state that strategic rationing and underpricing are positively correlated. If the issuer is not allowed to ration strategically, their model predicts zero underpricing but implies a lower intrinsic value due to lack of monitoring. Underpricing and rationing in favor of large shareholders lead to a higher intrinsic value of the firm which more than offsets the amount of underpricing. Another feature of their model is that institutional shareholders do not sell out in the secondary market (flipping) in order to capture the gains from underpricing. Thus, their major conclusion is that the value of a firm's IPO is determined by the ownership structure resulting from the offering mechanism.

Their model features an entrepreneur who plans to sell all his shares to a collection

of outside investors. Alternatively, one can view this problem from the perspective of the venture capitalist who gives up control and sells his stake at the time of the IPO. The outside investors are grouped in two classes: large investors and small investors. The major distinguishing feature between the two classes is that large investors have the ability to monitor the activities of management in the firm while small investors do not. The view that the investment banker as a broker with an active and continuing relationship with the institutional investment community. The nature of this relationship provides two benefits to the entrepreneur. First, the investment banker is able to identify those investors capable of monitoring and provide favored treatment, either in price terms, or if that is disallowed, in terms of priority. Second, the nature of the repeated relationship allows the investment banker to negotiate directly with the large investor, providing for greater extraction of surplus to the benefit of the entrepreneur. Thus, S&Z demonstrate that the form of institutional ownership is an important factor for IPO-mechanism.

Krigman, Shaw, and Womack [KSW (1998)] examine underwriters' pricing errors and the first day trading activities in IPOs to see whether there is a relationship between those and one-year future performance of IPO firms. First they show that initial returns predict subsequent long term (one-year) excess returns. Hot IPOs, which had a first day return greater than or equal to 10 percent and less than 60 percent, and Cool IPOs, defined as having a first day return above zero and less than 10 percent, have positive excess returns at one-month, six month and one-year time frames. On the other hand, Cold IPOs, labeled with a first day return zero or negative, and Extra-Hot IPOs, classified as having a first day return above 60 percent, have negative excess returns for the same time frames. Since extra-hot IPOs do not outperform hot ones, the results were interpreted as being not monotonic.

For seeking the relationship between first day trading activities and future performance, KSW focus on what information is contained in the first day trading. They hypothesize that information about the quality of issues appears to be available at flipping, which is defined as percentage of first day dollar volume ‘sold’ in block trades by large (institutional) investors. Flipping accounts for 45 percent of trading volume on the first day in cold issues compared to 22 percent and 14 percent for hot and extra-hot IPOs respectively. The evidence show that heavily flipped IPOs significantly underperform IPOs with less flipping over future holding periods. This means that large investors sell issues on the first day that have the worst future performance. In addition to this, the results for flipping do not disappear in a five factor model including market, size, book-to-market, general market momentum, and IPO market momentum. Thus, flipping provides valuable information (superior to the initial return) about the direction of the subsequent price adjustment to equilibrium fair value, flipping is not the cause of the prior performance. Therefore, KSW conclude that flipping is a rational response to underwriters’ mispricing.

KSW also show that flipping provides a link between the empirical findings on institutional investment in IPOs [For example Field (1996)] and the theoretical underpricing literature, that is, institutional investors bid for and gain a larger allocation of stronger IPOs, leaving a disproportionate share of weaker IPOs for the smaller investors. The implication of this finding is that we should find a positive relationship between institutional holdings and future performance.

2.3.g Corporate Diversification

Several papers demonstrate that there is a relationship between the firm value and

diversification. There are two dimensions of the theoretical arguments for the effect of diversification on the firm value; benefits and costs. The potential benefits of diversification include greater operating efficiency, less incentive to forego positive net present value projects, greater debt capacity, and lower taxes. Through diversification managers create a larger internal capital market, which allocates resources more efficiently and also reduces asymmetric information between managers and outside investors. Thus, diversification reduces the underinvestment problem described Myers (1977) and Myers and Majluf (1984). Conglomerates can sustain higher levels of debt because corporate diversification reduces earnings variability. Increased debt capacity creates value by increasing interest tax shield.

The potential cost of diversification arises from the agency problems between managers and shareholders. According to this argument, managers diversify to protect the value of their human capital, and as Jensen (1986) explained, companies diversify to increase the private benefits of managers. Jensen states that managers of firms with unused borrowing power and large free cash flows are more likely to undertake value-decreasing investments. Stulz (1990) also argues that diversified firms will invest too much in lines of business with poor investment opportunities.

Empirical studies examine whether the benefits of diversification outweigh the costs. Lang and Stulz [L&S (1994)] investigate whether the market's valuation of a firm is correlated with its degree of diversification. They hypothesize that diversified firms are valued more than comparable portfolios of specialized firms if diversified firms differ from specialized firms only because diversification improves performance. Comparing the Tobin's q of diversified firms to the Tobin's q of specialized firms, they find that through the late 1970s and the 1980s single-industry firms are valued more highly by the capital markets than

diversified firms. Further, highly diversified firms (defined as those firms that report sales for five segments or more) have a both mean and median Tobin's q below the sample average for each year. Hence, conglomerates are not even average firms in terms of q .

L&S show that the negative relation between q and the degree of diversification cannot be explained by industry effects. In addition to this, their result do not change with the control variables that explain Tobin's q ; size, access to capital markets, and intensity of research and development. They conclude the analysis that there is a diversification discount by eliminating firms with large q 's, using only firms that did not change their number of segments, and using the ratio of firm market to book value.

L&S interpret the evidence as supporting the view that diversification is not a successful path to higher performance, but it less definitive on the question of the extent to which diversification hurts performance. The reason given is that the firms that become more diversified appear to perform poorly before becoming more diversified, indicating that firms that diversify do not become poor performers only or mainly because they diversify.

Berger and Ofek [B&O (1995)] use segment-level data to estimate valuation effect of diversification and to examine the potential sources of value gains or losses. In doing so, they estimate the value of diversified firm's segments as if they were operated as separate firms. So that, they compare the sum of the imputed stand-alone values of the segments of diversified companies to the actual values of those companies. The results show that diversified firms have values that average , during 1986-91, 13% to 15 % below the sum of the imputed values of their segments. The loss in value is less for related diversifications.

B&O find additional support for the conclusion that diversification reduces value by documenting that the segments of diversified firms have lower operating profitability than

single-line business. They find that overinvestment is associated with lower value for diversified firms, and that segments of diversified firms overinvest more than single-line businesses do. These results are consistent with one source of the value loss being greater propensity of multi-segment firms to overinvest. In addition, they find that the subsidization of poorly performing segments contributes to the value loss from diversification. Two potential benefits of diversification, tax shields and the ability of multi-segment firms to immediately realize tax savings are found too small to offset the documented value loss.

Comment and Jarrell (1995) find a negative relation during 1978-89 between abnormal stock returns and several measures of diversification, including the number of segments reported by management and revenue and asset based Herfindahl indexes. They also show that diversified firms do not have some of the benefits of diversification: debt does not increase systematically with diversification; access to external capital market transactions by diversified firms is not less than the single-segment firms. They find some evidence showing that diversification does make firms more likely to be takeover targets.

John and Ofek [J&O(1995)] focus as an important motive for divestitures. It is important because selling the unrelated asset leads to an increase in focus and more efficient operation of the core business. Value gains come from better management of the assets remaining after divestiture. J&O conduct a series of tests to determine whether focus is an important explanation for seller gains. They find that the seller's operations become more focused in the year of the divestiture; there is an increase in the Herfindahl index and a decrease in the number of reported lines of business; and in 75 % of the cases, the divested division is unrelated to the seller's main operations.

J&O find that the firm's remaining assets are more profitable after the divestiture by examining several accounting measures of performance, such as operating margin and return on assets. This evidence support the focus hypothesis that eliminating negative synergies between divested asset and the remaining assets should lead better performance for the remaining assets after the divestiture. They also find that the average cumulative excess return to the seller on the two days preceding and the day of the divestiture announcement is positive, and positively related to different measures of increase in focus. They conclude that the positive relationship between the change in firm value around the divestiture announcement and cash flow changes for the seller's remaining assets for the three years following the sale implies that the positive excess return is at least partly generated by the anticipated increase in cash flows of the remaining assets.

Serveas (1996) states that diversification was perceived poorly by capital markets during the 1980s, the current trend toward corporate focus is consistent with this notion. He examines whether this is also case during the 1960s and 1970s when firms moved toward diversification. If diversification was perceived positively when it started, then it may be argued that the current wave of de-diversification (more focus) is due to technological or other changes with reduce the benefits of diversification.

He finds no evidence that diversified firms are valued more than single segment firms in the 1960s and early 1970s, on the contrary, for several years diversified firms sell at a substantial discount when compared to single segment firms. This discount is large and significant over the 1961-70, but it becomes small and insignificant in 1973-76. These results hold after controlling for industry effects and for differences between diversified and undiversified firms in profitability, leverage and investment policy. He conclude that the

pattern of insider ownership over the sample period provides some clues that can explain the behavior of corporations. When diversified firms were selling at a discount to single segment firms, they also had lower insider ownership than single segment firms, but when discount was eliminated, there was little difference in insider ownership between two groups. These results suggest that insider ownership was an effective deterrent to diversification.

3. VENTURE CAPITALISTS, REPUTATION OF INVESTMENT BANKERS, AND INSTITUTIONAL OWNERSHIP INTERACTIVE EFFECTS

Since Ritter (1991) and Loughran and Ritter (1995) documented the long-term return anomaly for IPOs, several recent researchers have directed their attention on the long-term underperformance puzzle of IPOs. It is documented that factors, such as venture capitalists, reputation of investment bankers, and institutional ownership are associated with the long-term performance of firms going public. In this study, we also analyze the long-term performance of IPOs using alternative performance measures. However, we examine the interactive effects of venture capitalists, reputation of investment bankers, and institutional ownership on the long-term performance of IPOs, in addition to examining the role of these factors independently.

3.1 Venture Capitalists and Investment bankers' reputation Effects

Recent studies associated with the ongoing long-term underperformance puzzle have shown that the long-term underperformance of IPO firms is related to investment and institutional characteristics of the IPO activities. Specifically, the role of venture capitalists and investment bankers' reputation have gained considerable empirical support in explaining the different performance of IPO firms. Brav and Gompers (1997) show that venture-backed IPOs have superior performance over nonventure-backed IPOs. Carter, Dark, and Singh (1998), however, attribute the long-term underperformance to the low reputation of underwriters. They find that the long-term underperformance is smaller for IPO firms

associated with high reputable investment bankers.

In this study, we argue that a joint analysis of venture capitalists and investment bankers' reputation is warranted. The reason is that venture capitalists and underwriters are unlikely to act independently and, therefore, it is not clear whether these two elements of the underwriting process have independent or joint effects on the long-term performance of IPO firms. Since venture capitalists and the reputation of investment bankers may reflect the information about quality of IPO firms, indicating relatively better long-term performance, it is possible that they have a joint influence on the superior performance. The simultaneous analysis of the interactive effects of these factors would allow us to determine which one of the two factors is more influential of the long-term performance of IPO firms. For example, the comparison of the long-term performance of venture-backed IPOs underwritten by high reputable investment bankers with nonventure-backed IPOs underwritten by high reputable investment bankers will shed more light on the debate of long-term underperformance of IPOs.

There are several reasons that explain the superior long-term performance of venture-backed IPO firms. Venture capital is an important source of financing for start-up companies. Newborn firms with high growth opportunities are likely to be subject to potential capital constraints and information asymmetries. Venture capitalists who specialize in financing firms with high growth opportunities and bringing them public have the abilities to take care of these difficulties. Furthermore, venture capitalists provide access to top tier national investment and commercial banks. So that, the investment behavior of venture-backed firms would be less dependent upon internally generated cash flows. Venture capitalists' presence on the board of directors of firms that they back after firms issued IPOs reduces agency cost

problems by monitoring managers' activities. Moreover, venture capitalists have contacts with top tier investment bankers and may be able to attract more and high quality analysts to follow their firms. Therefore, venture capitalists help to reduce informational asymmetries between the firm and investors as well as between the firms and underwriters.

Venture capitalists take an investment risk by financing firms with high growth opportunities because they have responsibilities to several sources that provide funds, such as wealthy individual investors, investment bankers, subsidiaries of banks and other corporations. In return for taking such an investment risk, venture capitalists should be rewarded with above average future returns. Therefore, venture capitalists certify the quality of the firms and its future growth opportunities. Finally, venture capitalists are likely to be concerned with the preservation of their reputation in bringing firms public. If venture-backed firms do not perform well, venture capitalists may ruin their reputation and ability to bring firms public in the future.

The joint analysis of venture capitalists and investment bankers' reputation is warranted by the fact that venture capitalists and investment bankers may not act independently. It is quite possible that high reputable investment bankers, concerned with the preservation of their reputation and the fee structure associated with IPOs, are likely to prefer underwriting firms financed by venture capitalists. Ritter and Chen (1998) have recently shown that most of the investment bankers charge a standard fee as the rate of 7% of the per-share offering price in IPOs. If all underwriters charge the same fee, firms going public would logically prefer high reputable investment bankers with the expectation that high reputable investment bankers would help them raise capital at more favorable terms (i.e., less underpricing). However, high reputable investment bankers will be selective in protecting

their reputation by underwriting IPOs with high growth prospects. Venture-backed IPOs signal such high growth prospects that would unlikely be ignored by investment bankers. In addition, the asymmetric information gap between investment bankers and issuer firms can be reduced because venture capitalists can also resolve the uncertainty of a firm's true value. Thus, investment bankers can sell IPOs without having deep discounts.

One could also argue that venture capitalists decide to back IPOs that are in the process of being underwritten by high reputable underwriters. Firms whose issues are expected to be underwritten by high reputable investment bankers may be seen as firms that can provide adequate investment returns at a far lower risk by venture capitalists. Since, venture capitalists may have concerns about the underwriting procedure especially in the pricing process for stocks that they back, they may favor firms that are likely to be underwritten by reputable underwriters.

On the other hand, venture capitalists may be indifferent to the reputation of investment bankers. Venture-backed IPO firms may not need prestigious underwriters to certify firm quality and future cash flow prospects of the venture capitalists. Therefore, if the reputation of investment bankers is irrelevant to the long-term performance of IPO firms, venture-backed IPOs to be underwritten either by more or less reputable investment bankers would have similar performance.

The above discussion suggests that venture-backed IPOs are more likely to be underwritten by high rather than low reputable investment bankers. Venture-backed IPOs underwritten by high reputable underwriters are expected to suffer from mild underperformance, if any. These IPO firms' overperformance is very possible. This would imply that the interactive effects of two factors are responsible for the superior performance.

However, our analysis is designed to identify whether venture capitalists or high reputable investment bankers derive this result. This is accomplished by examining the long-term performance of IPO firms associated with combinations such as venture-backed (nonventure-backed) and high (low) reputable investment bankers as well as their cross combinations (i.e., venture-backed (nonventure-backed) and low (high) reputable investment bankers).

Nonventure-backed IPOs, however, are likely to seek certification through the reputation of investment bankers. Therefore, nonventure-backed IPOs can be underwritten by high or low reputable investment bankers. If the reputation of investment bankers signals the long-term performance, nonventure-backed IPOs underwritten by low reputable investment bankers are expected to have the worst performance. However, for nonventure-backed IPOs underwritten by high reputable investment bankers, it would be interesting to see whether high reputable investment bankers mitigate the wealth hazard from underwriting nonventure-backed IPOs. If the reputation of investment bankers is unrelated to the long-term performance of IPO firms, the performance of two groups (nonventure-backed IPOs underwritten by low reputable investment bankers and nonventure-backed IPOs underwritten by high reputable investment bankers) should be similar.

3.2 Institutional Ownership Effects

Outside investors as potential buyers of IPO issues are institutional (large) investors and small investors. The major distinguishing feature between these two classes of investors is that institutional investors have the ability to monitor the activities of management in the firm while small investors do not. Substantial equity ownership by institutions encourages them to monitor managers more carefully. This can motivate managers to improve

performance of their firms. Empirical studies show that institutional ownership affects firm value⁴.

In fact, institutional ownership has been shown in the literature as another factor that affects the long-term performance of IPO firms. The empirical evidence indicates that the long-term underperformance of IPOs is associated with the low institutional ownership of IPO shares. Fields (1996), for instance finds that IPOs having larger institutional shareholdings significantly outperform those with smaller institutional shareholdings. Krigman, Shaw, and Womack (1998) also find that heavily flipped IPOs (sold in block trades by institutional investors on the first day) significantly underperform IPOs with less flipping over one year holding period. This result implies that institutional investors bid and gain a larger allocation of stronger IPOs, leaving a disproportionate share of weaker IPOs for the smaller investors.

Meggison and Weiss (1991), however, show that institutional ownership after an IPO is substantially higher for venture-backed IPOs than they are for nonventure-backed IPOs. The implication of this research is that institutional investors' IPO commitments seem to be associated with venture capitalists. One would also think that the weaker underperformance of IPOs underwritten by high reputable underwriters is because of high institutional ownership stakes in these IPO firms.

In this study, we also examine the effects of institutional ownership on the long-term performance of IPOs by taking into account the role of venture capitalists and reputable

⁴ McConel and Serveas (1990) examine whether monitoring by institutional investors affects the value of the firm. They find a positive relationship between firm value and the percentage of shares held by institutions. See also the work by Agrawal and Mandelker (1990).

nature of underwriters. A simultaneous analysis is conducted between institutional ownership and venture capitalists, and the reputation of investment bankers. First we examine the interactive effects of institutional ownership with the reputation of investment bankers on the long-term performance of IPOs. Since IPO firms with high institutional ownership and underwritten by high reputable investment bankers are associated with better performance, one should expect that IPOs, underwritten by high reputable investment bankers and high institutional investors would perform well. When IPO firms are underwritten by low reputable investment bankers and institutional ownership is low, it is expected that they have the worst performance. Examining the performance differences between IPO firms, underwritten by high reputable investment bankers, with high (or low) institutional ownership and IPO firms, underwritten by low reputable investment bankers, with high (or low) institutional ownership would explain the factors behind the long-term underperformance of IPOs.

Finally, we investigate the interactive effects of institutional ownership and venture capitalists on the long-term performance of IPOs. This kind of simultaneous analysis is expected to make additional contribution to the long-term underperformance literature.

4. CORPORATE STRUCTURE AND LONG-TERM PERFORMANCE OF IPO FIRMS

There are two dimensions of the theoretical arguments for the effects of corporate diversification on firm value. The potential benefits of diversification include greater operating efficiency, less incentive to forego positive net present value projects, greater debt capacity, and lower taxes. Furthermore through diversification, managers create a larger internal capital market, which allocates resources more efficiently and also reduces asymmetric information between managers and outside investors. Thus, diversification reduces the underinvestment problem described by Myers (1977) and Myers and Majluf (1984). Conglomerates can sustain higher levels of debt because corporate diversification reduces earnings variability. Increased debt capacity creates value by increasing interest tax shield.

The potential cost of diversification arises from the agency problems between managers and shareholders. According to this argument, managers diversify to protect the value of their human capital, and as Jensen (1986) explained, companies diversify to increase the private benefits of managers. Jensen states that managers of firms with unused borrowing power and large free cash flows are more likely to undertake value-decreasing investments. Stulz (1990) also argues that diversified firms will invest too much in lines of business with poor investment opportunities.

Empirical studies by Serveas (1996), John and Ofek (1995), Berger and Ofek (1995), Comment and Jarell (1995), and Lung and Stulz (1994) document an inverse relation between firm value and corporate diversification. All these studies conclude that the costs of diversification outweigh its benefits.

In this paper, we also address this issue in the context of IPOs by taking into consideration the industrial (business) diversify of the firm. Since diversification is found as a value decreasing strategy, it could also be related to the long-term underperformance of IPOs. Therefore, we examine whether there is a link between the long-term performance of IPOs and corporate diversification. This is accomplished by dividing the sample into multi and single-segment firms. If there is an effect of corporate structure consistent with previous evidence of the diversification discount literature, we expect focused (single-segment IPO) firms to overperform diversified (multi-segment IPO) firms.

5. DATA AND METHODOLOGY

5.1 Data Selection and Sources

In this study, we use a sample of IPOs issued from January 1, 1989 through December 31, 1994. Firms conducting IPOs are collected from various issues of *Corporate Finance: the IDD Review of Investment Banking published by Investment Dealers' Digest, Inc.* IPOs with at least one dollar offer price have included in the sample. Since our focus is to examine both operating and stock performances of IPOs, we also require that the COMPUSTAT annual and research tapes have data for each firm for the fiscal year prior to the IPO. We do not require that these firms have post-IPO financial data on the COMPUSTAT tapes. In terms of calculating stock performance of IPO firms, some of the IPOs can be delisted before their three-year anniversary, but all other data are required to be complete. We exclude financial companies whose two-digit SIC codes are between 60-67 including banks, savings and loans, closed-end funds and real estate investment trusts, partnership, and unit offerings. Our final sample covers 456 IPOs. Two hundred two out of 456 began trading on the NYSE, forty-two on the AMEX and two hundred twelve on Nasdaq.

Table 1 presents summary statistics for our sample. Panel A of table 1 shows the number of IPOs per year in the sample period. Even though the number of IPOs issued in 1989 and 1990 is less than that in the other years, there is no specific year having the number of IPOs with a large difference. Panel B covers characteristics of IPOs. Information about the number of shares offered by the firm, the number of shares offered by current shareholders, and the offering prices are obtained from the same source, *Investment Dealers' Digest of Corporate Finance*. Using this information, total value of issue, percentage of shares offered by current holders are calculated. The mean total value from all 456 offerings is \$61.5 million.

19.6 percent of this total average value was provided by current shareholders. The mean of offer price is \$13.29. Average initial return is 11.1 percent. Initial return is defined as the difference the first day market price and the offering price as a proportion of the offering price. Initial market prices are determined by using the 1997 CRSP NYSE/AMEX and Nasdaq files. Variables prior to offering are calculated using related data items from COMPUSTAT annual and research tapes. Panel C and D of table 1 show industry groups of IPOs according to two-digit and four-digit SIC codes, respectively. Fifty five percent of IPOs is manufacturing firms, coming from especially chemicals, computer and computer related industries. Communications, Electric, Gas, and Sanitary Services, Retail Trade, and Services (especially business related) are the other dominant industry groups. The classification of IPOs according to four-digit SIC codes indicates that IPO firms in the sample come from 200 different industries.

The names of venture capitalist IPOs are obtained from the Securities Data Corporation (SDC) Database. If an IPO firm is not listed for being a venture financed, this firm is classified as non-venture capitalist IPO firm.

We get the names of Investment bankers involved IPOs from two different sources: A large proportion of the investment bankers come from the *Corporate Finance: the IDD Review of Investment Banking published by Investment Dealers' Digest, Inc.* Underwriters for the year 1991 and first half of the year 1992 are missing in this source. The names of investment bankers for these periods are obtained from the SDC database.

To measure the reputation of investment bankers, we use two classifications. One classification is Carter-Manaster (CM) investment bankers' reputation measure based on

tombstone advertisements⁵. Carter, Dark, and Singh (1998) give an alphabetical list of investment bankers with updated Carter-Manaster ranks. The CM measure is a discrete underwriter reputation variable from zero to nine where a nine is the most prestigious underwriter and zero is the least prestigious underwriter. Carter, Dark, and Singh (1998) classified IPOs as low, medium and high reputation groups, if they are underwritten by investment bankers with CM measure between zero and five, five and eight, and higher than eight, respectively. Since the number of IPOs underwritten by investment bankers with CM measure below than five in our sample are very few, we create two reputation groups, high and low (we can also say not high). The low reputation group (LR) consists of IPOs underwritten by investment bankers with CM ranks lower than eight. The high reputation group (HR) consists of CM ranks eight and above. So that, the medium group of Carter, Dark, and Singh (1998) is accepted as a low reputation group in our classification.

An alternative measure for the reputation of investment bankers is used relying on the SDC's underwriters ranking for 1996 as another classification to measure the reputation of investment bankers. The SDC ranks investment bankers according to their market share. If an investment bank involved, IPOs are ranked in top ten in the SDC's ranking, these IPOs are included in the high reputation group. Otherwise, they are included in the low reputation group. The list of SDC's Investment bankers ranking is given at the appendix.

COMPUSTAT Business Segment Description Report is used to extract information for segments that represent 10% or more of consolidated sales. In this data set, secondary SIC codes are also provided for the related industries of a firm's base industry determined by

⁵ Carter-Manaster ranking procedure for 1979-1984 period is explained in Carter and Manaster (1990). Carter, Dark, and Singh (1998) reestimate Carter-Manaster ranking and update for 1985-1991 period using the same procedure.

a primary SIC code. Using this information, we set two classification measures to separate IPO firms as diversified (multi-segment) and focused (single-segment). Classification of firms is made each year from year -1 to year +3.

First, we classified firms according to two-digit SIC codes by comparing primary SIC code with secondary SIC codes. IPO firms with two or more different two-digit SIC codes are classified as multi-segment. Firms are defined as single segment firms if they are given only one two-digit SIC code. With this classification, we find 201 IPOs issued by multi-segment firms and 251 by single segment firms.

The second classification is made by segment information. Firms with only one segment information are classified as single-segment, and firms with two or more segments are classified as multi-segment IPO firms. We find only forty IPOs issued by multi-segment firms. Twenty-five companies have two segments, ten companies have three, and only five out of 40 multi-segment IPO firms have four segments. In addition to this, two companies diversified at zero year (the offering year), one company at +1, two companies at +2, and three companies diversified at the +3 year. In this sample, there are also very few companies that they become single segment firms after the offering. Only two companies increased their segment after the offering year.

The information for ownership structure of IPO firms, regarding shares held by institutional investors, large blockholders, and insiders, at the end of the offering year is obtained from the *Compact Disclosure Database*. If institutional investors have stakes in an IPO firm greater than the median value of institutional ownership of the IPO sample at the end of the offering year (year 0), the IPO firm is classified as the firm with high institutional ownership (HIGH-INST). An IPO with low institutional ownership (LOW-INST) is the one

that institutional investors' participation in this IPO firm is less than the median value of the sample.

5.2 Methodology

5.2.a. Unadjusted Measures of Operating Performance

We use several measures of operating performance. The first measure is operating return on assets, which is operating income before depreciation divided by total assets (COMPUSTAT data item 13 divided by data item 6). The second operating performance measure is operating cash flows scaled by total assets. This measure is calculated as operating income before depreciation minus capital expenditures divided by total assets (COMPUSTAT data item 13 minus data item 128 divided by data item 6). The third measure is the operating margin which consist of operating income before depreciation divided by total sales (COMPUSTAT data item 13 divided by data item 12). We also use three other accounting measures to capture the growth opportunities of IPOs. These are sales (COMPUSTAT data item 12), capital expenditures (COMPUSTAT data item 128), and research and development expenses (COMPUSTAT data item 46). The last two measures are scaled also by total assets. We also use an approximation of Tobin's q, which is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [COMPUSTAT (data item 24 multiplied by data item 25) + data item 10 + (data item 5 - data item 4) + data item 9 divided by data item 6]. An alternative performance measure that is used in the analysis is the book-to-market ratio. Book value is defined as common equity plus balance sheet deferred taxes (COMPUSTAT data item 60 plus data item 35) and market value is the product of common shares outstanding and share price at the end

of the year (COMPUSTAT data item 24 multiplied by data item 25). The last operating performance measure used is excess market value. Excess market value is defined as the difference between market value of outstanding shares and book value of equity divided by total sales[COMPUSTAT ((data item 24 x data item 25) - data item 60)/data item 12].

The change in operating performance in offering year (year 0) and three-years after the offering is measured as a percentage change relative to year -1 (the fiscal year prior to the IPO)⁶. We measure the percentage changes in operating performance as follows:

the median value of {operating performance variable_i (t) - operating performance variable_i (-1) divided by operating performance variable_i (-1)},

where i represents the firm, -1 represents the fiscal year prior to the IPO, and t represents the post-IPO fiscal year end (i.e., t equals to 0, 1, 2, 3.)

Furthermore, the long-term performance of IPOs is evaluated using buy-and-hold returns (BHRs). The BHR is defined as the geometrically compounded return on the stock in time t. We calculate BHRs for several long-term periods as follows:

$$R_{3 \text{ to } T} = \left[\prod_{t=3}^{\text{Min}[T, \text{Delist}]} (1+r_{it}) \right] - 1$$

where r_{it} is return for firm i on day t; $R_{3 \text{ to } T}$ is the raw buy-and-hold return for firm i beginning on the third trading day for the IPO, extending to T days after the IPO issue. We use four buy-and-holding periods. The first period spans from 3 day to 1 month (25 days), second is from 3 day to 1 year (253 days), third is from 3 day to 2-year (506 days), and fourth is from 3 day to three-year (760 days) after. If a firm is delisted during the period, buy-and-hold

⁶ Since there is no market data available at year -1 to calculate Tobin's q and book-to-market ratio as alternative performance measures, the percentage changes in these variables is calculated starting from the end of the offering year, year 0.

period ends at the delisted day.

5.2.b. Adjusted Measures of Operating Performance

We also estimate adjusted BHRs for the IPO sample against several alternative benchmarks. We use the CRSP NYSE/AMEX/ Nasdaq value-weighted index, CRSP NYSE/AMEX/Nasdaq equally-weighted index and S&P 500 index as market indicator benchmarks. BHRs of IPO firms are adjusted by subtracting the contemporaneous CRSP NYSE/AMEX/Nasdaq value-weighted, equally-weighted market returns, and S&P 500 index returns:

$$\text{Adjusted } R_{3 \text{ to } T} = \left[\prod_{t=3}^{\text{Min}[T, \text{Delist}]} (1+r_{it}) - \prod_{t=3}^{\text{Min}[T, \text{Delist}]} (1+r_{\text{benchmark},t}) \right]$$

Fama (1998) states that much of the apparent over and underperformance in the long-term disappears when common factors such as size and book-to-market effects are controlled for. To address this issue Lyon, Barber, and Tsai (1998) recommend that “researchers compare sample firms to the general population on the basis of these factors.”

To control for size, book-to-market, and industry effects, we match each IPO firm with a publicly traded firm using these factors. Our method matches firms according to size and book-to-market ratio along with two-digit industry classification. Firms in the same two-digit SIC classification with IPO firms are matched based on size measured by market value of outstanding shares, and book to market ratio. We require that the matching firm’s size and book-to-market ratio be within 25 % of the size and book to market ratio of the firm going public. We do not match firms if they went to public prior to 1986 which is three years before

our IPO sample period. If we find more than one matching firm for an IPO firm, we take the one that went public earlier than others. This matching procedure reduces our sample from 456 to 367.

BHRs based on size/book-to-Market/Industry are used as another alternative benchmark to calculate adjusted BHRs. We also calculate adjusted percentage change for the other operating performance measures by using these matching firms. In this case, the percentage size/book-to-market/industry adjusted performance of an IPO firm is the difference between its percentage change in operating performance and the percentage change in operating performance of the matching firm.

Finally, a cross sectional regression analysis is performed to examine the relation between alternative measures of performance, Y_i , and a set of influential factors. The cross-sectional regression analysis is conducted using the following regression model:

$$Y_i = b_0 + b_1 \text{VBDUMMY} + b_2 \text{REPDUM} + b_3 \text{DIVDUM} + b_4 \text{ISSUE} \\ b_5 \text{SECOND} + b_6 \text{INST} + b_7 \text{LARGE} + b_8 \text{INSD} + e_i$$

The independent variables of this model consists of three alternative indicator variables. VBDUMMY is the first dummy variable indicating whether an IPO firm is venture-backed or not. It takes the value of 1 if the IPO firm is backed by a venture capitalist, and zero otherwise. REPDUM is the dummy variable that measures the effect of investment bankers' reputation on the dependent variable. It takes the value of 1 if an IPO firm is underwritten by a high reputable investment banker, and zero otherwise. The third dummy variable (DIVDUM) measures for corporate diversification of the IPO firm. It takes the value of 1 when a firm is defined a single segment IPO firm which consists of only one 2-digit SIC

code. For an IPO firm with two or more differently two-digit SIC codes labeled as Multi-Segment IPO firm, it takes the value of 0. The analysis includes a set of control variables as well. Issue size (ISSUE) is defined as the total value of the offering divided by total assets of the firm at the year prior to the offering (year -1). The SECOND variable refers to the percentage of the total issue offered by current shareholders. These two variables are documented as having an effect on both the short- and long-term performance of IPO firms. For instance, Carter, Dark, and Singh (1998) and Mikkelsen, Partch, and Shah (1997) show the effect of these variables in their analysis. We also account for ownership effects into the regression analysis. These are represented by the percentage of shares held by institutional (INST), blockholders (LARGE), and Insiders (INSD).

6. EMPIRICAL RESULTS

6.1 Long-Term Operating Performance of IPO Firms

Table 2 presents median annual operating performance measures of IPO firms for multiple periods and changes in them for post-issue years, year 0 (offering year), +1, +2, and +3 relative to year -1 (the fiscal year prior to the IPO). Operating performance changes are also adjusted by subtracting the performance changes of firms matched with IPO firms by size and book to market ratio along with corresponding two-digit industry classification.

The operating return on assets measure indicates that there is no statistically important change for IPO firms from year -1 to zero (the year of the IPO). However, this performance measure significantly declines for years +1, +2, and +3 relative to year -1. The median changes in operating return on assets decline significantly by 13 percent, 18 percent and 19 percent for these post-issue years. The median size/book-to-market/industry adjusted operating return on assets shows a similar trend of declining performance. For this adjusted performance measure, although declines in the median adjusted operating return on assets are less pronounced, the wilcoxon test statistic is significant for years +2 and +3 relative to year -1. This result shows that, in the long term, declining performance of IPO firms cannot be attributed to firms that are similar and in the same industry with them.

Operating cash flows scaled by total assets seem to follow the same direction with operating return on assets. Cash flows decline 16 percent from year -1 to 0 (not statistically significant change) and 31 percent, 40 percent, and 42 percent (all significant at 1 percent level) for years +1, +2, and +3. Significant negative median size/book-to-market/industry adjusted changes in cash flows again indicate that IPO firms suffer more than similar firms in

the same industry.

The above results show that the median levels of operating return on assets and cash flows of IPO firms decline over time relative to their pre-issue levels, while corresponding levels for their matched firms decline by a lesser amount. However, this doesn't mean that IPO firms have worse operating performance than similar firms. In Table 2, we also present both median operating performance and adjusted operating performance levels for year -1 and year 0. (For market value related operating performance measures, we report the performance levels for all years in Table 2.) It is shown that the median adjusted operating performance levels for both measures are close to zero. We can easily infer from this result that IPO firms and their industry peers have similar operating performance.

The results for the other performance measure, operating margin, suggest a significant increase over all time windows. However, adjusted operating margin figures show that there is no difference between IPO firms and their counterparts. This shows that IPO firms increase their profitability as much as their industry peers do. Consequently, declines in operating performance cannot be related the lack of profitability.

There could be several reasons for the decline in operating performance of IPO firms. First of all, declines in post-issue operating performance of IPO firms can be expected if these firms do not generate enough sales or managers fail to maintain the required levels of capital expenditures relative to pre-issue levels. To examine this issue, we also look at the raw and adjusted sales and capital expenditures growth for IPO firms. In Table 2, the median change in sales growth and the ratio of capital expenditures to total assets before and after adjustment are reported. It is shown that IPO firms experience increasing trends in terms of these measures. The median increases in sales measured relative to year -1 are 24 percent, 56

percent, 90 percent and 127 percent (all significant at the 1 percent level) for years 0, +1, +2, and +3, respectively. Adjusted figures show that IPO firms have sales greater than similar firms in the same industry in years +1, +2, and +3 relative to year -1. Over the year -1 to +1 period, IPO and matching firms have similar sales growth. Capital expenditures scaled by assets figures also show significant growth for years +1, +2, and +3 relative to year -1. The adjusted numbers provide the information that IPO firms increase their capital expenditures 24 percent and 20 percent (both numbers are significant) in years +1 and +2, and 12 percent (not significant) in year +3 more than similar firms. The trend of median changes in sales and capital expenditures imply that declines in operating performance cannot be associated with lack sales growth, and investments of IPO firms.

We also study value-based operating performance measures of IPO firms. These measures are Tobin's q, book-to-market ratio and excess market value. Since there is no available information for the firms's market value prior to its offering, we present the median change of these measures for years +1, +2, and +3 relative to year 0, the offering year. Tobin's q figures show that the value of the firm declines in the post-IPO period. For instance, the median change in Tobin's q measure is 27 percent before adjustment and 0.3 percent after adjustment for year +3 relative to year 0. The median book-to-market ratio for IPO firms increases 37 percent and 8 percent relative to similar firms over three years, indicating also declines in market value. Excess market value of IPO firms also declines significantly at the post-IPO period. For instance, the excess market value of IPO firms declines 8 percent more than similar firms over three year post-issue period.

[Insert Table 2 About Here]

6.2 Long-Term Operating Performance and the Role of Venture Capitalists, the Reputation of Investment Bankers, Institutional Ownership, and Corporate Structure

The results from the previous section suggest that IPO firms' performance over the three year period after going public are consistent with the findings of Jain and Kini (1994) and Mikkelson, Partch, and Shah (1997)⁷. Recent studies associated with the ongoing long-term underperformance puzzle have shown that some of the IPO firms have different long-term performance than others when performance is measured by buy-and-hold stock returns. Brav and Gompers (1997) show that venture-backed IPOs have superior performance over nonventure-backed IPOs. Carter, Dark, and Singh (1998), however, attribute the long-term underperformance to the low reputation of underwriters. Fields (1996) finds that IPOs having larger institutional shareholdings significantly outperform those associated with smaller institutional shareholdings. We also use buy-and-hold stock returns to compare IPO firms. Unlike previous studies, we examine median changes in the operating performance measures for different types of IPO firms to determine whether operating performance of IPO firms is influenced by venture capitalists, reputation of investment bankers, institutional ownership, and firm's corporate structure.

6.2.a Long-Term Operating Performance and The Role of Venture Capitalists

Table 3 presents the median operating performance changes for venture and non-venture backed IPO firms and compares these two groups. The operating return on assets results show that operating performance declines for both venture and non-venture backed

⁷ Mikkelson, Partch, and Shah (1997) find significant declines in operating performance for unadjusted results 5 years after offering, but adjusted results do not become significant.

IPO firms. Declines in post-issue operating performance are not statistically different between the two groups. Similar results are obtained based on adjusted return on assets performance measure. The adjustment does not yield any difference between the two groups, either.

We find some evidence that declines in operating cash flows for venture backed IPO firms are less than non-venture backed IPO firms for the years +1, +2, and +3 relative to year -1. However, when operating cash flows is adjusted by size/book-to-market/industry, they do not yield any significant difference between the two groups.

The median operating margin increase over three years relative to year -1 for both venture and non-venture backed IPO firms, but there is no significant difference between the two groups.

Although the results for the median operating return on assets and operating cash flow changes indicate that operating performance of both venture and non-venture backed IPO firms declines relative to their pre-IPO levels, it is not clear whether operating performance levels of the two groups differ substantially. For instance, with the light of evidence that operating cash flows of venture backed IPO firms decline less than non-venture backed IPO firms, it is hard to argue that venture backed IPO firms have better cash flows. We plan to revisit this issue at the cross sectional level of analysis later.

We also find that the median sales, and capital expenditures increase over three years relative to year -1 for both venture and non-venture backed IPO firms. However, the results show that only the median sales growth is statistically different between the two groups. Venture backed IPO firms increase their sales more than non-venture backed IPO firms. This result is confirmed when we adjust it for size/book-to-market/industry. The results for growth in capital expenditures show that venture backed IPO firms have superior capital expenditures

growth in the third year relative to year -1 against both non-venture backed IPO firms and similar firms in the same industry.

In terms of performance measures related to the market value of IPO firms, Tobin's q and excess market value decline again for both venture and non-venture backed IPO firms. The median raw and adjusted changes for these measures, however, are not statistically different between the two groups (except in year +3 for Tobin's q). In terms of book-to-market ratio, the median increase in this measure for venture backed IPO firms is significantly less than non-venture backed IPO firms. However, adjusted results fail to yield significant differences.

[Insert Table 3 About Here]

6.2.b Long-Term Operating Performance and Investment Bankers' Reputation

The median operating performance changes for IPOs underwritten by high reputable (HR IPOs) and low reputable investment bankers (LR IPOs) and the comparison of these the two groups are presented in Table 4. Table 4 is split into two panels based on two different investment bankers' reputation classifications. While Panel A of Table 4 reports the results based on Carter-Manaster Investment bankers' reputation ranking, Panel B reports results based on Securities Data Corporations' investment bankers' reputation ranking.

As both panels indicate, the results are similar to those reported for all IPO firms in Table 2. The median value of operating return on assets, operating cash flows, Tobin's q, excess market value decline, and operating margin, book-to-market ratio increase for IPOs underwritten either by high or low reputable investment bankers in post-issue periods relative

to year -1. The median sales, and capital expenditures increase over time as well. Even though size, book-to-market along with industry adjusted median changes have less value, the trend remains basically the same.

As shown in Panel A, there are only a few statistical differences in the median operating performance changes between HR IPOs and LR IPOs, but slightly more being reported in Panel B. While statistical differences between both groups are in favor of IPO firms underwritten by low reputable investment bankers in Panel A, IPOs underwritten by high reputable investment bankers produce favorable results in Panel B. For instance, the median operating return on assets of IPO firms whose issues are underwritten by high reputable investment bankers decline 11 percent, and 15 percent for years +2 and +3 relative to year -1. IPO firms whose issues are underwritten by low reputable investment bankers declined by 29 percent and 32 percent changes for the same years. The differences between the two groups in two periods are statistically significant. Similarly, the median declines in operating cash flows deflated by total assets for high reputable IPOs are significantly less than those for low reputable IPOs. However, the adjusted median changes do not show the significant difference between the two groups for both operating performance measures.

[Insert Table 4 About Here]

With the results in Table 4, although there is evidence that the HR IPOs have superior operating performance relative to the LR IPOs group. However, it is not clear that the HR IPOs group has better performance levels than the LR IPOs. The cross-sectional regression analysis is designed to address this point further.

6.2.c Long-Term Operating Performance and Institutional Ownership

Empirical studies show that institutional ownership affects firm value. The argument behind this finding is that substantial institutional equity ownership encourages greater monitoring of managers. This can motivate managers to improve firms' performance. Therefore, it is expected that the IPO firms with higher institutional ownership in comparison to firms with lower institutional ownership to have superior operating performance. To test this conjecture, we examine the relation between our operating performance measures and the fraction of the shares held by institutional investors. We split the sample into the two groups based on the median value of institutional ownership of our sample at the end of the offering year (year 0). Hence, IPO firms with institutional ownership above the sample median will be referred to as IPO firms with high institutional ownership (HIGH-INST) and IPO firms with low institutional ownership below the sample median as low institutional ownership firms (LOW-INST).

The median performance results for the two groups are reported in Table 5. The operating return on assets results show that the median performance of firms with both high and low institutional ownership decline. Firms with high ownership show better performance relative to firms with the low ownership for years 0, +2, and +3 relative to year -1, with the difference being significant both before and after adjustment. (This is true except in the year +3. Adjusted return on assets change between the two groups is not significant.) For instance, the HIGH-INST group shows a median raw (size/book-to-market/industry adjusted) change of -13(1) percent in operating return on assets in comparison to a median raw (size/book-to-market/industry adjusted) change of -25(-20) percent for the LOW-INST group from year -1 to year +2. We also find that the HIGH-INST group has higher capital expenditure growth

for years 0 and +1 than the LOW-INST group, with the difference being significant at the 0.10 level. The results after adjustment do not yield significant differences between the two groups. There is no other evidence based on other operating performance measures showing that the HIGH-INST group is associated with superior performance relative to the LOW-INST group.

In general, we find just a little evidence that institutional investors with a higher percentage shares in equity of IPO firms improve the performance of these firms against firms that have lower institutional participation. However, this advantage of firms with high institutional ownership disappears against their industry peers.

[Insert Table 5 About Here]

6.2.d Long-Term Operating Performance and Corporate Structure

In this section, we study whether there is a link between the long-term performance of IPOs and corporate structure. Table 6 reports the median raw and adjusted operating performance changes based on the corporate diversification characteristics of IPO firms. The Z statistics are also presented to show whether there are performance differences between single- and multi-segment firms. Table 6 consists of two panels based on two corporate diversification classifications of IPO firms. Panel A reports IPO performance for single- and multi-segment firms based on two-digit SIC codes, while Panel B reports similar evidence based on the number of segments that IPO firms have operations.

Since diversification is found as a value decreasing strategy by Serveas (1996), John and Ofek (1995), Berger and Ofek (1995), Comment and Jarell (1995), and Lung and Stulz

(1994), it is hypothesized that decline in the long-term performance of single-segment IPO firms is likely to be less than multi-segment IPO firms. The results reported in Table 6 do not exhibit a clear significant difference between single- and multi-segment IPO firms either before or after adjustment. Except for the median changes in operating cash flows for years 0, +1, and +2 relative to year -1 shown in panel B, that demonstrate that the median value of cash flows of multi-segment IPO firms declines less than that of single-segment firms, the two groups are associated with the same median operating performance changes at the post-issue period. Thus, we conclude that the performance differences between single- and multi-segment IPO firms are indistinguishable.

[Insert Table 6 About Here]

6.3 Long-Term Operating Performance and Interactive Effects of Venture Capitalists, Reputation of Investment Bankers, and Institutional Ownership

In the previous section, we did study the relationship between the long-term performance of IPO firms and several factors that have been documented in IPOs literature as being related to the long-term performance of IPO firms. In this section, we examine the interactive effects of venture capitalists, investment bankers' reputation, and institutional ownership to determine the joint influence of these factors on the long-term performance of IPO firms.

6.3.a Venture Capitalists, Investment Bankers' Reputation and

Operating Performance of IPO Firms

Our evidence, this far, shows that the presence of venture capitalists and high reputable investment bankers in the IPO process yields relatively better long-term performance. However, it is quite possible that these two factors have a joint influence on the long-term performance of IPO firms. To determine which one of the two factors is more influential on the long-term operating performance of IPO firms, we split the IPO sample into four subsamples based on venture capital and investment bankers' reputation characteristics. The first two subsamples consist of (1) venture backed IPOs underwritten by high reputable (HR/VC) and (2) low reputable investment bankers (LR/VC), while (3) non-venture backed IPOs underwritten by high reputable (HR/Non-VC) and (4) low reputable investment bankers (LR/Non-VC) represent other two.

Table 7 presents raw and adjusted median percentage operating performance change differences for the four subsamples. In this table, we also report the Z and Chi-square statistics to test differences between groups. The table is designed to see which factor has more influence on the performance of IPO firms. For instance, if we detect a significant difference between HR/VC and LR/VC firms, since the common factor is venture capitalists in the two groups, we can argue that investment bankers' reputation derives the results. The comparison of HR/Non-VC and LR/Non-VC firms is expected to shed light in the same direction. If venture capital have greater influence on the long-term operating performance of IPO firms, we should expect to observe superior performance for the LR/VC firms over HR/Non-VC IPO firms. Similarly, we can arrive at the same conclusion if HR/VC firms show better performance than the LR/Non-VC firms. In addition to these results, if there is no

difference between HR/VC and LR/VC firms, as well as between HR/Non-VC and LR/Non-VC firms, this would supply that venture capital play a more crucial role in explaining the long-term performance of IPO firms. There is also a high probability that the two factors may have a joint influence on the performance of IPO firms. Evidence in favor of the joint effect should show that HR/VC firms have the best while LR/Non-VC firms have the worst performance.

Panel A of Table 7 reports post offering performance across different firms based on the Carter-Manaster reputation ranking of investment bankers' reputation. The results appear to be mixed. There is no clear evidence supporting that the effect of either investment bankers' reputation or venture capital is dominant. For instance, the median change in return on assets over 1 and 2 year periods shows that LR/VC firms (-6 percent and -13 percent) show significantly better performance than HR/VC (-16 percent and -18 percent) firms. This may be because, as we show in Panel A of Table 4, investment bankers' reputation measure based on Carter-Manaster ranking gives more credit to the low reputation group in our IPO sample. The same pattern is also observed between the HR/Non-VC firms and the LR/Non-VC firms for the years +1, and +2 relative to year -1. In this comparison HR/Non-VC firms (-7 percent and -14 percent) have superior performance relative to LR/Non-VC firms (-22 percent and -31 percent). Moreover, there is no substantial difference in return asset changes between HR/VC and LR/Non-VC firms, as well as between HR/Non-VC and LR/VC firms for the years +1 and +2, indicating that venture capital do not seem to create any substantial performance differences among IPO firms. The return on assets results are similar even after we adjust for size/book-to-market/industry. These results indicate that investment bankers' reputation plays a critical role in terms of affecting IPO firms' return on assets.

On the other hand, the evidence based on the median change in operating cash flows deflated by total assets and operating margin show that LR/VC firms show superior performance over HR/VC and HR/Non-VC firms for the years +1, and +2 relative to year -1. Moreover, HR/VC and HR/Non-VC firms have significantly less decline in cash flows than LR/Non-VC firms over the 1 and 2 year periods. While, the adjusted median changes in cash flows yield the difference between HR/VC and LR/VC groups, and between HR/Non-VC and LR/VC groups only at year +2, the same results are observed at year +1 for operating margin. These results imply that venture capital exert an influence on the changes in the operating performance of IPO firms.

The evidence based on sales growth clearly support a dominant venture capital effect. The median sales growth figures are 78 percent, 138 percent, and 205 percent for HR/VC firms for the years +1, +2, and +3. LR/Non-VC firms have 61, 82, and 97 percent sales growth at the same year periods. The differences between two types of firms are significant in every time windows. In addition to these results, LR/VC firms (93, 162, and 252 percent) have significantly greater sales growth than HR/Non-VC firms (43, 74, 100 percent) over 1, 2, and 3 year periods. Moreover, there is no significant difference in sales growth between HR/VC and LR/VC firms and between HR/Non-VC and LR/Non-VC firms. However, size/book-to-market/industry adjustments eliminate the differences. These results imply that venture capital play a dominant role on the median sales growth. The results for capital expenditures do not yield any significant differences among the four type of firms.

Based on Tobin's q, book-to-market ratio, and excess market value performance measuring, the results show that the LR/VC group has superior performance relative to the HR/Non-VC group for almost every time period. This result may imply that venture capital

eliminate the disadvantage of the low reputation factor. However, we find no evidence that the HR/VC group has better performance than the LR/Non-VC group. This is because, as we repeat, investment bankers' reputation measure based on Carter-Manaster ranking gives more credit to the low reputation group in our IPO sample. Consequently, low reputable investment bankers also play a role on the long-term operating performance of IPO firms.

In general, the evidence shows that the two factors have joint influence on the long-term operating performance of IPO firms. The Carter-Manaster investment bankers' reputation ranking produces the results in the favor of the LR/VC group. Moreover, the combination of low reputation and non-venture capitalists generate the worst operating performance for these IPO firms.

Panel B of Table 7 presents the results based on Securities Data Corporation's investment bankers' reputation ranking. In this panel, as in Panel A, the evidence suggests that both venture capital and investment bankers' reputation have an influence on the long-term operating performance of IPO firms. Based on operating return on assets, operating cash flows, and operating margins most of the time both HR/VC and HR/Non-VC firms appear to have superior performance over the LR/Non-VC group, indicating that both high reputation and venture capitalists factors affect the results. In this panel, size/book-to-market/industry adjusted median changes in operating performance measures eliminate the differences across the different type of firms.

[Insert Table 7 About Here]

6.3.b Investment Bankers' Reputation, Institutional Ownership and

Operating Performance of IPO Firms

In this section, we examine the interactive effect of investment bankers' reputation and institutional ownership on raw and adjusted median changes in operating performance measures for post-issue periods relative to year -1. The effect of investment bankers' reputation on the long term performance of IPO firms is demonstrated by Carter, Dark, and Singh (1998). Krigman, Shaw, and Womack (1998) and Fields (1996) find that IPOs having larger institutional shareholdings significantly outperform those associated with smaller institutional shareholdings. Since these two factors are shown as affecting the long-term performance of IPO firms, we examine if there is a joint influence of investment bankers' reputation along with institutional ownership the long-term performance of our IPO sample. We create four subsamples to test this conjecture. One subsample is called the HR/HINST group if IPO firms were underwritten by high reputable investment bankers and have institutional equity ownership greater than the median of the IPO sample. If IPO firms were underwritten by high reputable investment bankers and have institutional equity ownership less than the median of the IPO sample, they are classified as HR/LINST firms. The other two subsamples are LR/HINST firms with the combination of low reputable investment bankers and institutional equity ownership greater than the median of the IPO sample and LR/LINST firms If IPO firms were underwritten by low reputable investment bankers and have institutional equity ownership less than the median of the IPO sample .

Table 8 reports median changes in operating performance measures for the four subsamples. Table 8 is separated into two panels. Reputation classification of IPO firms is accomplished by using Carter-Manaster investment bankers' reputation rankings in Panel A,

and Securities Data Corporation's rankings in Panel B. As shown in Panel A, there is no supporting evidence in favor of the two factors having a joint influence on IPO firms' long-term performance. However, in Panel B, we are able to distinguish subsamples in terms of operating return on assets. The HR/HINST group shows superior performance over the LR/HINST group for years +1, and +3, and over the LR/LINST group for all time windows relative to year -1. On the other hand, we find that the LR/HINST group has similar performance with the HR/LINST group in all long-term time windows. Consequently, high institutional ownership in IPO firms underwritten by low reputable investment bankers is associated with firms that have superior long-term performance. We interpret these results as evidence consistent with the view that institutional ownership stakes in IPO firms underwritten by reputable investment bankers to have an influence on the long-term performance of these firms.

In addition to the above results, we show that the HR/HINST group has the least declines in operating return assets, while the LR/LINST group shows the worst performance. For instance, while the median in operating return on assets declines 2 percent, 10 percent, and 14 percent for years +1, +2, and +3 relative to year -1 for the HR/HINST group, declines are 15 percent, 23 percent, and 39 percent for the LR/LINST group in the same periods, respectively. When we adjust the performance measures by size/book-to-market/industry the results remain essentially similar for all four type of firms , indicating that the median changes in operating return on assets for the four subsamples are not different than their counterparts. Unfortunately, the results for the other performance measures do not yield any significant results.

[Insert Table 8 About Here]

6.3.c Venture Capitalists, Institutional Ownership and

Operating Performance of IPO Firms

We also investigate the interactive effects of institutional ownership and venture capitalists on the long-term performance of IPO firms. It is shown by Megginson and Weiss (1991) that institutional ownership after an IPO is substantially higher for venture backed IPO firms than non-venture backed IPO firms. Thus, with a simultaneous analysis of venture capitalists and institutional ownership, we will be able to test whether the better long-term performance of venture backed IPO firms is because of high institutional ownership stakes in these IPO firms. For this kind of simultaneous analysis we split our sample into four groups based on venture capital and institutional ownership characteristics of IPO firms. Hence, the VC/HINST (Non-VC/HINST) group represents venture backed (non-venture backed) IPO firms with institutional equity ownership in excess of sample median. The VC/LINST (Non-VC/LINST) group is venture backed (non-venture backed) IPO firms with institutional equity ownership less than the median of the IPO sample.

Table 9 reports the median change differences in operating performance measures among those four groups for different post-issue periods relative to year 1. If venture capital and institutional investors have a joint influence on the long-term performance of IPO firms, we should expect the VC/HINST group to have the best performance (or the least decline in operating performance) among the four groups. Moreover, if institutional investors have more influence on the long-term performance of IPO firms than venture capital do, we should expect the Non-VC/HINST group to show similar performance over the VC/HINST group and similar or superior performance relative to the VC/LINST group. The results from Table 9 do show a pattern to support above two statements. First of all, the VC/HINST group is

not the one that shows the least declines in all operating performance measures for the all long-term time windows. The VC/LINST group also shows superior performance over the Non-VC/HINST and Non-VC/LINST groups, especially in the median change based on tobin's q and book-to-market ratio. However, with the exception of the median change in operating cash flows for years +1, and +2 relative to -1, the Non-VC/HINST group shows similar performance against either the VC/HINST group or the VC/LINST group based on all other performance measures. These results imply that neither venture capital nor institutional investors have more influence on the long-term changes in operating performance of IPO firms. They have a joint influence on the results. Hence, the presence of higher or lower institutional ownership with venture capitalists or without them affect the long-term operating performance of IPO firms.

[Insert Table 9 About Here]

6.4. Long-Term Buy-and-Hold Periods Stock Returns of IPO Firms

6.4.a Initial Returns

Even though the main goal of this study is to examine the long-term performance of IPO firms, we also look at the initial returns of IPO. Table 10 reports the initial return results. The mean (median) initial return is 11 (5.2) percent for all IPOs in the sample. We also observe that venture back IPO returns are larger than non-venture back IPO returns. The mean (median) initial return for venture-backed IPOs is 14.1 (8.9), and for nonventure-backed IPOs is 8.9 (4.4). The difference is statistically significant at the 0.05, or better. This is consistent with the long-term results of Brav and Gompers (1997). It is interesting to note the

short- and long-term performance of IPO firms is also consistent with the results of Krigman, Shaw, and Womack (1998). They show that initial returns predict subsequent long-term (one-year) excess returns. They find that IPOs with a first day return above zero and less than 60 percent have positive excess returns over 1 year.

Investment bankers' reputation does make a difference in the mean initial returns with the reputation measure based on CM ranking in our sample. The mean initial return for IPOs underwritten by high reputable investment bankers is 12 %, and 9.3 % for IPOs underwritten by low reputable investment bankers. The difference is significant at 0.10 level. Based on the median initial results, whichever classification is used to measure the reputation of investment bankers, the initial returns for high and low reputation groups of IPOs are not statistically different from each other.

There is little evidence is associated corporate diversification on the any initial return differences. IPOs issued by single-segment firms have higher initial returns than IPOs issued by multi-segment firms when they are classified according to segment information. There is no statistical difference between the two groups classified according to 2-Digit SIC codes.

In the analysis of measuring joint effect, venture capitalist IPOs underwritten by high reputable underwriters and with high institutional ownership appear to have the highest initial returns. We interpret these results to signify that initial returns indicate the quality of the firms as consistent with signaling theories.

[Insert Table 10 About Here]

6.4.b Long-Term Buy-and-Hold Periods Stock Returns and Role of Venture Capitalists, Reputation of Investment Bankers, Institutional Ownership, and Corporate Structure

Ritter (1991) and Loughran and Ritter (1995) document underperformance of IPO firms using several benchmarks. Brav and Gompers (1997) replicate their work and extend it to the comparison of venture and non-venture backed IPO firms using also several benchmarks, such as the Fama and French (1994) industry portfolios and size and book-to-market matched portfolios. Carter, Dark and Singh (1998) compare stock returns of IPO firms underwritten by high and low reputable investment bankers. They use value weighted market-adjusted long run return. Krigman, Shaw, and Womack (1998) examine one-year long-term returns of IPO firms to measure institutional investors effect using CRSP size index.

Our approach, in this section, addresses these issues for our IPO sample utilizing several benchmarks. First, the performance of IPO firms is matched to three market indexes: the CRSP (NYSE, AMEX, Nasdaq) value and equally weighted, and the S&P 500 composite indexes. The performance of IPO firms is also compared to size/book-to-market/industry matched firms that have excluded recent IPO firms. Since it is documented that size and book-to-market are important determinants of the cross section of stock returns and eliminate most of the anomalies, it seems very important to compare performance to size and book-to-market matched firms. We also control industry effects. Thus, we use industry as the third dimension in our selection of matching firms. In this section, we also present the performance of single- and multi-segment firms.

Table 11 reports raw and adjusted stock returns computed using a buy-and-hold

strategy in terms of all sample and different classifications of IPO firms. Buy-and-hold stock returns (BHRs) are computed for 1-month, 1-year, 2-year, and 3-year periods starting from the third day of trading of new issues. In this table, we report both mean and median values of stock performance for the same periods. The mean returns are relevant-statistic from a portfolio strategy perspective. However, the median returns provide information about the performance of the sample in general. Therefore, we rely on the median returns to interpret the results.

Median raw stock returns for IPO firms are 2.4 percent, 15.9 percent, 18.9 percent, and 19.4 percent for 1-month, 1-year, 2-year, and 3-year buy-and-hold periods, respectively. The long-term CRSP value-weighted, S&P 500 index, and size/book-to-market/industry adjusted returns of IPO firms in our sample become positive for the periods of 1-month and 1-year. IPO firms underperform 11.5 percent, and 28.6 percent against the value-weighted index in 2-year and 3-year buy-and-hold periods. Underperformance of IPO firms against S&P 500 index are 4.2 percent and 18.3 percent for the same periods. CRSP equally weighted adjusted returns become more negative in the long-term. Size/book-to-market/industry adjustment decreases the underperformance of IPO firms consistent with the extant empirical literature. IPO firms overperform similar firms by 1.2 percent and 0.7 percent over the year +1 and +2, respectively, while they appear to underperform by 4.7 percent their peers over the 3-year period.

Comparison of venture backed IPO firms with non-venture backed IPO firms suggests that, as consistent with the results of Brav and Gompers (1997), venture backed IPO firms overperform non-venture backed IPO firms in terms of raw and adjusted returns, based on value-weighted and S&P 500 index in all periods. The median adjusted BHRs are significantly

different for the two groups in all periods. Moreover, venture backed IPO firms overperform CRSP value weighted and S&P 500 market index over the 1-month and 1-year periods, but non-venture backed IPO firms show similar performance relative to the same benchmarks in these periods. Even though, the median performance difference between venture and non-venture backed IPO firms is around 10 percent for CRSP value-weighted market adjusted and 14 percent for S&P 500 index adjusted BHRs over 1 year, the median adjusted BHRs differences between the two groups are only significant at 0.10 level. However, the median performance differences between venture and non-venture backed IPO firms are statistically stronger over two years. Over the same period, a median venture backed IPO firm underperforms the CRSP value-weighted market benchmark by 5 percent and overperforms 5.4 percent relative to S&P 500 index benchmark. However, non-venture backed IPO firms underperform the two benchmarks by 16.7 percent and 10 percent over the 1 and 2 year periods, respectively. The differences between the two groups are significant at 0.01 level. Over three year period the median BHRs for venture backed IPO firms is 35.1 percent, while the median BHRs for non-venture backed IPO firms is only 9.8 percent. The median CRSP value weighted and S&P500 index adjusted BHRs for the three year period are -16 percent and -2.5 percent for venture backed IPO firms, respectively. The corresponding performance results for non-venture backed IPO firms are more negative, -37.4 percent and -27.8 percent. The median difference between the two groups are significant at 0.05 level.

When BHRs are adjusted by CRSP NYSE/AMEX, Nasdaq equally index , the median adjusted BHRs with this market index are more negative for the two groups. However, performance differences disappear between venture and non-venture backed IPO firms with this adjustment in all periods, except the 1-month period. The larger underperformance of

IPO firms by the adjustment with the equally weighted index relative to value-weighted index is because of lower CRSP value weighted index returns relative to equally-weighted index returns. This indicates that, over 1989-94 sample period, stock returns of small issues increased more than big issues. Since our evidence suggests that there is no performance difference between venture and non-venture backed IPO firms, it may be that the value of bigger issues in CRSP index are greater (lower) than that in our IPO sample, and the value of smaller issues in CRSP index are lower (greater) than that in our IPO sample. However, we cannot compare the value of IPO issues in our sample against all issues over the post IPO periods. Consequently, we can only say that value of firms in our sample is uneven. This may be the reason why we are unable to find any difference between venture backed IPO firms and non-venture backed IPO firms in terms of adjusted CRSP equally-weighted index returns.

We also fail to detect any significant performance differences between venture and non-venture backed IPO firms based on size/book-to-market/industry adjusted returns over all long-term time windows. This result shows, as demonstrated Brav and Gompers (1997), that underperformance is not an IPO effect. When recent IPO firms are excluded from size/book-to-market/industry matching firms both, venture and non-venture backed IPO firms show similar performance with their relative counterparts. This result indicates that size/book-to-market/industry adjustment not only decreases underperformance of non-venture backed IPO firms, but also eliminates the superior performance of venture-backed IPO firms relative to both, market and non-venture backed IPO firms.

Results based on raw and adjusted buy-and-hold returns also show that reputation of investment bankers on the long-term performance of IPO firms is negligible, if any. The results are inconsistent with the findings of Carter, Dark, and Singh (1998). Using by Carter-

Manaster and Securities Data Corporation alternative, we could not find any significant difference between the two groups relative to the all alternative benchmarks for all buy-and-hold periods. IPO firms underwritten either high or low reputable investment bankers have an inferior performance relative to the market over two and three years. Carter, Dark, and Singh (1998) argue that book-to-market adjustments might eliminate the underperformance entirely for IPOs associated with investment bankers of high reputation. We find little evidence to support this argument based on adjusted BHRs for the size/book-to-market/industry. For instance, the median adjusted return with SDC's reputation ranking for the high reputation group is 10.9 percent and -8.4 percent for low reputation group over two year period. And the difference between the two groups is significant at 0.05 level. Based on the CM ranking, the results are -1.7 percent and -8.3 percent, respectively, but the difference test statistic is not significant. Even though the results for other buy-and-hold periods are in favor of IPOs associated with the high reputation group, we cannot detect any significant differences.

From the comparison of IPO firms with high institutional ownership and IPO firms with low institutional ownership, we find that institutional investors have an influence on the long-term performance of IPO firms over the 1-year and 3-year periods. Using CRSP value-weighted and S&P 500 index adjusted BHRs, IPO firms with high institutional ownership overperform IPO firms with low institutional ownership. The median CRSP value weighted and S&P500 index adjusted BHRs over the one year period are 9 percent and 14 percent for IPO firms with high institutional ownership, respectively. The corresponding results for IPO firms with low institutional ownership are -1.4 percent and 1.5 percent. The difference between the median values for the two groups are different at 0.10 and 0.05 significance

levels. For the 3-year period, the adjusted BHRs are significant and less negative for the high institutional investors group. These results imply that high institutional investors' stake in the equity of IPO firms reduces the long-term underperformance. On the other hand, the performance differences between the two groups disappear when BHRs are adjusted using the CRSP equally weighted index and size/book-to-market/industry matching firms' returns.

Finally, we demonstrate that there is little evidence to support the corporate diversification hypothesis which states that diversified IPO firms have lower long-term performance in comparison to focused IPO firms. When we classified the sample into single- and multi-segment IPO firms based the number of existing on segments that they operate in, we could not find any performance difference between the two groups. However, corporate diversification based on two-digit SIC codes reveals that single-segment IPO firms significantly overperform multi-segment IPO firms over 1 year period. For the other periods, there are no statistically performance differences between the two types of IPO firms. A median single-segment firm earns 8.7 percent over market measured by the value weighted index and 14.9 percent over S&P500 index over the 1-year buy-and-hold period. The BHRs for multi-segment firms are -1.8 percent and 0.1 percent for the same period. When returns are the CRSP equally-weighted index adjusted, single-segment firms show less underperformance relative to multi-segment firms again one year after the issue. Size/book-to-market/industry adjustment eliminates the difference between diversified and non-diversified firms.

[Insert Table 11 About Here]

6.5 Long-Term Buy-and-Hold Periods Stock Returns and Interactive Effects of Venture Capitalists, Reputation of Investment Bankers, Institutional Ownership

The evidence, this far, suggests that the long-term underperformance of IPO firms is not uniquely associated with the role of venture capitalists, reputation of investment bankers, and institutional ownership. Therefore we turn our attention to the possible joint effects of venture capitalists, reputation of investment bankers, and institutional investors on the long-term performance of IPO firms. This kind of simultaneous analysis is more likely to throw additional light in explaining of the long-term underperformance of IPO firms than examining the individual effects of these factors independently.

6.5.a Venture Capitalists, Investment Bankers' Reputation and Buy-and-Hold Periods Stock Returns

Brav and Gompers (1997) show that venture-backed IPOs have superior performance over nonventure-backed IPOs over five years long-term period. Carter, Dark, and Singh (1998), however, demonstrate that the wealth hazard of IPOs is less for IPOs underwritten by the high reputable investment bankers relative to IPOs underwritten by low reputable investment bankers over three years. Earlier, we stated that venture capitalists and investment bankers are unlikely to act independently. Therefore, it is not clear whether these two factors have independent or joint effects on the long-term performance of IPO firms. In this section, we conduct a simultaneous analysis of the interactive effects of the two factors. Hence, we hope to determine which of the two factors has a greater bearing on the long-term performance of IPO firms. This issue investigated by analyzing the long-term performance of

IPO firms across different post-issue intervals for the following sets of group combinations based on venture capital and investment bankers' reputation. The first two groups consist of (1) venture backed IPOs underwritten by high reputable (HR/VC) and (2) low reputable investment bankers (LR/VC), while (3) non-venture backed IPOs underwritten by high reputable (HR/Non-VC) and (4) low reputable investment bankers (LR/Non-VC) represent other two.

If the interactive effects of venture capital and high reputable investment bankers are responsible for the long-term performance, we would expect the HR/VC group to have the best performance among the four groups. The LR/Non-VC group should show the worst performance. However, our analysis is designed to identify whether venture capital or high reputable investment bankers is more influence on the long-term performance of IPO firms. Therefore, we test the median return differences among the four groups. if we detect a significant superior performance of the HR/VC group over the LR/VC group, since the common factor is venture capital in the two groups, we can argue that investment bankers' reputation has a greater effect on the long-term performance. If this is so, the comparison of HR/Non-VC and LR/Non-VC firms is expected to shed light in the same direction. Consequently the HR/Non-VC group should show better performance than the LR/Non-VC group. If venture capital have greater influence on the long-term operating performance of IPO firms, we should expect to observe superior performance for the LR/VC firms over HR/Non-VC IPO firms. Similarly, we can arrive at the same conclusion if HR/VC firms show better performance than the LR/Non-VC firms. In addition to these results, if there is no difference between HR/VC and LR/VC firms, as well as between HR/Non-VC and LR/Non-VC firms, this would supply that venture capital play a more crucial role in explaining the

long-term performance of IPO firms. Table 12 presents the results of this kind of simultaneous analysis of venture capitalists versus reputation of investment bankers. Returns for the interactive effects of the two factors are calculated using both, Carter-Manaster and Securities Data Corporation's Investment bankers' reputation rankings.

In Panel A, we report the median raw BHRs differences for the four groups. The results show that the HR/VC group never shows superior performance relative to the LR/VC group, nor the HR/Non-VC group relative to the LR/Non-VC group for the favor of the reputation factor. Moreover, in the part 1 of this panel, while the LR/VC group have superior performance over the HR/Non-VC group, these two groups have similar performance based on the results at the part 2 of Panel A over the 2 and 3 year periods. For instance, in Panel A1 (A2), the HR/VC group earns 26.2 (34.1) percent, the LR/VC group earns 52.9 (18.3) percent, the HR/Non-VC group earns 12.2 (18.6) percent, and the LR/Non-VC group earns 16.3 (11.4) percent over 2 year period. The difference between the HR/Non-VC and the LR/VC groups is significant at 0.05 level in Panel A1, but insignificant in Panel A2. These results imply that venture capital play important role in explaining the long-term performance of IPO firms.

Adjusted BHRs with value-weighted index in Panel B and S&P 500 market index in Panel D show the same trend as we have in panel A. Hence, there is clear evidence with the value-weighted and S&P 500 index adjusted returns for the 2 and 3 year periods that venture capital have more influence on these results. For instance, in part 2 of Panel B, the median CRSP value-weighted adjusted BHRs are 5.5 percent for the HR/VC group, -1.7 percent for the LR/VC group, -17.2 percent for the HR/Non-VC group, and -15.1 percent for the LR/Non-VC group. Based on these median returns, there is no significant difference between

the HR/VC and the LR/VC groups, as well as between the HR/Non-VC and the LR/Non-VC groups. However, the median return for the HR/VC group is significantly higher than that for the LR/Non-VC group. Moreover, the LR/VC group has significantly less negative return relative to the HR/Non-VC group. For the 3-year period adjusted returns show that the HR/VC group has superior performance over the LR/Non-VC group, the LR/VC group shows similar performance with the HR/Non-VC group. In the near future, 1-year period, even though returns show the same trends (for instance, the LR/Non-VC group has the lowest median return) , the numbers cannot yield any significant difference between the groups. We conclude from these results that venture capital is the dominant factor in explaining the long-term performance of IPO firms.

[Insert Table 12 About Here]

6.5.b Investment Bankers' Reputation, Institutional Ownership and

Buy-and-Hold Periods Stock Returns

Since the reputation of investment bankers does not seem to exert an important influence on the long-term performance of IPOs in comparison to venture capital, we investigate the role of investment bankers' reputation in conjunction with institutional ownership.

We report the median raw and adjusted return differences for the simultaneous analysis of investment bankers' reputation versus institutional ownership in Table 13. In this table, returns for the interactive effects of the two factors are also calculated using both, Carter-Manaster and Securities Data Corporation's Investment bankers' reputation rankings.

If the reputation of investment bankers and ownership by institutional investors have a joint effect on the long-term performance of IPO firms, the HR/HINST group should show superior performance over the other groups. However, Table 13 is designed to determine which of the two factors is dominant on the results. If institutional investors have greater influence on the long-term performance of IPO firms, we should expect the LR/HINST group to have higher median returns than the HR/LINST group, or at least these two groups should have similar performance. Moreover, if we find no performance difference between the HR/HINST and the LR/HINST groups, as well as between the HR/LINST and the LR/LINST groups, this will support the argument of the influence of institutional ownership on the long-term performance of IPO firms. The superior performance of the HR/HINST and the HR/LINST groups relative to the LR/HINST and the LR/LINST groups will support the influence of investment bankers' reputation on the long-term performance of IPO firms.

The median raw and CRSP value-weighted and S&P 500 index adjusted returns in Table 13 shows that, only over the 1 year period, the HR/HINST group has significantly higher returns than the LR/LINST group. This is true when we use SDC' reputation ranking. There is no significant difference in the median returns between the other pair groups. For instance, in the part 2 of Panel B, the median CRSP value-weighted adjusted returns in 1-year based on SDC' ranking for the HR/HINST group is 8.6 percent and -4.4 percent for the LR/LINST group, the difference is significant at 0.10 level. Although the LR/HINST group has 12.8 percent median return which is higher than the median return of 2.8 percent for the HR/LINST group, the difference is not statistically significant. These results show that institutional investors have more influence only on the near-future performance of IPO firms than the reputation of investment bankers. Equally-weighted and size/book-to-market/industry

adjusted returns do not yield any significant differences among the four groups.

[Insert Table 13 About Here]

6.5.c Venture Capitalists, Institutional Ownership and

Buy-and-Hold Periods Stock Returns

In the past two sections, the evidence suggests that institutional investors have more influence on the performance of IPO firms over one year after the issue, and venture capital over two and three years on the long-term performance of IPO firms relative to investment bankers' reputation. In this section, we concentrate on the role of venture capital in connection with institutional ownership of IPO firms. Hence, we will be able to test whether the long-term performance of IPO firms is more influenced by venture capital or by high institutional ownership stakes in these IPO firms. If venture capital and institutional investors have a joint influence on the long-term performance of IPO firms, we should expect the VC/HINST group to have the best performance among the four groups. To conclude that the long-term better performance of a group of IPO firms relative to others is because of the role of venture capital support, not higher institutional ownership for these IPO firms, VC/HINST and VC/LINST firms should have greater raw or adjusted returns than Non-VC/HINST and Non-VC/LINST firms. On the other hand, if institutional investors have more influence on the long-term performance of IPO firms than venture capital do, we should expect the Non-VC/HINST group to show similar performance over the VC/HINST group and similar or superior performance relative to the VC/LINST group.

The results related to connection of venture capital with institutional investors are

presented at Table 14. Panel A reports the raw BHRs results. Based on these results, the VC/HINST group has the best performance in all periods. This group has also significantly higher median return than the Non-VC/HINST and the NonVC-LINST groups. In the comparison of the VC/HINST group with the Non-VC/ HINST group, since higher institutional ownership is the common factor, the results imply that venture capital has more influence on the performance of IPO firms. However, in every period, the Non-VC/HINST group has the similar median returns with the VC/LINST group. This implies that high institutional ownership in non-venture backed IPO firms eliminates the disadvantage of being without support of venture capital in these firms. Low institutional ownership in IPO firms backed by venture capitalists eliminates the advantage of venture capital in these firms. The evidence shows that the VC/LINST group show also similar long-term performance with the Non-VC/LINST group. The median return differences become significant between the VC/LINST and the Non-VC/LINST groups in only 2-year period.

The median adjusted returns with CRSP value-weighted index in Panel B and S&P 500 index in Panel D show the exactly the same trend with the raw returns in all long-term time windows. Like in every comparison, equally-weighted in panel C and size/book-to-market/industry adjusted results in Panel E do not show any significant difference among the four groups.

[Insert Table 14 About Here]

6.6 Cross Sectional Regression Results

We run several Ordinary Least Square (OLS) multivariate regressions to determine

the sources of influence behind the long-term performance of IPO firms cross sectionally. In these regressions, raw and adjusted BHRs, percentage changes in operating performance measures and operating performance levels are regressed against a set of independent variables defined earlier.

6.6.a Cross Sectional Regressions Explaining Raw and Adjusted Buy-and-Hold Returns

The results of the regressions on the raw, market (based on CRSP value and equally weighted indexes) and size/book-to-market/industry adjusted returns are presented in Panels A and B of Table 15. The difference between the two panels is the measure of identifying the investment bankers' reputation. Investment bankers' reputation in Panel A is presented by a dummy variable (REPDUM1) based on the Carter-Manaster ranking. The results based on the dummy variable (REPDUM2) using the Securities Data Corporation's reputation ranking are presented in Panel B.

In Panel A, when the dependent variable is the raw BHRs, the coefficients of the venture capitalists dummy variable are positive and significant over 1-month and 3-year periods, indicating that the presence of venture capital in IPO firms increase the long-term returns. The same results for VBDUMMY variable are observed in Panel B. The estimated coefficients of REPDUM1 variable become significantly negative based on raw returns for 2 and 3 year periods in panel A. Consequently, based on Carter-Manaster investment bankers' reputation measure, IPOs firms underwritten by high reputable investment bankers have lower long-term returns. However, the reputation effect is still negative but insignificant when the Securities Data Corporation's investment banking reputation ranking is used, as reported in Panel B. The corporate diversification variable, DIVDUM, and the institutional ownership

variable, INST, have significant positive coefficients in year 1. These results show that single-segment and higher institutional firms earn more over 1 year. The estimated coefficients of the blockholders variable, LARGE, are significant and negative for the 1,2, and 3 year periods, indicating that IPO firms with large ownership have lower long-term returns.

In Panel A, the coefficients of the venture capitalists dummy variable are positive and significant in the regressions using the value-weighted adjusted BHRs⁸ in every period, except 1-year. Venture backed IPO firms outperform non-venture backed IPO firms by 31% (the value of the coefficient plus intercept) over 3 years period. In all regressions for all time windows with the exception of the short-term window (i.e., one-month), investment bankers' reputation has negative effect on the market adjusted results in panel A. However, in Panel B, the reputation effect is still negative but insignificant when the Securities Data Corporation's investment banking reputation ranking is used. The variation of the value-weighted adjusted returns over one year is explained by corporate diversification and institutional investors. For this period, positive and significant coefficient of the DIVDUM variable indicates that single-segment firms earn 11 % more than multi-segment firms. The institutional ownership coefficient suggests that 1% increase in the participation of institutional investors in the equity of IPO firms creates 1% more excess returns over one year. Identical results are presented in Panel B.

Agency theory suggests that substantial equity ownership by blockholders tends to monitor managers and therefore, reduce agency costs. We find that the estimated coefficients

⁸ Carter, Dark, and Singh (1998) use a transformed market adjusted returns as the dependent variable due to positively skewed and nonnormal value of the returns. They transform market return to the natural logarithm of 1000 percent plus each buy-and-hold return. We also run our regressions with this transformed form of the dependent variables. The results for the coefficient estimates of the independent variables remain the same. The only effect is on the intercept. Insignificant intercept coefficients become significant.

of the blockholder variable, *LARGE*, are significantly negative for the 1, 2, and 3-year periods. This result holds for the same periods in every regressions. These results show that long-term performance is adversely affected when blockholders increase their equity IPO firms. This result appears to be inconsistent with the monitoring activities of blockholders.

There is a little evidence that insiders ownership has an influence on the long-term performance of IPO firms. The regression results do not yield any significant effect of the *ISSUE* and *SECOND* control variables.

Adjustment of the raw returns with the equally-weighted market index eliminates the effects of venture capitalists, corporate diversification and institutional ownership effects on the performance of IPO firms consistent with our previous results. The regression results based on the size/book-to-market/industry matched firms, reveal a weak relation between the independent variables and the long-term performance of IPO firms.

[Insert Table 15 About Here]

6.6.b Cross Sectional Regressions Explaining The Long-Term Operating Performance of IPO Firms

Table 16 reports results on the relation between the changes in operating performance measures, such as Tobin's *q*, operating return on assets, and operating cash flows for the years +1, +2, and +3 relative to year -1 (relative to year 0 for Tobin's *q*)⁹. We also present regression results on the levels using the same operating performance measures at year +1.

⁹ We report only the results of the regressions in which Carter-Manaster investment bankers' reputation ranking is used for reputation measure in this table because the results for two classifications are indifferent.

With the regression on the raw Tobin's q levels at year +1, we find an evidence that operating performance levels between venture and non-venture backed IPO firm are different¹⁰. The estimated coefficient of VBDUMMY is significant and positive for Tobin's q level at year 1 and other post issue years. This implies that venture backed IPO firms have higher market value, as measured by Tobin's q, than non-venture backed IPO firms. However, the results based on raw changes in Tobin's q show that the estimated coefficients of the dummy variable, VBDDUMMY are insignificant for all long-term windows, indicating that venture capitalists do not play an important role in explaining the long-term performance of the IPO firms. Hence, operating performance declines for both venture and non-venture backed IPO firms. The coefficient of REPDUM variable has negative and significant impact on Tobin's q in year 1, indicating that IPO firms whose issues underwritten by the high reputable investment bankers have less market value than the low reputable group of IPO firms. This negative relationship continues between the reputation measure and changes in Tobin's q over the two year period. These results show that the market value of IPOs underwritten by high reputable investment bankers declines more than that of IPOs underwritten by low reputable investment bankers. The other two variables affecting the Tobin's q level at year 1 are LARGE and INSD. This result suggests that when blockholders participation (insiders ownership) in equity increases, Tobin's q of firms decreases (increases). We are unable to find a significant relationship between the explanatory variables and the changes in Tobin's q rather than the REPDUM variable.

In table 16, we also report regression results using adjusted Tobin's q performance measure for size/book-to-market/industry. The negative effect of investment bankers'

¹⁰We also run the same regressions on the operating performance levels at the other post-issue years. The results remain the same for the operating performance levels in 2 and 3-year periods.

reputation on the Tobin's q and on the changes in Tobin's q remain the same with the raw results. We cannot detect any other significant effect of explanatory variables on this adjusted performance levels and changes. Similar results are found, but not reported, for all other performance measures. Moreover, for regressions on all other performance measures adjusted for size/book-to-market/industry, the effect of REPDUM disappear.

Based on the regression results on the operating return on assets, estimated coefficients the VBDUMMY variable are insignificant, showing that venture and non-venture backed IPO firms are indifferent in terms of both performance level at the year 1 and performance changes over post-issue period. The results of the regressions on operating cash flows deflated by total assets reveal the same information with one exception. Venture backed IPO firms increase their cash flows relative to non-venture backed IPO firms over only 2-year period. The coefficient of the REPDUM variable is significant and positive for the operating return on assets at year 1. This implies that the high reputable group of IPO firms have a higher operating return on assets relative to low reputable group. This result remains the same for operating cash flows. While there is no significant effect of reputation on the changes operating return on assets, the estimated coefficients of REPDUM turn negative and significant when it is regressed against the changes operating cash flows over 2 and 3 year periods.

The issue size which is defined as total value of offering divided by total assets one year prior to the offering has significantly negative effect on the performance levels of return on assets and cash flows¹¹. This result indicates that IPO firms offered new issues more

¹¹ We also use logarithm of the total value of the offering to control issue size as suggested in the literature. We did not report the results here. As consistent the literature, the estimated coefficient of LNSIZE is significant and positive.

relative to the their total assets have lower performance. The last control variable SECOND, representing the percentage of the total issue offered by current shareholders, has a significant and positive estimated coefficient for the operating performance levels. These two variables have no effect on the changes in operating performance measures.

The estimated coefficients of institutional ownership variable are significant and positive for both return on assets and cash flows levels in year 1, but it has no effect on the operating performance changes. The other ownership variables, LARGE and INSD appear to have significant relation with performance in levels, but not in changes.

[Insert Table 16 About Here]

We also do not find any effect of those factors on operating performance changes using some other dependent variables, such as operating margin, capital expenditures over total assets, book-to-market ratio, and excess market value. Therefore, we only report the results of the regressions on the raw and adjusted levels of these variables at year 1 in Table 17. Even though the results are inconsistent across the performance measures, there is some evidence that the presence of venture capitalists increase the performance of IPO firms. For instance, regression results using raw and adjusted book-to-market performance measures, the estimated coefficients of the VBDUMMY variable are negative and significant, indicating that venture backed IPO firms have lower book-to-market ratio than non-venture backed IPO firms at year 1. Similarly, VBDUMMY has a significant positive effect on the raw excess market value in the year 1, but not on the adjusted level.

[Insert Table 17 About Here]

Overall, the cross sectional regression results show that there is a significant

relationship between venture capital, reputation of investment bankers, corporate diversification, institutional ownership and operating performance levels, but not in terms of operating performance changes during the post issue years.

7. CONCLUSIONS

This study investigates the degree that the long-term performance of IPO firms is explained by venture capitalists, investment bankers' reputation or institutional ownership. This investigation relies on 456 firms that go public between 1989-1994. In this study, unlike previous research, we examine the interactive effects of venture capitalists, reputation of investment bankers and institutional ownership on the long-term performance of IPO firms, instead of examining the role of these factors independently. We also investigate whether there is a link between the long-term performance of IPOs and corporate diversification.

We begin this study by analyzing the long-term performance of IPO firms using alternative accounting and value-based performance measures. We find that, over three years after the offering, the performance of IPO firms declines significantly relative to their pre-IPO levels based on several performance measures even though IPO firms display high post-issue growth in sales and capital expenditures. The evidence shows that performance changes are weakly related to venture capital, investment bankers' reputation and institutional ownership characteristics of IPO firms. IPOs backed by venture capitalists, underwritten by high reputable investment bankers, and having a higher institutional ownership exhibit somewhat superior long-term performance in comparison to other IPO firms. However, the change in adjusted performance measures based on size/book-to-market/industry show that the performance advantage of these IPO firms disappears against their industry peers. We also find that performance differences between single- and multi-segment IPO firms are indistinguishable.

Based on BHRs, IPO firms underperform the value-weighted index by 11.5 percent and 28.6 percent in the 2-year and 3-year periods, respectively. CRSP equally-weighted

adjusted returns are more negative in the long-term. Size/book-to-market/industry adjustment significantly decreases the underperformance of IPO firms consistent with the extant empirical literature. Consistent with the results of Brav and Gompers (1997), our evidence shows that venture backed IPO firms outperform non-venture backed IPO firms in terms of raw and adjusted returns, based on value-weighted and S&P 500 index in all periods. When BHRs are adjusted by CRSP equally-weighted index and size/book-to-market/industry matched firms' returns, performance differences become insignificant between venture and non-venture backed IPO firms. Results based on raw and adjusted buy-and-hold returns also show that the reputation of investment bankers on the long-term performance of IPO firms is negligible, if any. These results are inconsistent with the findings of Carter, Dark, and Singh (1998). Comparison of IPO firms with high institutional ownership and IPO firms with low institutional ownership indicate that institutional investors have an influence on the long-term performance of IPO firms over the 1-year and 3-year periods. Finally, our analysis provides little evidence in support of the corporate diversification hypothesis which states that diversified IPO firms have lower long-term performance in comparison to focused IPO firms.

In this study, we also examine the interaction effects across sets of factors: (1) venture capitalists versus reputation of investment bankers, (2) reputation of investment bankers versus institutional ownership, (3) venture capitalists versus institutional ownership.

The evidence based on the joint influence of the three set of factors shows that non-venture backed IPOs underwritten by low reputable investment bankers, and with lower institutional ownership generate the worst operating performance. Similar results are obtained for IPO firms that are underwritten by low reputable investment bankers and have lower institutional ownership.

The results based on BHRs for the simultaneous analysis of venture capitalists versus reputation of investment bankers generate a clear evidence that venture capital exerts more influence the long-term performance of IPO firms. We show that there is no significant difference between HR/VC and the LR/VC firms, as well as no significant difference between HR/Non-VC and LR/Non-VC firms. Since venture and non-venture capital are common factors in these comparisons, this result implies that reputation of investment bankers does not affect the long-term performance of IPO firms. Moreover, LR/VC firms have significantly less negative or sometimes similar return relative to HR/Non-VC firms, indicating that venture capital has more influence on the long-term performance of IPO firms. Since venture capitalists play a more important role on the determination of the long-term performance of IPO firms, our simultaneous analysis demonstrates that investigating the role of reputation of investment bankers independently is likely to produce misleading results. Hence, the lower underperformance of IPO firms underwritten by high reputable investment bankers reported by Carter, Dark, and Singh (1998) may be driven by venture capital participation in these firms and not by investment bankers' reputation per se.

We find that institutional ownership is also an important factor in explaining the long-term performance of IPO firms. Based on BHRs comparison of venture capitalists versus institutional ownership, venture capitalists IPO firms with higher institutional ownership have the highest returns in all long-term time windows. We also show that high institutional ownership in non-venture backed IPO firms eliminates the disadvantage of being without support of venture capital in these firms.

Cross sectional regression results also reveal the importance of venture capital and institutional ownership on the long-term performance of IPO firms. The regression results

show that there is a significant relationship between venture capital, reputation of investment bankers, corporate diversification, institutional ownership and operating performance levels, but not in terms of operating performance changes during the post-issue years.

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APPENDIX
**SECURITIES DATA CORPORATION'S
INVESTMENT BANKERS' REPUTATION RANKING**

Investment Bankers	Mkt. Share	# of Issues	Rank
Morgan Stanley	14.1	42	1
Goldman, Sachs & Co	11.8	49	2
Merill Lynch & Co	11.1	58	3
Donaldson, Lufkin & Jenrette	7.9	39	4
Smith Barney Inc	7.4	50	5
Salomon Brothers	5.8	30	6
CS First Boston	5.0	20	7
Alex. Brown & Sons	4.5	50	8
Montgomery Securities	4.0	44	9
Lehman Brothers	2.5	25	10
Robertson Stephens	2.1	28	11
Hambrecht & Quist	2.1	29	12
Bear, Stearns	1.9	16	13
PaineWebber	1.8	23	14
Prudential Securities	1.3	14	15
NatWest Markets/Gleacher NW	1.1	10	16
William Blair	0.9	10	17
Cowen	0.9	13	18
Dillon, Read	0.8	12	19
Oppenheimer	0.8	16	20
Robert W. Baird	0.8	5	21
J.C. Bradford	0.7	8	22
Volpe, Welty & Company	0.5	9	23
Lazard Houses	0.5	3	24
Deutsche Morgan Grenfell	0.5	3	25

Table 1: Sample Summary Statistics

Frequency distribution, characteristics, and industry classifications of a sample of 456 IPO firms. IPOs with at least one dollar offer price and firm commitment offerings have included in the sample. Data for these IPOs is obtained from COMPUSTAT annual and research tapes. Total value of issue is the product of shares offered and offer price. The initial return is the difference between the first CRSP-listed after-market price and the offering price as a proportion of the offering price. Finance, insurance, and real estate division of industry classes (2 Digit SIC codes from 60 to 67) has been excluded from IPO sample.

Panel A: Number of Issues Per Year	
Year	Number of Issues
1989	38
1990	46
1991	76
1992	98
1993	117
1994	<u>81</u>
Total	456

Panel B: Characteristics of IPO Sample						
Descriptive Measure	Mean	Min	25 th percentile	Median	75 th percentile	Max
Total value of issue(\$ million)	61.5	2.4	22.950	39	70.680	770
Percentage of shares offered by current holders (%)	19.6	0	0	1.4	33	1
Offer price	13.29	2	10	13	16	28
Initial Return (%)	11.1	-6.6	0	5.2	17	143
Variables prior to offering						
Total assets (\$ million)	214.03	0.058	15.291	55.34	213.46	5100.8
Sales (\$ million)	268.29	0	23.22	68.42	262.79	14324.6
Leverage (%)	38	0	10	35	61	213
Capital expenditures/ Total assets(%)	8.2	0	2.4	5	10	55.2
R&D expenses/total assets (%)	15.2	0	0	3.6	18.7	198

Panel C: Industry Classifications of IPO Sample (According to 2 Digit SIC Code)			
2 Digit SIC	Title and Description of Industries	l # of Companies	Total
Division A: Agriculture, forestry, and Fishing			
1	Agriculture production - crops	1	1
Division B: Mining			
10	Metal Mining	1	24
12	Coal Mining	1	
13	Oil and Gas Extraction	21	
14	Mining and Quarrying Nonmtl Minerals, Except Fuels	1	

Panel C: Industry Classifications of IPO Sample (Continued)
(According to 2 Digit SIC Code)

2 Digit SIC	Title and Description of Industries	# of Companies	Total
Division C: Construction			6
15	Building Construction - Gen Contractors and Oprt Builders	3	
16	Heavy Construction other than Building Const- Contractors	1	
17	Construction - Special Trade Contractors	2	
Division D: Manufacturing			232
20	Food and Kindred Products	4	
21	Tobacco Products	0	
22	Textile Mill Products	5	
23	Apparel and Other Finished Products	10	
24	Lumber and Wood Products, Except Furniture	2	
25	Furniture and Fixtures	3	
26	Paper and Allied Products	4	
27	Printing, Publishing, and Allied Industries	9	
28	Chemicals and Allied Products	36	
29	Petroleum Refining and Related Industries	1	
30	Rubber and Miscellaneous Plastics Products	3	
31	Leather and Leather Products	3	
32	Stone, Clay, Glass, and Concrete Products	4	
33	Primary Metal Products	15	
34	Fabricated Metal Products, Except Machinery and Transportation Equipment	9	
35	Industrial and Commercial Machinery and Computer Equipment	37	
36	Electronic and Other Electrical Equipment and Components, Except Computer Equipment	37	
37	Transportation Equipment	15	
38	Measuring, Analyzing, and Controlling Instruments: Photographic; Medical and Optical Goods; Watches and Clocks	28	
39	Miscellaneous Manufacturing Industries	7	
Division E: Transportation, Communications, Electric, Gas, and Sanitary Services			39
40	Railroad Transportation	1	
41	Transit and Passenger transportation	1	
42	Motor Freight Transportation and Warehousing	4	
44	Water Transportation	2	
45	Air Transportation	0	
46	Pipe Lines, Except Natural Gas	2	
47	Transportation Services	0	
48	Communications	15	
49	Electric, Gas, and Sanitary Services	14	
Division F: Wholesale Trade			13
50	Wholesale Trade - Durable Goods	8	
51	Wholesale Trade - Nondurable Goods	5	

Panel C: Industry Classifications of IPO Sample (Continued)
(According to 2 Digit SIC Code)

2 Digit SIC	Title and Description of Industries	# of Companies	Total
Division G: Retail Trade			60
52	Building Materials, Hardware, Garden Supply, and Mobile Home Dealers	4	
53	General Merchandise Stores	7	
54	Food Stores	5	
55	Automotive Dealers and Gasoline Service Stations	2	
56	Apparel and Accessory Stores	10	
57	Home Furniture, Furnishings, and Equipment Stores	4	
58	Eating and Drinking Places	12	
59	Miscellaneous Retail	16	
Division H: Services			81
70	Hotels, Rooming Houses, Camps, and Other Lodging Places	2	
72	Personnel Services	0	
73	Business Services	35	
75	Automotive Repair, Services, and Parking	0	
76	Miscellaneous Repair Services	0	
78	Motion Pictures	1	
79	Amusement and Recreation Services	6	
80	Health Services	24	
82	Educational Services	2	
83	Social Services	1	
87	Engineering, Accounting, Research, Management, and Related Services	10	
Total # of 2-Digit Industries = 52		Total # of IPO Firms = 456	

Panel D: Industry Classifications of IPO Sample
(According to 4 Digit SIC Code)

4 Digit SIC	Industry Group	Frequency
7310	Advertising	2
2870	Agriculture Chemicals	2
100	Agriculture Production Crops	1
3585	Air Condition, Heating, Refrigerator Equipment	1
2300	Apparel & Other Finished Products	3
5600	Apparel and Accessory Stores	1
5531	Auto and Home Supply Stores	2
2050	Bakery Products	1
2836	Biological Products, Ex Diagnostics	11
1220	Bituminous Coal, Lignite Management	1
2780	BlankBooks, binders, Bookbind	2
3310	Blast Furnaces & Steel Works	1
5200	Building Material, Hardware, Garden-Retail	2
2731	Books: Publishing, Publishing & Printing	1
2211	Brdwoven Fabric Mill, Cotton	3
2086	Btld & Can Soft Drinks, Water	1

Panel D: Industry Classifications of IPO Sample (Continued)
(According to 4 Digit SIC Code)

4 Digit SIC	Industry Group	Frequency
7389	Business Services	1
4841	Cable and Other Pay TV Services	1
3578	Calculate, Acct Machines, Ex Comp	1
2273	Carpets and Rugs	1
5961	Catalog, Mail - Order Houses	3
3241	Cement, Hydraulic	1
2800	Chemicals & Allied Products	1
7373	Computer Integrated Systems Design	3
7374	Computer Processing, Data Prep Services	4
7370	Computer Programming, Data Process	4
4991	Cogeneration-Sm Power Producer	4
8731	Coml Physical, Biological Research	2
2750	Commercial Printing	3
3669	Communications Equipment	1
4899	Communication Services	2
3576	Computer Communication Equipment	11
3577	Computer Peripheral Equipment, Nec	4
7371	Computer Programming Service	1
3572	Computer Storage Devices	1
5045	Computers & Software-Whsl	1
1700	Construction-Special Trade	2
2670	Convrtpap, Paperboard, Ex Boxes	2
1311	Crude Petroleum & Natural Gas	15
3420	Cutlery, Hand Tools, General Hardware	2
2020	Dairy Products	1
5311	Department Stores	2
7381	Detect, Guard, Armor Car Services	1
7331	Direct Mail Advertsing Services	1
3357	Drowning, Insulating Nonfer Wire	1
1381	Drilling Oil and Gas Wells	4
5912	Drug & Proprietary Stores	2
5812	Eating Places	1
8200	Educational Services	2
3825	Elec Meas & Test Instruments	3
3677	Electr Coil, Transfrm, Indicator	1
3634	Electric Housewares and fans	2
3640	Electric Lighting, Wiring Equipments	1
3620	Electrical Industrial Apparatus	1
3845	Electromedical Apparatus	8
3670	Electronic Comp, Accessories	1
3679	Electronic Components, Nec	1
3571	Electronic Computers	2
5065	Electronic parts, Eq-Whsl, Nec	1
8711	Engineering Services	4
3510	Engines and Turbines	1
8700	Engr, Acc, resh, Mgmt, Rel Services	1
3443	Fabricated Plate Work	2
3060	Fabricated Rubber Pds, Nec	1
8744	Facilities Support Mgmt Services	2
5651	Family Clothing Stores	3

Panel D: Industry Classifications of IPO Sample (Continued)
(According to 4 Digit SIC Code)

4 Digit SIC	Industry Group	Frequency
3523	Farm Machinery and Equipment	2
5400	Food Stores	1
3140	Footwear, Except Rubber	3
5712	Furniture Stores	2
3944	Games, Toys, Chld Veh, Ex Dolls	2
8062	General Medical & Surgical Hospitals	1
3560	General Industrial Machines & Equipments	2
3221	Glass Containers	1
3220	Glass, glasswr-Pressed, Blown	1
5140	Groceries & Related Products - Whsl	2
5141	Groceries, General Line-Whsl	1
5411	Grocery Stores	5
3760	Guided Missiles & space Vech	2
5072	Hardware-Wholesale	1
4955	Hazardous Waste Management	3
8000	Health Services	1
1600	Heavy Construction - Not Bldg Constr	1
7363	Help Supply Services	5
5700	Home Furniture & Equipment Store	1
8082	Home Health Care Services	2
8060	Hospitals	5
7011	Hotels, Motels, Tourist Courts	2
3630	Household Appliances	1
3651	Household Audio & Video Equipment	1
2510	Household Furniture	1
2024	Ice Cream & Frozen Desserts	1
2835	In Vitro, In Vivo Diagnostics	2
3564	Industrial Coml Fans, Blowrs, Oth Eq	2
2810	Industrial Inorganic Chemicals	2
3823	Industrial Measurement	1
2860	Industrial Organic Chemicals	2
5944	Jewelry Stores	1
3910	Jewelry, Silverwr, Plated Ware	1
2253	Knit Outwear Mills	1
3826	Lab Analytical Instruments	2
3821	Lab Apparatus and Furniture	1
5211	Lumber & Oth Bldg Matl - Retl	2
2400	Lumber and Wood Pds, Ex Furniture	1
5080	Machinery and Equipment - Whsl	2
8742	Management Consulting Services	1
3829	Meas & Controlling Devices, Nec	2
5047	Medical, Dental, Hospital Equipment - Whsl	1
8071	Medical Laboratories	2
3411	Metal Cans	1
3460	Metal Forgings and Stamping	2
5051	Metals Service Centers - Whsl	1
3540	Metalworking Machinery & Eq	1
7990	Misc Amusement & Rec Service	6
2890	Misc Chemical Products	1

Panel D: Industry Classifications of IPO Sample (Continued)
(According to 4 Digit SIC Code)

4 Digit SIC	Industry Group	Frequency
3690	Misc Elec Machinery, Eq, Supplies	3
3490	Misc fabricated Metal Products	1
2390	Misc Fabricated Textile Products	1
8090	Misc Health & Allied Services, Nec	3
3590	Misc Industrial, Commercial, Machy & Eq	1
3990	Misc Manufacturing Industries	2
5190	Misc Nondurable Goods - Whsl	1
5940	Misc Shopping Goods Stores	4
3790	Misc Transportation Equipment	1
1090	Miscellaneous Metal Ores	1
2741	Miscellaneous Publishing	1
5900	Miscellaneous Retail	1
3532	Manufacturing Machy, Eq, Ex Oil Field	1
1400	Manufacturing, Quarry Nonmtl Minerals	1
7812	Motion Pictures, Videotape Prodn	1
3716	Motor Homes	2
5010	Motor Veh Parts, Supply-Whsl	1
3714	Motor Veh part, Accessory	4
3711	Motor Vehicles & Car Bodies	1
3751	Motorcycles, Bicycles & Parts	1
4922	Natural Gas Transmission	2
2711	Newspaper: Publishing, Pubg & Print	2
3360	Nonfer Foundries (Castings)	1
5960	Nonstore Retailers	1
8050	Nursing & Personal Care fac	1
3579	Office Machines, Nec	2
8011	Offices of Medical Doctors	1
1389	Oil, Gas Field Services, Nec	2
1531	Operative Builders	3
3827	Optical Instruments & Lenses	1
3842	Ortho, Prosth, Surg Appl, Supply	5
5110	Paper & Paper Products, Whsl	1
2650	Paperboard Containers, Boxes	1
2631	Paperboard Mills	1
2844	Perfume, Cosmetic, Toilet Prep	1
2911	Petroleum Refining	1
2834	Pharmaceuticals Preparations	1
4813	Phone Comm Ex Radiotelephone	2
4610	Pipe Lines, Ex Natural Gas	3
2821	Plastics, Resins, Elastomers	1
3260	Pottery and Related Products	2
7372	Prepackaged Software	1
3334	Prim Production of Aluminum	1
3672	Printed Circuit Boards	3
2531	Public Bldg & Rel Furniture	1
3561	Pumps and Pumping Equipment	2
4832	Radio Broadcasting Stations	1
3663	Radio, Tv Broadcast, Comm Eq	4

Panel D: Industry Classifications of IPO Sample (Continued)
(According to 4 Digit SIC Code)

4 Digit SIC	Industry Group	Frequency
4812	Radiotelephone Communication	3
3743	Railroad Equipment	2
4011	Railroads, Line-Haul Operating	1
5735	Record and Tape Stores	1
4953	Refuse Systems	3
5990	Retail Stores	4
3350	Rolling & Draw Nonfer Metal	4
4950	Sanitary Services	1
2241	Sawmills, Planing Mills, Gen	1
3674	Semiconductor, Related Device	1
3444	Sheet Metal Work	1
5661	Shoe Stores	2
8051	Skilled Nursing Care	7
8300	Social Services	1
8093	Spec Outpatient Facility, Nec	1
3559	Special Industry Machy, Nec	4
3949	Sporting & Athletic Gds, Nec	2
4961	Steam, Air-Conditioning Supp	1
3317	Steel Pipe and Tubes	1
3312	Steel Works & Blast Furnaces	7
3841	Surgical, Medical Instr, Apparatus	4
3661	Tele & Telegraph Apparatus	7
4822	Telegraph & Oth Message	2
7385	Telephone Interconnect Systems	1
4833	Television Broadcast Station	4
3824	Totalizing Fluid Meters	1
4100	Transit & Passenger Trans	1
3713	Truck and Bus Bodies	1
3715	Truck Trailers	1
4213	Trucking, Except Local	4
3081	Unsapp Plastics Film & Sheet	2
5331	Variety Stores	5
4400	Water Transportation	2
2340	Wmns, Miss, Chld, Infnt Undgrmt	1
5621	Women's Clothing Stores	4
2330	Womens, Misses, Jrs Outwears	5
2511	Wood Hshld Furn, Ex Upholsrd	1
Total # of 4-Digit Industries = 200		Total # of IPO Firms = 456

Table 2: Measures of Operating Performance of 456 Initial Public Offering Firms

Operating performance changes of U.S. firms announced public offering between 1989-1994. Table values are for the median change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Median annual performance is reported for multiple-year periods. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [(data item (24 x 25) + data item 10 + data item (5 - 4) + data item 9 / data item 6). Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales [(data item (24 x 25) - data item 60)/data item 12]. The significance tests are based on Wilcoxon non-parametric rank test which assumes that the observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Operating Performance Before and After the Initial Public Offering						
Performance Measure	Operating Performance Median (Observations)		Changes in Operating Performance Median(Observations)			
	Year -1	Year 0	Year -1 to 0	Year -1 to +1	Year -1 to +2	Year -1 to +3
Operating Return on Assets (EBITD / Assets)						
IPO Firms	0.16(444)	0.16(457)	-0.08(441)	-0.13(439)**	-0.18(412)***	-0.19(320)***
Size-B/M-Industry Adjusted	0.01(306)	0.01(317)	-0.10(303)	-0.07(301)	-0.07(277)*	-0.11(211)**
Operating Cash Flows/Total Assets						
IPO Firms	0.11(438)	0.10(453)	-0.16(434)	-0.31(430)***	-0.40(403)***	-0.42(313)***
Size-B/M-Industry Adjusted	0.02(298)	0.01(308)	-0.08(293)	-0.11(289)**	-0.07(264)***	-0.09(200)***
Operating Margin (EBITD / Sales)						
IPO Firms	0.07(421)	0.08(431)	0.10(411)***	0.09(400)***	0.08(372)***	0.07(282)**
Size-B/M-Industry Adjusted	-0.01(289)	-0.01(291)	0.10(285)	0.08(276)	0.12(255)	0.04(191)
Sales						
IPO Firms	68.4(446)	96.2(458)	0.24(436)***	0.56(434)***	0.90(408)***	1.27(316)***
Size-B/M-Industry Adjusted	-10.7(308)	-7.6(319)	0.08(300)	0.20(298)***	0.38(276)***	0.37(210)***
Capital Expenditures/Total assets						
IPO Firms	0.05(439)	0.05(454)	-0.02(432)	0.27(428)***	0.17(402)***	0.10(312)*
Size-B/M-Industry Adjusted	-0.01(299)	-0.0(310)	0.08(293)	0.24(289)**	0.20(265)***	0.12(200)
R&D/Total Assets						
IPO Firms	0.04(252)	0.03(262)	-0.33(183)*	0.10(192)*	-0.15(172)*	-0.22(135)
Size-B/M-Industry Adjusted	0.00(138)	0.00(140)	-0.28(100)**	-0.27(99)	-0.27(92)	-0.42(68)

Table 2-Continued

Performance Measure	Operating Performance Median (Observations)				Changes in Operating Performance Median(Observations)		
	Year 0	Year +1	Year +2	Year +3	Year 0 to +1	Year 0 to +2	Year 0 to +3
Tobin's Q							
IPO Firms	1.52(449)	1.30(447)	1.18(424)	1.13(322)	-0.11(446)**	-0.19(422)***	-0.27(321)***
Size-B/M-Industry Adjusted	0.07(308)	0.05(307)	0.04(287)	0.03(216)	0.000(306)	0.004(285)**	-0.003(214)***
Book to Market Ratio							
IPO Firms	0.32(463)	0.39(456)	0.44(430)	0.46(328)	0.19(455)***	0.26(429)***	0.37(327)***
Size-B/M-Industry Adjusted	-0.01(319)	-0.0(317)	0.01(294)	0.04(221)	0.01(317)**	0.08(294)***	0.08(221)***
Excess Market Value							
IPO Firms	0.93(450)	0.81(450)	0.69(426)	0.65(325)	-0.21(446)*	-0.41(421)***	-0.49(320)***
Size-B/M-Industry Adjusted	0.03(314)	0.02(313)	-0.01(290)	-0.04(219)	-0.08(311)	-0.12(288)**	-0.08(218)***

Table 3: Comparison of Operating Performances Between Venture and Non-Venture Backed 456 IPO Firms

Operating performance changes of U.S. firms announced public offering between 1989-1994. Venture Capitalist IPOs are backed by a venture capitalist, the others are classified as Non-Venture IPOs. Table values are for the median change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25)+ data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales[(data item (24 x 25) - data item 60)/data item 12]. The Z statistics reported in the table are based on Wilcoxon two-sample non-parametric rank test which assumes that the observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Changes in operating performance of Initial Public Offering Firms												
	VC IPOs	Non-VC IPOs	Z-stat (P value)	VC IPOs	Non-VC IPOs	Z-stat (P value)	VC IPOs	Non-VC IPOs	Z-stat (P value)	VC IPOs	Non-VC IPOs	Z-stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Operating Return on Assets (EBITD/Assets)												
<i>IPO Firms</i>												
Median	-0.12	-0.04	-2.44***	-0.13	-0.12	-0.64	-0.16	-0.19	0.87	-0.15	-0.26	1.38
Observations	193	247	(0.01)	192	246	(0.52)	183	228	(0.39)	153	166	(0.17)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.10	-0.10	0.40	-0.04	-0.08	0.46	-0.02	-0.11	1.37	-0.12	-0.10	-0.65
Observations	137	166	(0.69)	136	165	(0.64)	129	148	(0.17)	106	105	(0.51)
Operating Cash Flows/Total Assets												
<i>IPO Firms</i>												
Median	-0.19	-0.14	-0.20	-0.26	-0.38	2.01**	-0.31	-0.50	2.98***	-0.29	-0.45	2.25**
Observations	190	243	(0.84)	189	240	(0.04)	180	222	(0.00)	152	160	(0.02)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.01	-0.16	2.17**	-0.03	-0.21	1.12	-0.02	-0.15	1.02	-0.32	-0.09	1.18
Observations	130	163	(0.03)	129	160	(0.26)	122	142	(0.31)	101	99	(0.24)
Operating Margin (EBITD / Sales)												
<i>IPO Firms</i>												
Median	0.07	0.11	-1.12	0.14	0.06	0.76	0.11	0.01	1.11	0.07	0.07	0.43
Observations	170	240	(0.26)	167	232	(0.45)	157	214	(0.27)	124	157	(0.67)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.13	0.07	0.55	0.09	0.08	0.57	0.16	0.08	0.46	-0.05	0.06	-0.26
Observations	123	162	(0.58)	119	157	(0.57)	113	142	(0.65)	91	100	(0.79)

Table 3-Continued

	VC IPOs	Non-VC IPOs	Z-stat (P value)	VC IPOs	Non-VC IPOs	Z-stat (P value)	VC IPOs	Non-VC IPOs	Z-stat (P value)	VC IPOs	Non-VC IPOs	Z-stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Sales												
<i>IPO Firms</i>												
Median	0.40	0.20	4.46***	0.81	0.49	4.77***	1.44	0.76	5.31***	2.11	0.98	4.43***
Observations	188	247	(0.00)	187	246	(0.00)	179	228	(0.00)	149	166	(0.00)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.10	0.07	1.41	0.36	0.16	2.01 **	0.57	0.24	2.82***	0.70	0.22	2.20**
Observations	134	166	(0.16)	133	165	(0.04)	128	148	(0.0)	104	106	(0.03)
Capital Expenditures/Total Assets												
<i>IPO Firms</i>												
Median	-0.04	-0.01	-0.51	0.27	0.29	-0.32	0.29	0.09	0.79	0.19	0.06	1.68*
Observations	191	240	(0.61)	190	237	(0.75)	181	220	(0.43)	152	159	(0.09)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.02	0.10	0.08	0.12	0.28	-0.28	0.27	0.16	-0.09	0.26	-0.15	-2.22**
Observations	132	161	(0.93)	131	158	(0.78)	124	141	(0.93)	101	99	(0.03)
R&D/Total Assets												
<i>IPO Firms</i>												
Median	-0.41	-0.20	3.03***	0.17	0.06	-1.48	-0.19	-0.07	1.00	-0.26	-0.17	0.48
Observations	108	75	(0.00)	113	79	(0.14)	104	68	(0.32)	86	49	(0.63)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.38	-0.17	1.46	-0.38	-0.07	1.94**	-0.32	-0.04	1.49	-0.46	-0.15	0.37
Observations	63	37	(0.14)	61	38	(0.05)	59	33	(0.14)	46	22	(0.71)

Table 3-Continued

Performance Measure	Year -1 to 0	VC	Non-VC	Z-stat	VC	Non-VC	Z-stat	VC	Non-VC	Z-stat
		IPOs	IPOs	(P value)	IPOs	IPOs	(P value)	IPOs	IPOs	(P value)
		Year 0 to +1			Year 0 to +2			Year 0 to +3		
Tobin's Q										
<i>IPO Firms</i>										
Median		-0.14	-0.11	0.38	-0.18	-0.19	1.29	-0.23	-0.30	1.79*
Observations		196	249	(0.70)	187	234	(0.20)	153	167	(0.07)
<i>Size-B/M-Industry Adjusted</i>										
Median		0.05	-0.01	1.49	0.02	-0.04	0.65	-0.00	0.00	0.14
Observations		139	167	(0.14)	133	152	(0.52)	107	107	(0.89)
Book to Market Ratio										
<i>IPO Firms</i>										
Median		0.13	0.23	-2.10**	0.14	0.40	-2.71***	0.21	0.44	-2.12**
Observations		199	255	(0.04)	189	239	(0.01)	155	171	(0.03)
<i>Size-B/M-Industry Adjusted</i>										
Median		-0.07	0.06	-1.63*	0.01	0.12	-1.60	0.11	0.04	0.00
Observations		145	172	(0.10)	137	157	(0.11)	110	111	(0.99)
Excess Market value										
<i>IPO Firms</i>										
Median		-0.20	-0.22	0.39	-0.36	-0.44	0.33	-0.39	-0.56	1.50
Observations		193	252	(0.70)	186	234	(0.74)	150	169	(0.13)
<i>Size-B/M-Industry Adjusted</i>										
Median		0.02	-0.09	0.04	-0.10	-0.14	0.41	-0.17	-0.07	-0.41
Observations		140	171	(0.96)	134	154	(0.68)	107	111	(0.68)

Table 4: Investment Bankers' Reputation and Operating Performance of 456 IPO Firms

Panel A: Measures of Operating Performance of 456 IPO Firms Based on Investment Banker's Reputation Characteristics

(Based on Carter-Manaster Investment Bankers' Reputation Ranking)

Operating performance changes of U.S. firms announced public offering between 1989-1994. The IPOs in the sample are separated into two groups based on Carter-Manaster (1998) measure for investment banker's reputation. The Carter-Manaster measure is a discrete investment bankers' reputation variable 0-9 where a 9 is the most prestigious investment banker and 0 is the least prestigious investment banker. The low group consists of IPOs underwritten by investment bankers with a CM ranks lower than 8. The high group consists of CM ranks 8 and above. Table values are for the median change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25) + data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales [(data item (24 x 25) - data item 60)/data item 12]. The Z statistics reported in the table are based on Wilcoxon two-sample non-parametric rank test which assumes that the observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Changes in operating performance of Initial Public Offering Firms												
	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Operating Return on Assets (EBITD / Assets)												
<i>IPO Firms</i>												
Median	-0.04	-0.15	-1.31	-0.13	-0.12	0.45	-0.16	-0.25	-0.65	-0.17	-0.25	-0.34
Observations	313	126	(0.19)	311	126	(0.65)	295	116	(0.51)	231	88	(0.73)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.09	-0.19	-0.28	-0.07	-0.06	0.94	-0.07	-0.04	0.89	-0.18	-0.04	0.94
Observations	223	78	(0.78)	222	77	(0.34)	209	67	(0.37)	157	53	(0.35)
Operating Cash Flows/Total Assets												
<i>IPO Firms</i>												
Median	-0.13	-0.24	-1.52	-0.29	-0.36	0.01	-0.42	-0.37	0.52	-0.42	-0.38	0.58
Observations	310	122	(0.13)	306	122	(0.99)	290	112	(0.60)	226	86	(0.56)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.07	-0.12	-0.32	-0.11	-0.07	-0.21	-0.19	0.10	1.93**	-0.27	0.18	-1.61
Observations	216	75	(0.75)	213	74	(0.83)	199	64	(0.05)	148	51	(0.11)
Operating Margin (EBITD / Sales)												
<i>IPO Firms</i>												
Median	0.08	0.13	0.59	0.06	0.14	1.24	0.05	0.16	0.99	0.05	0.14	0.74
Observations	293	116	(0.56)	284	114	(0.22)	266	105	(0.32)	203	78	(0.46)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.07	0.17	1.96**	0.03	0.22	2.06**	0.07	0.22	1.32	0.06	0.01	0.10
Observations	213	70	(0.05)	207	67	(0.04)	194	60	(0.18)	143	47	(0.92)

Table 4A-Continued

	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Sales												
<i>IPO Firms</i>												
Median	0.22	0.30	1.76*	0.52	0.69	2.15**	0.85	1.01	1.79*	1.24	1.65	1.51
Observations	314	120	(0.08)	312	120	(0.03)	296	111	(0.07)	230	85	(0.13)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.07	0.10	-0.28	0.18	0.29	0.10	0.38	0.38	-0.37	0.41	0.25	-1.10
Observations	225	73	(0.78)	224	72	(0.91)	211	64	(0.72)	157	52	(0.29)
Capital Expenditures/Total Assets												
<i>IPO Firms</i>												
Median	0.02	-0.10	-1.05	0.29	0.23	0.58	0.22	0.06	-0.98	0.10	0.10	0.14
Observations	309	121	(0.29)	305	121	(0.56)	290	111	(0.33)	226	85	(0.88)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.05	0.10	1.00	0.16	0.44	1.83*	0.22	0.09	-0.32	0.19	-0.07	-0.67
Observations	216	75	(0.33)	213	74	(0.07)	200	64	(0.75)	148	51	(0.50)
R&D/Total Assets												
<i>IPO Firms</i>												
Median	-0.32	-0.37	-0.23	0.08	0.21	1.62*	-0.15	-0.09	0.15	-0.21	-0.26	-0.44
Observations	133	49	(0.82)	139	52	(0.10)	127	44	(0.87)	99	35	(0.66)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.26	-0.35	0.32	-0.28	-0.18	0.55	-0.28	-0.03	1.06	-0.36	-0.65	-0.96
Observations	76	24	(0.74)	75	24	(0.58)	73	19	(0.29)	54	14	(0.34)

Table 4A-Continued

Performance Measure		HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)
		Year 0 to +1			Year 0 to +2			Year 0 to +3		
Tobin's Q										
<i>IPO Firms</i>										
Median		-0.14	-0.04	1.76*	-0.20	-0.13	1.51	-0.28	-0.22	1.45
Observations		315	129	(0.08)	301	120	(0.13)	230	90	(0.15)
<i>Size-B/M-Industry Adjusted</i>										
Median		-0.00	0.08	0.92	-0.01	0.03	0.57	-0.01	0.03	1.21
Observations		225	79	(0.36)	214	70	(0.57)	158	55	(0.22)
Book to Market Ratio										
<i>IPO Firms</i>										
Median		0.23	0.06	-1.38	0.31	0.15	-1.49	0.42	0.18	-1.84*
Observations		324	129	(0.17)	308	120	(0.14)	236	90	(0.07)
<i>Size-B/M-Industry Adjusted</i>										
Median		0.01	-0.06	-0.15	0.11	-0.06	-0.71	0.16	-0.10	-1.79*
Observations		236	79	(0.88)	223	70	(0.48)	165	55	(0.07)
Excess Market value										
<i>IPO Firms</i>										
Median		-0.23	-0.20	0.05	-0.41	-0.41	0.64	-0.55	-0.37	0.82
Observations		322	122	(0.96)	305	115	(0.52)	235	84	(0.41)
<i>Size-B/M-Industry Adjusted</i>										
Median		-0.07	-0.10	0.17	-0.13	-0.12	-0.41	-0.19	0.07	0.98
Observations		236	73	(0.86)	222	65	(0.68)	165	52	(0.33)

**Panel B: Measures of Operating Performance of 456 IPO Firms Based on Investment Banker's Reputation Characteristics
(Based on Securities Data Corporation's Investment Bankers' Reputation Ranking)**

Operating performance changes of U.S. firms announced public offering between 1989-1994. The IPOs in the sample are separated into two groups based on the Securities Data Corporation's (SDC) investment bankers ranking for the year 1996. SDC ranks underwriter according to their market share. If underwriter of an IPO firm is ranked in top ten, this IPO firm is included in the high reputation group. Otherwise it is included in the low reputation group. Table values are for the median change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before deprecation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25) + data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales [(data item (24 x 25) - data item 60) / data item 12]. The Z statistics reported in the table are based on Wilcoxon two-sample non-parametric rank test which assumes that the observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Changes in operating performance of Initial Public Offering Firms												
	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Operating Return on Assets (EBITD / Assets)												
<i>IPO Firms</i>												
Median	-0.02	-0.16	-3.00***	-0.08	-0.15	-1.47	-0.11	-0.29	-2.81***	-0.15	-0.32	-1.85*
Observations	239	198	(0.00)	237	198	(0.14)	222	187	(0.00)	177	140	(0.06)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.05	-0.17	-0.55	-0.04	-0.11	0.02	-0.03	-0.11	-0.46	-0.10	-0.14	0.12
Observations	171	129	(0.58)	169	129	(0.98)	157	118	(0.64)	122	87	(0.90)
Operating Cash Flows/Total Assets												
<i>IPO Firms</i>												
Median	-0.08	-0.26	-1.84*	-0.28	-0.37	0.03	-0.32	-0.49	-1.80*	-0.33	-0.49	-1.66*
Observations	238	192	(0.07)	235	191	(0.97)	219	181	(0.07)	175	135	(0.10)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.02	-0.14	-1.13	-0.11	-0.13	0.69	-0.11	-0.03	0.62	-0.25	-0.01	0.65
Observations	166	124	(0.26)	163	123	(0.49)	148	114	(0.54)	115	83	(0.51)
Operating Margin (EBITD / Sales)												
<i>IPO Firms</i>												
Median	0.07	0.12	1.30	0.06	0.11	1.53	0.10	0.00	-0.36	0.13	-0.02	1.48
Observations	229	179	(0.19)	220	176	(0.12)	205	165	(0.71)	161	119	(0.14)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.03	0.17	0.71	0.02	0.16	0.81	0.13	0.08	-0.72	0.07	-0.08	-0.83
Observations	166	116	(0.48)	159	114	(0.42)	146	107	(0.47)	114	75	(0.41)

Table 4B-Continued

	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Sales												
<i>IPO Firms</i>												
Median	0.22	0.29	1.47	0.52	0.64	1.51	0.87	0.94	1.22	1.25	1.34	0.72
Observations	239	193	(0.14)	237	193	(0.13)	223	182	(0.22)	177	136	(0.47)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.09	0.07	-0.89	0.20	0.23	-0.53	0.41	0.35	-0.06	0.40	0.37	-0.26
Observations	171	126	(0.37)	169	126	(0.60)	158	116	(0.95)	123	85	(0.79)
Capital Expenditures/Total Assets												
<i>IPO Firms</i>												
Median	0.09	-0.15	-2.72***	0.33	0.15	-1.06	0.29	0.07	-2.01**	0.09	0.13	0.89
Observations	235	193	(0.01)	232	192	(0.29)	218	181	(0.04)	175	134	(0.37)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.10	0.03	-0.18	0.24	0.17	0.08	0.27	0.15	-0.98	0.20	0.04	-0.83
Observations	165	125	(0.85)	162	124	(0.94)	149	114	(0.33)	115	83	(0.41)
R&D/Total Assets												
<i>IPO Firms</i>												
Median	-0.23	-0.41	-2.62***	0.08	0.09	-0.88	-0.07	-0.24	2.39**	-0.22	-0.25	-0.36
Observations	90	90	(0.01)	93	96	(0.38)	84	85	(0.02)	70	62	(0.72)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.13	-0.50	-2.41**	-0.25	-0.32	-0.34	-0.26	-0.29	-0.20	-0.39	-0.57	-0.84
Observations	56	43	(0.02)	54	44	(0.73)	52	39	(0.84)	40	27	(0.40)

Table 4B-Continued

	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)	HR IPOs	LR IPOs	Z-stat (P value)			
Performance Measure	Year -1 to 0			Year 0 to +1			Year 0 to +2			Year 0 to +3		
Tobin's Q												
<i>IPO Firms</i>												
Median	-0.12	-0.11	0.16	-0.19	-0.19	0.28	-0.27	-0.34	-0.70			
Observations	238	204	(0.88)	226	193	(0.78)	178	140	(0.48)			
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.00	0.02	-0.35	0.00	0.00	0.16	-0.01	0.03	0.14			
Observations	168	135	(0.73)	159	124	(0.87)	123	89	(0.89)			
Book to Market Ratio												
<i>IPO Firms</i>												
Median	0.17	0.24	0.60	0.21	0.39	0.59	0.37	0.41	0.25			
Observations	243	208	(0.55)	229	197	(0.55)	181	143	(0.80)			
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.01	0.00	0.71	0.05	0.12	0.54	0.08	0.06	-1.01			
Observations	174	140	(0.48)	163	129	(0.59)	127	92	(0.31)			
Excess Market value												
<i>IPO Firms</i>												
Median	-0.15	-0.25	-1.00	-0.36	-0.44	-0.60	-0.46	-0.63	-0.88			
Observations	243	199	(0.31)	228	190	(0.55)	181	136	(0.38)			
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.01	-0.11	-0.69	-0.10	-0.22	-1.05	-0.07	-0.26	-1.01			
Observations	174	134	(0.49)	162	124	(0.29)	127	89	(0.31)			

Table 5: Institutional Ownership and Operating Performance of 456 IPO Firms

Operating performance changes of U.S. firms announced public offering between 1989-1994. If institutional investors have stakes in an IPO firm greater than the median value of institutional ownership of the sample at the end of the offering year (year 0), the IPO firm is classified as the firm with high institutional ownership (HIGH-INST). An IPO with low institutional ownership (LOW-INST) is the one that institutional investors' participation in this IPO firm is less than the median value of the sample. Table values are for the median change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25) + data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales [(data item (24 x 25) - data item 60)/data item 12]. The Z statistics reported in the table are based on Wilcoxon two-sample non-parametric rank test which assumes that the observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Changes in operating performance of Initial Public Offering Firms												
	HIGH INST	LOW INST	Z-stat (P value)	HIGH INST	LOW INST	Z-stat (P value)	HIGH INST	LOW INST	Z-stat (P value)	HIGH INST	LOW INST	Z-stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Operating Return on Assets (EBITD/Assets)												
<i>IPO Firms</i>												
Median	-0.02	-0.13	2.81***	-0.09	-0.16	1.31	-0.13	-0.25	2.32**	-0.14	-0.24	1.90*
Observations	202	239	(0.01)	202	237	(0.19)	188	224	(0.02)	144	176	(0.06)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.02	-0.17	1.92**	-0.04	-0.11	0.62	0.01	-0.20	2.98***	-0.03	-0.20	1.42
Observations	143	160	(0.05)	142	159	(0.53)	130	147	(0.00)	100	111	(0.15)
Operating Cash Flows/Total Assets												
<i>IPO Firms</i>												
Median	-0.09	-0.23	1.65*	-0.31	-0.30	-0.29	-0.35	-0.46	0.20	-0.38	-0.44	0.25
Observations	200	234	(0.10)	200	230	(0.77)	185	218	(0.84)	140	173	(0.80)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.08	-0.17	0.01	-0.16	-0.11	-0.34	-0.13	-0.20	-0.40	-0.15	-0.20	-0.36
Observations	139	160	(0.99)	138	159	(0.73)	124	147	(0.69)	93	111	(0.72)
Operating Margin (EBITD / Sales)												
<i>IPO Firms</i>												
Median	0.12	0.08	1.08	0.11	0.06	1.06	0.14	-0.02	1.79*	0.14	-0.00	2.14**
Observations	189	222	(0.28)	187	213	(0.29)	172	200	(0.07)	128	154	(0.03)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.11	0.07	0.17	0.16	0.01	1.65*	0.25	-0.04	2.85***	0.22	-0.08	2.25**
Observations	138	147	(0.87)	135	141	(0.10)	124	131	(0.00)	95	96	(0.02)

Table 5-Continued

	HIGH INST	LOW INST	Z-stat (P value)	HIGH INST	LOW INST	Z-stat (P value)	HIGH INST	LOW INST	Z-stat (P value)	HIGH INST	LOW INST	Z-stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Sales												
<i>IPO Firms</i>												
Median	0.21	0.26	-1.25	0.52	0.64	-0.80	0.86	0.95	-0.67	1.25	1.34	-0.34
Observations	203	233	(0.21)	203	231	(0.42)	190	218	(0.51)	144	172	(0.74)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.07	0.09	0.26	0.20	0.23	0.05	0.27	0.49	-0.77	0.31	0.41	-0.47
Observations	144	156	(0.80)	143	155	(0.96)	132	144	(0.44)	101	109	(0.64)
Capital Expenditures/Total Assets												
<i>IPO Firms</i>												
Median	0.04	-0.03	1.67*	0.39	0.14	1.66*	0.26	0.09	1.57	0.17	0.07	1.00
Observations	199	233	(0.10)	199	229	(0.10)	185	217	(0.12)	139	173	(0.34)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.08	0.08	0.84	0.36	0.11	1.19	0.46	0.08	1.78*	0.29	-0.07	1.54
Observations	138	155	(0.40)	137	152	(0.24)	125	140	(0.08)	93	107	(0.12)
R&D/Total Assets												
<i>IPO Firms</i>												
Median	-0.24	-0.41	7.80*	0.02	0.16	-1.63*	-0.04	-0.21	1.92**	-0.07	-0.27	1.76*
Observations	81	102	(0.07)	83	109	(0.10)	76	96	(0.05)	55	80	(0.08)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.10	-0.38	1.76*	-0.19	-0.28	0.71	-0.11	-0.29	1.64*	-0.42	-0.36	-0.57
Observations	42	58	(0.08)	42	57	(0.48)	39	53	(0.10)	28	40	(0.57)

Table 5-Continued

		HIGH INST	LOW INST	Z-stat (P value)	HIGH INST	LOW INST	Z-stat (P value)	HIGH INST	LOW INST	Z-stat (P value)
Performance Measure	Year -1 to 0	Year 0 to +1			Year 0 to +2			Year 0 to +3		
Tobin's Q										
<i>IPO Firms</i>										
	Median	-0.12	-0.11	-0.55	-0.20	-0.19	-0.86	-0.26	-0.29	-0.39
	Observations	206	240	(0.58)	194	228	(0.39)	146	175	(0.70)
<i>Size-B/M-Industry Adjusted</i>										
	Median	0.00	0.00	-0.78	0.00	0.00	-0.40	0.01	-0.00	-1.17
	Observations	142	164	(0.44)	133	152	(0.69)	102	112	(0.24)
Book to Market Ratio										
<i>IPO Firms</i>										
	Median	0.19	0.19	-0.39	0.26	0.27	0.87	0.38	0.37	0.79
	Observations	210	245	(0.70)	197	232	(0.38)	147	180	(0.43)
<i>Size-B/M-Industry Adjusted</i>										
	Median	-0.01	0.01	-0.22	0.11	0.02	0.38	0.24	0.00	2.21**
	Observations	150	167	(0.83)	139	155	(0.71)	105	116	(0.03)
Excess Market value										
<i>IPO Firms</i>										
	Median	-0.17	-0.23	0.08	-0.40	-0.42	-0.35	-0.44	-0.58	0.62
	Observations	209	237	(0.43)	195	226	(0.73)	146	174	(0.53)
<i>Size-B/M-Industry Adjusted</i>										
	Median	0.02	-0.10	0.61	-0.18	-0.10	-0.19	-0.09	-0.07	-0.11
	Observations	150	161	(0.54)	138	150	(0.85)	105	113	(0.92)

Table 6: Corporate Diversification and Operating Performance of 456 IPO Firms

Panel A: Measures of Operating Performance of 456 IPO Firms Based on Corporate Diversification Characteristics Based on 2-Digit SIC Codes)

Operating performance changes of U.S. firms announced public offering between 1989-1994. For corporate diversification, IPOs are classified as Multi and Single segment IPO firms by using COMPUSTAT Business Segment Descriptions. The classification is made by comparing two-digit primary SIC codes with the secondary two digit SIC codes given by Standard & Poor's. A firm with two or more different two-digit SIC codes are labeled as Multi-Segment IPO firm. A firm is defined a single segment IPO firm if it has only one 2-digit SIC code. Table values are for the median change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data Item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25)+ data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales[(data item (24 x 25) - data item 60)/data item 12]. The Z statistics reported in the table are based on Wilcoxon two-sample non-parametric rank test which assumes that the observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Changes in operating performance of Initial Public offering Firms												
	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Operating Return on Assets (EBITD / Assets)												
<i>IPO Firms</i>												
Median	-0.10	-0.06	-1.13	-0.12	-0.13	-0.32	-0.17	-0.21	0.21	-0.18	-0.20	0.45
Observations	196	245	(0.26)	196	243	(0.75)	192	220	(0.83)	162	158	(0.65)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.14	-0.09	-0.19	-0.04	-0.08	0.83	-0.04	-0.13	0.51	-0.14	-0.08	-0.38
Observations	133	170	(0.85)	132	169	(0.40)	128	149	(0.61)	103	108	(0.71)
Operating Cash Flows/Total Assets												
<i>IPO Firms</i>												
Median	-0.19	-0.13	0.08	-0.29	-0.35	0.62	-0.32	-0.46	2.04	-0.37	-0.42	-1.18
Observations	191	243	(0.93)	190	240	(0.54)	186	217	(0.04)	157	156	(0.24)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.14	-0.03	-0.16	0.05	-0.16	0.68	-0.05	-0.12	0.61	-0.16	-0.09	-0.06
Observations	127	166	(0.87)	125	164	(0.50)	120	144	(0.54)	97	103	(0.96)

Table 6A-Continued

	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Operating Margin (EBITD / Sales)												
<i>IPO Firms</i>												
Median	0.07	0.12	-0.39	0.09	0.09	0.21	0.12	0.02	0.73	0.08	0.07	-0.15
Observations	182	229	(0.70)	177	223	(0.84)	176	196	(0.46)	149	133	(0.80)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.05	0.13	-0.66	0.05	0.11	-0.28	0.15	0.09	0.75	0.01	0.05	-0.01
Observations	121	164	(0.51)	117	159	(0.78)	116	139	(0.45)	93	98	(0.99)
Sales												
<i>IPO Firms</i>												
Median	0.22	0.27	-1.73*	0.55	0.58	-0.44	0.89	0.92	-0.83	1.19	1.54	1.23
Observations	193	243	(0.08)	193	241	(0.66)	189	219	(0.41)	160	156	(0.26)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.09	0.07	-0.48	0.20	0.20	0.22	0.45	0.27	0.74	0.30	0.41	-0.61
Observations	132	168	(0.63)	131	167	(0.82)	128	148	(0.46)	104	106	(0.54)
Capital Expenditures/Total Assets												
<i>IPO Firms</i>												
Median	-0.01	-0.03	0.22	0.29	0.26	-0.29	0.19	0.17	-0.10	0.15	0.07	-0.33
Observations	191	241	(0.82)	190	238	(0.77)	186	216	(0.92)	157	155	(0.74)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.09	0.03	0.36	0.25	0.17	0.87	0.29	0.10	1.37	0.22	-0.01	0.53
Observations	129	164	(0.72)	127	162	(0.39)	121	144	(0.17)	97	103	(0.60)
R&D/Total Assets												
<i>IPO Firms</i>												
Median	-0.38	-0.32	-0.33	0.05	0.17	-2.04**	-0.16	-0.14	-0.51	-0.29	-0.19	1.48
Observations	84	99	(0.74)	90	102	(0.04)	82	90	(0.61)	69	66	(0.14)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.29	-0.27	-0.10	-0.30	-0.14	-1.61	-0.36	-0.24	-1.80*	-0.53	-0.16	-1.07
Observations	45	55	(0.92)	43	56	(0.11)	40	52	(0.07)	33	35	(0.29)

Table 6A-Continued

	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)
Performance Measure	Year -1 to 0			Year 0 to +1			Year 0 to +2			Year 0 to +3		
Tobin's Q												
<i>IPO Firms</i>												
Median				-0.07	-0.16	2.17**	-0.19	-0.20	0.85	-0.26	-0.33	0.90
Observations				197	249	(0.03)	193	229	(0.40)	159	162	(0.31)
<i>Size-B/M-Industry Adjusted</i>												
Median				0.03	-0.01	2.00**	-0.00	0.01	0.16	-0.00	0.01	-0.25
Observations				134	172	(0.05)	129	156	(0.87)	102	112	(0.80)
Book to Market Ratio												
<i>IPO Firms</i>												
Median				0.11	0.24	-0.95	0.18	0.39	-1.35	0.23	0.48	1.87*
Observations				203	252	(0.34)	198	231	(0.17)	164	163	(0.06)
<i>Size-B/M-Industry Adjusted</i>												
Median				-0.07	0.07	-1.41	0.02	0.12	-0.12	0.09	0.08	-0.11
Observations				140	177	(0.16)	135	159	(0.91)	108	113	(0.91)
Excess Market value												
<i>IPO Firms</i>												
Median				-0.15	-0.25	0.05	-0.39	-0.42	0.00	-0.48	-0.51	-0.28
Observations				198	248	(0.96)	195	226	(0.99)	162	158	(0.78)
<i>Size-B/M-Industry Adjusted</i>												
Median				0.04	-0.09	0.52	-0.15	-0.11	-0.36	-0.07	-0.17	-0.40
Observations				136	175	(0.59)	132	156	(0.72)	107	111	(0.69)

Panel B: Measures of Operating Performance of 456 IPO Firms Based on Corporate Diversification Characteristics

(Based on Segment Information)

Operating performance changes of U.S. firms announced public offering between 1989-1994. The diversity classification is used by using segment information from the COMPUSTAT Business Segment Descriptions. Firms with only one segment information are classified Single-Segment, firms with two or more segments are classified as Multi-Segment IPO firms. Table values are for the median change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25) + data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales [(data item (24 x 25) - data item 60)/data item 12]. The Z statistics reported in the table are based on Wilcoxon two-sample non-parametric rank test which assumes that the observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Changes in operating performance of Initial Public Offering Firms												
	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Operating Return on Assets (EBITD / Assets)												
<i>IPO Firms</i>												
Median	0.04	-0.10	2.36**	0.04	-0.13	2.21	-0.04	-0.20	1.70	-0.22	-0.19	-0.04
Observations	39	402	(0.02)	39	400	(0.03)	38	374	(0.09)	33	287	(0.97)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.07	-0.11	0.98	0.12	-0.08	1.31	-0.03	-0.07	0.61	-0.21	-0.11	-0.66
Observations	25	278	(0.33)	25	276	(0.19)	25	252	(0.54)	21	190	(0.51)
Operating Cash Flows/Total Assets												
<i>IPO Firms</i>												
Median	0.04	-0.18	2.48***	-0.03	-0.37	2.53***	-0.08	-0.43	2.08**	-0.45	-0.41	-0.52
Observations	38	396	(0.01)	37	393	(0.01)	36	367	(0.04)	32	281	(0.60)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.16	-0.08	1.74*	0.58	-0.16	1.86*	-0.02	-0.07	0.85	-0.44	-0.09	-0.65
Observations	25	268	(0.08)	24	265	(0.06)	24	240	(0.39)	21	179	(0.52)

Table 6B-Continued

	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)
Performance Measure	Year -1 to 0			Year -1 to +1			Year -1 to +2			Year -1 to +3		
Operating Margin (EBITD / Sales)												
<i>IPO Firms</i>												
Median	0.16	0.09	1.04	0.18	0.07	1.47	0.17	0.05	1.43	0.09	0.07	-0.33
Observations	38	373	(0.30)	38	362	(0.14)	36	336	(0.15)	32	250	(0.97)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.27	0.09	0.15	0.29	0.06	0.83	0.29	0.11	0.99	-0.07	0.05	-0.95
Observations	25	260	(0.88)	25	251	(0.41)	23	232	(0.32)	21	170	(0.34)
Sales												
<i>IPO Firms</i>												
Median	0.11	0.26	-2.65***	0.39	0.59	-1.72*	0.51	1.00	-2.44***	0.72	1.33	-1.44
Observations	39	397	(0.01)	39	395	(0.09)	38	370	(0.01)	33	283	(0.14)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.07	0.08	-0.70	0.05	0.22	-0.59	0.15	0.40	-0.49	0.17	0.40	-0.22
Observations	25	275	(0.48)	25	273	(0.55)	25	251	(0.63)	21	189	(0.82)
Capital Expenditures/Total Assets												
<i>IPO Firms</i>												
Median	0.06	-0.02	0.80	0.35	0.26	-0.12	0.34	0.16	0.58	0.14	0.08	0.38
Observations	38	394	(0.42)	37	391	(0.91)	36	366	(0.56)	32	280	(0.71)
<i>Size-B/M-Industry Adjusted</i>												
Median	0.01	0.08	-0.15	0.34	0.22	0.29	0.22	0.19	0.26	-0.24	0.14	-0.61
Observations	25	268	(0.88)	24	265	(0.77)	24	241	(0.80)	21	179	(0.54)
R&D/Total Assets												
<i>IPO Firms</i>												
Median	-0.19	-0.35*	1.39	-0.03	0.11*	-1.53	-0.02	-0.16*	0.63	-0.01	-0.25	1.15
Observations	15	168	(0.17)	16	176	(0.12)	15	157	(0.53)	13	122	(0.25)
<i>Size-B/M-Industry Adjusted</i>												
Median	-0.06	-0.29	0.53	-0.08	-0.28	0.49	0.01	-0.28	0.63	0.04	-0.46	1.11
Observations	8	92	(0.60)	8	91	(0.62)	8	84	(0.53)	6	62	(0.27)

Table 6B-Continued

Performance Measure	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)	Multi-Segment	Single-Segment	Z stat (P value)
	Year -1 to 0			Year 0 to +1			Year 0 to +2			Year 0 to +3		
Tobin's Q												
<i>IPO Firms</i>												
Median				-0.11	-0.12	0.31	-0.17	-0.20	0.62	-0.24	-0.28	0.66
Observations				39	407	(0.76)	38	384	(0.54)	32	289	(0.51)
<i>Size-B/M-Industry Adjusted</i>												
Median				0.02	0.00	0.27	0.16	-0.00	0.55	0.07	-0.00	0.27
Observations				25	276	(0.79)	25	260	(0.58)	20	194	(0.79)
Book to Market Ratio												
<i>IPO Firms</i>												
Median				0.06	0.20	-0.58	-0.02	0.29	-0.66	0.21	0.37	-0.38
Observations				40	252	(0.56)	39	390	(0.51)	33	294	(0.70)
<i>Size-B/M-Industry Adjusted</i>												
Median				-0.07	0.01	-0.39	-0.11	0.10	-0.26	0.14	0.08	-0.28
Observations				25	274	(0.70)	25	268	(0.79)	20	200	(0.78)
Excess Market value												
<i>IPO Firms</i>												
Median				-0.15	-0.23	-0.30	-0.28	-0.42	-0.02	-0.56	-0.49	-0.60
Observations				40	406	(0.77)	39	382	(0.99)	33	287	(0.55)
<i>Size-B/M-Industry Adjusted</i>												
Median				0.09	-0.09	0.46	0.21	-0.13	1.37	-0.08	-0.09	-0.02
Observations				25	275	(0.65)	25	263	(0.17)	20	197	(0.98)

Table 7: Venture Capitalists, Investment bankers' Reputation and Operating Performance of IPO Firms

Panel A: Operating Performance Change Differences of IPO Firms: Venture Capitalists Versus Investment Bankers' Reputation (Based on Carter-Manaster Investment Bankers' Reputation Ranking)

Operating performance change differences of U.S. firms announced public offering between 1989-1994. The IPOs in the sample are separated into four groups based on Carter-Manaster (1998) measure for investment bankers' reputation and whether they are venture backed or not. Venture Capitalist (VC) IPOs are backed by a venture capitalist, the others are classified as Non-Venture Capitalist (Non-VC) IPOs. One classification for investment bankers' reputation is Carter-Manaster measure. The Carter-Manaster measure is a discrete underwriter reputation variable 0-9 where a 9 is the most prestigious underwriter and 0 is the least prestigious underwriter. The low group (LR) consists of IPOs underwritten by investment bankers with a CM ranks lower than 8. The high group (HR) consists of CM ranks 8 and above. Table values are for the median percentage change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25)+ data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales[(data item (24 x 25) - data item 60)/data item 12]. The first entry difference denotes the median percentage performance change between HR/VC and LR/VC (HR/NonVC and LR/VC) and the second entry difference denotes the median percentage performance change between HR/VC and LR/Non VC (HR/Non VC and LR/Non VC). The tests for differences between the groups are performed using Wilcoxon two-sample non-parametric rank test [the Z statistic-Normal approximation] and Kruskal-Wallis test {Chi Square approximation} in square brackets and queerly brackets, respectively, which assume that observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level for both statistics.

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING RETURN ON ASSETS (EBITD/ASSETS)

<i>A1. IPO Firms</i>							<i>A2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>		<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>	
	LR / VC (N=51)*	LR/Non VC (N=69)	LR / VC (N=47)	LR/Non VC (N=49)	LR / VC (N=39)	LR/Non VC (N=49)	LR / VC (N=43) *	LR/Non VC (N=43)	LR/VC (N=31)	LR/Non VC (N=36)	LR/VC (N=25)	LR/Non VC (N=28)
HR/VC (N=141)	(-16 - (-6)) [2.4]{5.9}**	(-16 - (-22)) [0.3]{0.1}	(-18 - (-13)) [1.8]{3.4}*	(-18 - (-31)) [1.5]{2.4}	(-16 - (-14)) [0.6]{0.3}	(-16 - (-23)) [1.5]{2.4}	(-7 - 1) [2.2]{4.8}**	(-7 - (-22)) [0.2]{0.1}	(-4 - 21) [1.7]{3.0}*	(-4 - (-18)) [0.6]{0.4}	(-20 - 4) [1.5]{2.2}	(-20 - (-6)) [0.1]{0.0}
HR / NonVC (N=169)	(-7 - (-6)) [1.0]{0.9}	(-7 - (-22)) [2.1]{4.4}**	(-14 - (-13)) [1.2]{1.4}	(-14 - (-31)) [2.3]{5.2}**	(-23 - (-14)) [1.0]{1.1}	(-23 - (-36)) [1.3]{1.8}	(-0 - 1) [1.9]{3.6}*	(-0 - (-22)) [0.7]{0.5}	(-7 - 21) [2.0]{4.2}**	(-7 - (-18)) [0.4]{0.2}	(-12 - 4) [1.7]{2.8}*	(-12 - (-6)) [0.2]{0.0}

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING CASH FLOWS / TOTAL ASSETS

<i>B1. IPO Firms</i>							<i>B2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>		<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(-31 - (-18)) [2.1]{4.6}**	(-31 - (-51)) [2.2]{5.0}**	(-35 - (-27)) [2.0]{4.0}**	(-35 - (-27)) [2.6]{7.0}***	(-29 - (-31)) [0.1]{0.0}	(-29 - (-57)) [1.8]{3.2}*	(-10 - 36) [1.3]{1.6}	(-10 - (-38)) [1.4]{1.8}	(-9 - 33) [1.7]{3.1}*	(-9 - 1) [0.6]{0.4}	(-42 - 13) [1.1]{1.3}	(-42 - 18) [1.7]{3.0}*
HR / NonVC	(-27 - (-18)) [2.0]{4.0}**	(-27 - (-51)) [2.1]{4.6}**	(-46 - (-27)) [2.8]{7.9}***	(-46 - (-61)) [1.8]{3.4}*	(-43 - (-31)) [1.4]{1.8}	(-43 - (-57)) [0.7]{0.5}	(-13 - 36) [1.1]{1.2}	(-13 - (-38)) [1.2]{1.4}	(-21 - 33) [2.1]{4.6}**	(-21 - 1) [1.0]{1.0}	(-9 - 13) [0.4]{0.2}	(-9 - 18) [1.2]{1.4}

Table 7A - Continued

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING MARGIN (EBITD / SALES)

<i>C1. IPO Firms</i>							<i>C2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>		<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(9 - 27) [1.9]{3.6}*	(9 - 3) [0.1]{0.0}	(8 - 29) [1.7]{2.9}*	(8 - (-1)) [0.3]{0.1}	(7 - 14) [0.0]{0.0}	(7 - 6) [0.0]{0.0}	(7 - 34) [1.8]{3.3}*	(7 - 16) [0.9]{0.8}	(8 - 25) [1.1]{1.3}	(8 - 16) [0.6]{0.4}	(-6 - 1) [0.2]{0.1}	(-6 - 10) [0.3]{0.1}
HR / NonVC	(6 - 27) [2.0]{4.1>**	(6 - 3) [0.2]{0.1}	(5 - 29) [1.9]{3.7>**	(5 - (-1)) [0.1]{0.0}	(5 - 14) [0.5]{0.2}	(5 - 6) [0.4]{0.2}	(3 - 34) [2.1]{4.6>**	(3 - 16) [2.0]{1.4}	(6 - 25) [1.3]{1.7}	(6 - 16) [0.8]{0.6}	(7 - 1) [0.3]{0.1}	(7 - 10) [0.3]{0.1}

MEDIAN CHANGE (%) DIFFERENCES IN SALES

<i>D1. IPO Firms</i>							<i>D2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>		<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(78 - 93) [0.0]{0.0}	(78 - 61) [2.1]{4.4>**	(138 - 162) [0.5]{0.3}	(138 - 82) [2.7]{7.3}***	(205 - 252) [1.1]{1.3}	(205 - 97) [2.5]{6.0}***	(39 - 28) [1.0]{1.1}	(39 - 29) [1.0]{0.9}	(62 - 34) [0.7]{0.5}	(62 - 38) [1.8]{3.1}*	(73 - 38) [0.5]{0.3}	(73 - 15) [2.0]{4.0>**
HR / NonVC	(43 - 93) [3.2]{10}***	(43 - 61) [2.1]{4.5>**	(74 - 162) [3.8]{14}***	(74 - 82) [1.3]{1.6}	(100 - 252) [2.7]{7.1}***	(100 - 97) [0.5]{0.2}	(13 - 28) [0.5]{1.6}	(13 - 29) [1.4]{2.0}	(23 - 34) [0.9]{0.8}	(23 - 38) [0.4]{0.2}	(22 - 38) [0.5]{0.3}	(22 - 15) [0.8]{0.7}

MEDIAN CHANGE (%) DIFFERENCES IN CAPITAL EXPENDITURES / TOTAL ASSETS

<i>E1. IPO Firms</i>							<i>E2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>		<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(28 - 25) [0.6]{0.3}	(28 - 25) [0.7]{0.5}	(34 - 24) [0.5]{0.2}	(34 - 3) [0.8]{0.6}	(19 - 17) [0.2]{0.0}	(19 - 3) [0.6]{0.3}	(8 - 44) [0.9]{0.8}	(8 - 42) [1.6]{2.4}	(35 - 9) [0.5]{0.6}	(35 - 10) [0.0]{0.0}	(41 - (-1)) [0.8]{0.6}	(41 - (-14)) [1.4]{1.9}
HR / NonVC	(29 - 25) [0.4]{0.2}	(29 - 25) [0.4]{0.2}	(13 - 24) [0.0]{0.0}	(13 - 3) [0.3]{0.1}	(6 - 17) [1.3]{1.8}	(6 - 3) [0.6]{0.3}	(23 - 44) [1.0]{1.0}	(23 - 42) [1.6]{2.7}*	(20 - 9) [0.6]{0.3}	(20 - 10) [0.1]{0.0}	(-15 - (-1)) [0.4]{0.2}	(-15 - (-14)) [0.0]{0.0}

Table 7A- Continued

MEDIAN CHANGE (%) DIFFERENCES IN TOBIN'S Q

<i>F1. IPO Firms</i>							<i>F2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>		<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(-18 - 3) [2.0]{3.9}**	(-18 - (-14)) [0.1]{0.0}	(-21 - (-3)) [1.5]{2.3}	(-21 - (-23)) [0.5]{0.3}	(-27 - (-7)) [1.3]{1.7}	(-27 - (-40)) [0.6]{0.4}	(0 - 18) [1.3]{1.6}	(0 - (-11)) [0.2]{0.0}	(-3 - 32) [1.6]{2.7}*	(-3 - (-9)) [0.7]{0.5}	(-0 - (-1)) [0.9]{0.8}	(-0 - 5) [0.6]{0.4}
HR / NonVC	(-10 - 3) [1.7]{3.1}*	(-10 - (-14)) [0.4]{0.1}	(-19 - (-3)) [2.0]{4.2}**	(-19 - (-23)) [0.2]{0.0}	(-28 - (-7)) [2.2]{5.0}**	(-28 - (-40)) [0.1]{0.0}	(-1 - 18) [1.7]{3.0}*	(-1 - (-11)) [0.0]{0.0}	(-0 - 32) [1.8]{3.2}*	(-0 - (-9)) [0.8]{0.7}	(-1 - (-1)) [1.1]{1.3}	(-1 - 5) [0.8]{0.6}

MEDIAN CHANGE (%) DIFFERENCES IN BOOK TO MARKET RATIO

<i>G1. IPO Firms</i>							<i>G2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>		<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(22 - 2) [1.3]{1.6}	(22 - 27) [1.3]{1.7}	(18 - 6) [1.3]{1.6}	(18 - 47) [1.5]{2.4}	(29 - 2) [1.3]{1.6}	(29 - 41) [0.6]{0.4}	(-3 - (-16)) [0.7]{0.5}	(-3 - 7) [1.1]{1.1}	(10 - (-31)) [2.4]{5.6}**	(10 - 16) [1.3]{1.6}	(21 - (-7)) [1.7]{2.9}*	(21 - (-11)) [0.8]{0.6}
HR / NonVC	(19 - 2) [2.1]{4.3}**	(19 - 27) [0.3]{0.1}	(37 - 6) [2.7]{7.1}***	(37 - 47) [0.3]{0.1}	(56 - 2) [2.5]{6.0}**	(56 - 41) [0.6]{0.4}	(2 - (-16)) [1.5]{2.2}	(2 - 7) [0.5]{0.3}	(12 - (-31)) [2.5]{6.4}***	(12 - 16) [1.2]{1.5}	(14 - (-7)) [1.5]{2.3}	(14 - (-11)) [0.8]{0.7}

MEDIAN CHANGE (%) DIFFERENCES IN EXCESS MARKET VALUE

<i>H1. IPO Firms</i>							<i>H2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>		<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(-24 - (-12)) [0.8]{0.7}	(-24 - (-26)) [0.5]{0.2}	(-39 - (-25)) [1.4]{1.8}	(-39 - (-49)) [0.6]{0.4}	(-46 - (-23)) [1.4]{2.1}	(-46 - (-50)) [0.2]{0.1}	(2 - 1) [0.2]{0.3}	(2 - (-10)) [0.1]{0.0}	(-21 - 20) [1.9]{3.5}*	(-21 - (-59)) [1.7]{2.9}*	(-20 - 7) [0.7]{0.4}	(-20 - 14) [0.9]{0.8}
HR / NonVC	(-19 - (-12)) [0.7]{0.5}	(-19 - (-26)) [0.6]{0.3}	(-43 - (-25)) [2.0]{4.0}**	(-43 - (-49)) [0.0]{0.0}	(-63 - (-23)) [2.3]{5.4}**	(-63 - (-50)) [0.7]{0.5}	(-9 - 1) [0.1]{0.0}	(-9 - (-10)) [0.1]{0.0}	(-8 - 20) [1.2]{1.5}	(-8 - (-59)) [2.1]{4.3}**	(-9 - 7) [0.5]{0.2}	(-9 - 14) [0.7]{0.5}

* The observation numbers are very close to presented numbers for the groups for other operating performance measures.

Panel B: Operating Performance Change Differences of IPO Firms: Venture Capitalists Versus Investment Bankers' Reputation
(Based on Securities Data Corporations' Investment Bankers' Reputation Ranking)

Operating performance change differences of U.S. firms announced public offering between 1989-1994. The IPOs in the sample are separated into four groups based on Carter-Manaster (1998) measure for investment bankers' reputation and whether they are venture backed or not. Venture Capitalist (VC) IPOs are backed by a venture capitalist, the others are classified as Non-Venture Capitalist (Non-VC) IPOs. The Securities Data Corporation's (SDC) underwriters ranking for the year 1996 is used. SDC ranks underwriter according to their market share. If underwriter of an IPO firm is ranked in top ten, this IPO firm is included in the high reputation group. Otherwise it is included in the low reputation group. Table values are for the median percentage change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25) + data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales [(data item (24 x 25) - data item 60)/data item 12]. The first entry difference denotes the median percentage performance change between HR/VC and LR/VC (HR/NonVC and LR/VC) and the second entry difference denotes the median percentage performance change between HR/VC and LR/Non VC (HR/Non VC and LR/NonVC). The tests for differences between the groups are performed using Wilcoxon two-sample non-parametric rank test [the Z statistic-Normal approximation] and Kruskal-Wallis test {Chi Square approximation} in square brackets and curly brackets, respectively, which assume that observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level for both statistics.

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING RETURN ON ASSETS (EBITD/ASSETS)

<i>A1. IPO Firms</i>							<i>A2. Size-Book to Market-Industry Adjusted</i>					
	From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)		From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
	LR / VC (N=79)*	LR/Non VC (N=118)	LR / VC (N=75)	LR/Non VC (N=111)	LR / VC (N=59)	LR/Non VC (N=80)	LR / VC (N=54) *	LR/Non VC (N=75)	LR/VC (N=51)	LR/Non VC (N=67)	LR/VC (N=42)	LR/Non VC (N=45)
HR/VC (N=111)	(-10 - (-13)) [0.2]{0.0}	(-10-(-15)) [0.6]{0.3}	(-11 - (-25)) [1.0]{1.0}	(-11 - (-33)) [2.4]{5.8}**	(-12 - (-19)) [1.2]{1.4}	(-12 - (-34)) [2.1]{4.5}**	(-4 - 2) [0.5]{0.2}	(-4 - (-15)) [0.4]{0.2}	(-1 - 3) [0.0]{0.0}	(-1 - (-13)) [1.2]{1.3}	(-16 - 11) [0.5]{0.3}	(-16 - (-18)) [0.5]{0.2}
HR / NonVC (N=126)	(-6 - (-13)) [1.2]{1.5}	(-6 - (-15)) [1.7]{3.0}*	(-11 - (-25)) [1.2]{1.4}	(-11 - (-33)) [2.7]{7.4}***	(-21 - (-19)) [0.2]{0.1}	(-21 - (-34)) [2.1]{4.4}**	(-3 - 2) [0.5]{0.3}	(-3 - (-15)) [0.4]{0.1}	(-5 - 3) [0.7]{0.4}	(-5 - (-13)) [0.6]{0.3}	(-6 - 11) [0.7]{0.4}	(-6 - (-18)) [0.3]{0.1}

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING CASH FLOWS / TOTAL ASSETS

<i>B1. IPO Firms</i>							<i>B2. Size-Book to Market-Industry Adjusted</i>					
	From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)		From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(-23 - (-30)) [0.6]{0.4}	(-23 - (-41)) [1.3]{1.7}	(-29 - (-33)) [0.4]{0.1}	(-29 - (-61)) [3.1]{9.7}***	(-20 - (-48)) [1.2]{1.3}	(-20 - (-51)) [2.4]{6.0}***	(-8 - (-2)) [0.7]{0.5}	(-8 - (-19)) [0.2]{0.1}	(-4 - 5) [0.3]{0.1}	(-4 - (-13)) [0.3]{0.1}	(-54 - 0) [1.4]{2.1}	(-54 - (-5)) [1.1]{1.0}
HR / NonVC	(-31 - (-30)) [1.5]{2.2}	(-31 - (-41)) [0.1]{0.0}	(-37 - (-33)) [1.3]{1.6}	(-37 - (-61)) [2.4]{5.9}**	(-41 - (-48)) [0.4]{0.1}	(-41 - (-51)) [0.9]{0.8}	(-22 - (-2)) [1.2]{1.5}	(-22 - (-19)) [0.4]{0.2}	(-17 - 5) [1.1]{1.0}	(-17 - (-13)) [0.6]{0.4}	(17 - 0) [0.3]{0.1}	(17 - (-5)) [0.3]{0.1}

Table 7B - Continued

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING MARGIN (EBITD / SALES)

<i>C1. IPO Firms</i>							<i>C2. Size-Book to Market-Industry Adjusted</i>					
	From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)		From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(10 - 25) [2.2]{5.0}**	(10 - 7) [0.7]{0.4}	(9 - 17) [0.9]{0.8}	(9 - (-3)) [0.8]{0.7}	(12 - (-4)) [0.7]{0.5}	(12 - 0) [1.1]{1.1}	(6 - 15) [1.7]{2.8}*	(6 - 16) [1.1]{1.2}	(15 - 17) [0.6]{0.4}	(15 - (-1)) [0.1]{0.0}	(1 - (-17)) [0.2]{0.0}	(1 - (-5)) [0.2]{0.0}
HR / NonVC	(5 - 25) [2.1]{4.5}**	(5 - 7) [0.3]{0.1}	(10 - 17) [0.8]{0.6}	(10 - (-3)) [1.3]{1.8}	(14 - (-4)) [0.7]{0.5}	(14 - 0) [1.9]{3.7}*	(-3 - 15) [2.1]{4.5}**	(-3 - 16) [1.6]{2.5}	(13 - 17) [0.5]{0.3}	(13 - (-1)) [0.1]{0.0}	(9 - (-17)) [0.6]{0.4}	(9 - (-5)) [0.8]{0.6}

MEDIAN CHANGE (%) DIFFERENCES IN SALES

<i>D1. IPO Firms</i>							<i>D2. Size-Book to Market-Industry Adjusted</i>					
	From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)		From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(73 - 90) [0.6]{0.3}	(73 - 55) [2.3]{5.3}**	(132 - 175) [1.6]{2.4}	(132 - 72) [2.8]{6.6}***	(167 - 260) [1.9]{3.6}*	(167 - 98) [2.6]{6.8}***	(37 - 34) [0.5]{0.2}	(37 - 18) [1.9]{3.6}*	(57 - 71) [0.4]{0.2}	(57 - 24) [2.0]{4.1}**	(64 - 127) [1.1]{1.3}	(64 - 15) [2.0]{4.0}**
HR / NonVC	(42 - 90) [4.2]{18}***	(42 - 55) [2.1]{4.5}**	(79 - 175) [4.9]{24}***	(79 - 72) [0.8]{0.7}	(101 - 260) [3.9]{15}***	(101 - 98) [0.1]{0.0}	(15 - 34) [1.0]{1.0}	(15 - 18) [0.1]{0.0}	(23 - 71) [2.1]{4.3}**	(23 - 24) [0.1]{0.0}	(22 - 127) [1.7]{2.9}*	(22 - 15) [1.2]{1.4}

MEDIAN CHANGE (%) DIFFERENCES IN CAPITAL EXPENDITURES / TOTAL ASSETS

<i>E1. IPO Firms</i>							<i>E2. Size-Book to Market-Industry Adjusted</i>					
	From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)		From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(30 - 14) [0.7]{0.5}	(30 - 14) [0.4]{0.2}	(40 - 8) [1.6]{2.5}	(40 - 6) [1.8]{3.3}*	(18 - 23) [1.1]{1.2}	(18 - 6) [0.5]{0.3}	(24 - 9) [0.1]{0.0}	(24 - 30) [0.3]{0.1}	(36 - 17) [0.7]{0.5}	(36 - 13) [0.5]{0.3}	(24 - 29) [0.0]{0.0}	(24 - (-32)) [2.1]{4.4}**
HR / NonVC	(38 - 14) [1.0]{1.0}	(38 - 14) [0.8]{0.7}	(15 - 8) [0.9]{0.9}	(15 - 6) [1.2]{1.4}	(6 - 23) [2.0]{3.9}**	(6 - 6) [0.5]{0.3}	(25 - 9) [0.3]{0.1}	(25 - 30) [0.3]{0.1}	(22 - 17) [0.7]{0.5}	(22 - 13) [0.8]{0.7}	(-3 - 29) [1.0]{0.9}	(-3 - (-32)) [1.1]{1.3}

Table 7B- Continued

MEDIAN CHANGE (%) DIFFERENCES IN TOBIN'S Q

<i>F1. IPO Firms</i>							<i>F2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>		<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(-17 - 19) [1.1]{1.3}	(-17 - (-13)) [0.0]{0.0}	(-19 - (-19)) [0.7]{0.4}	(-19 - (-19)) [0.6]{0.3}	(-21 - (-32)) [0.6]{0.4}	(-21 - (-36)) [1.5]{2.2}	(2 - 8) [0.9]{0.7}	(2 - (-4)) [1.1]{1.1}	(1 - 11) [0.9]{0.7}	(1 - (-5)) [0.7]{0.5}	(2 - (-1)) [0.1]{0.0}	(2 - 3) [0.3]{0.1}
HR / NonVC	(-8 - 19) [0.8]{0.6}	(-8 - (-13)) [0.8]{0.6}	(-20 - (-19)) [1.2]{1.4}	(-20 - (-19)) [0.1]{0.0}	(-29 - (-32)) [0.6]{0.4}	(-29 - (-36)) [0.0]{0.0}	(-0 - 8) [0.8]{0.6}	(-0 - (-4)) [1.1]{1.3}	(-0 - 11) [1.0]{1.1}	(-0 - (-5)) [0.5]{0.2}	(-1 - (-1)) [0.2]{0.0}	(-1 - 3) [0.2]{0.0}

MEDIAN CHANGE (%) DIFFERENCES IN BOOK TO MARKET RATIO

<i>G1. IPO Firms</i>							<i>G2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>		<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(22 - 7) [1.1]{1.2}	(22 - 29) [1.8]{3.3}*	(14 - 16) [0.6]{0.3}	(14 - 49) [2.0]{4.1}**	(18 - 37) [0.6]{0.4}	(18 - 40) [1.4]{2.1}	(-8 - (-6)) [0.2]{0.0}	(-8 - 7) [1.6]{2.6}	(1 - (-4)) [0.5]{0.3}	(1 - 15) [1.5]{2.2}	(16 - 7) [1.0]{0.9}	(16 - 4) [0.6]{0.4}
HR / NonVC	(11 - 7) [1.4]{1.9}	(11 - 29) [1.4]{2.0}	(29 - 16) [1.8]{3.2}*	(29 - 49) [1.1]{1.2}	(59 - 37) [1.3]{1.7}	(59 - 40) [0.6]{0.3}	(2 - (-6)) [0.8]{0.7}	(2 - 7) [1.0]{1.0}	(5 - (-4)) [0.9]{0.9}	(5 - 15) [1.1]{1.3}	(3 - 7) [0.9]{0.8}	(3 - 4) [0.4]{0.2}

MEDIAN CHANGE (%) DIFFERENCES IN EXCESS MARKET VALUE

<i>H1. IPO Firms</i>							<i>H2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>		<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR/VC	LR/Non VC	LR/VC	LR/Non VC
HR/VC	(-15 - (-22)) [0.9]{0.9}	(-15 - (-25)) [0.9]{0.8}	(-22 - (-46)) [1.0]{0.9}	(-22 - (-43)) [1.3]{1.8}	(-22 - (-67)) [1.9]{3.6}*	(-22 - (-55)) [1.5]{2.2}	(5 - (-23)) [1.1]{1.2}	(5 - (-10)) [0.7]{0.5}	(-7 - (-24)) [0.7]{0.5}	(-7 - (-18)) [1.1]{1.2}	(-2 - (-62)) [2.0]{4.0}**	(-2 - 1) [0.2]{0.0}
HR / NonVC	(-15 - (-22)) [0.5]{0.3}	(-15 - (-25)) [0.4]{0.1}	(-47 - (-46)) [0.5]{0.3}	(-47 - (-43)) [0.2]{0.1}	(-59 - (-67)) [0.2]{0.1}	(-59 - (-55)) [0.8]{0.7}	(-8 - (-23)) [1.0]{1.0}	(-8 - (-10)) [0.5]{0.3}	(-13 - (-24)) [0.4]{0.2}	(-13 - (-18)) [0.7]{0.5}	(-9 - (-62)) [1.4]{1.9}	(-9 - 1) [0.5]{0.2}

* The observation numbers are very close to presented numbers for the groups for other operating performance measures.

Table 8: Investment bankers' Reputation, Institutional Ownership and Operating Performance of IPO Firms

Panel A: Operating Performance Change Differences of IPO Firms: Investment Bankers' Reputation Versus Institutional Investors (Based on Carter-Manaster Investment Bankers' Reputation Ranking)

Operating performance change differences of U.S. firms announced public offering between 1989-1994. The IPOs in the sample are separated into four groups based on Carter-Manaster (1998) measure for investment bankers' reputation and whether they have high institutional investors participation or low. The classification for investment bankers' reputation is Carter-Manaster measure. The Carter-Manaster measure is a discrete underwriter reputation variable 0-9 where a 9 is the most prestigious underwriter and 0 is the least prestigious underwriter. The low group (LR) consists of IPOs underwritten by investment bankers with a CM ranks lower than 8. The high group (HR) consists of CM ranks 8 and above. If institutional investors have stakes in an IPO firm greater than the median value of institutional ownership of the sample at the end of the offering year (year 0), the IPO firm is classified as the firm with high institutional ownership (HIGH-INST). An IPO with low institutional ownership (LOW-INST) is the one that institutional investors' participation in this IPO firm is less than the median value of the sample. Table values are for the median percentage change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25)+ data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales[(data item (24 x 25) - data item 60)/data item 12]. The first entry difference denotes the median percentage performance change between HR/HINST and LR/HINST (HR/LINST and LR/HINST) and the second entry difference denotes the median percentage performance change between HR/HINST and LR/LINST (HR/LINST and LR/LINST). The tests for differences between the groups are performed using Wilcoxon two-sample non-parametric rank test [the Z statistic-Normal approximation] and Kruskal-Wallis test {Chi Square approximation} in square brackets and curly brackets, respectively, which assume that observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level for both statistics.

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING RETURN ON ASSETS (EBITD/ASSETS)

A1. IPO Firms						A2. Size-Book to Market-Industry Adjusted							
	From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)			From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
	LR/HINST (N=45)*	LR/LINST (N=83)	LR/HINST (N=43)	LR/LINST (N=75)	LR/HINST (N=30)	LR/LINST (N=56)		LR/HINST (N=25) *	LR/LINST (N=52)	LR/HINST (N=24)	LR/LINST (N=43)	LR/HINST (N=11)	LR/LINST (N=36)
HR / HINST (N=157)	(-5 - (-13)) [0.6]{0.4}	(-5-(-12)) [0.6]{0.4}	(-13 - (-14)) [0.2]{0.0}	(-13 - (-26)) [1.9]{3.6}*	(-14 - (-12)) [0.4]{0.2}	(-14 - (-33)) [1.5]{2.2}		(-4 - (-0)) [1.2]{1.4}	(-4 - (-15)) [0.1]{0.0}	(-1 - 24) [1.4]{1.9}	(-1 - (-20)) [1.3]{1.7}	(-9 - 6) [0.8]{0.6}	(-9 - (-13)) [0.2]{0.0}
HR / LINST (N=152)	(-17 - (-13)) [0.6]{0.3}	(-17 - (-12)) [0.8]{0.7}	(-14 - (-14)) [1.1]{1.2}	(-14 - (-26)) [0.2]{0.0}	(-21 - (-12)) [0.8]{0.7}	(-21 - (-33)) [0.0]{0.0}		(-11 - (-0)) [1.5]{2.2}	(-11 - (-15)) [0.4]{0.2}	(-16 - 24) [2.8]{8.0}***	(-16 - (-20)) [0.5]{0.3}	(-21 - 6) [2.0]{4.1}**	(-21 - (-13)) [0.7]{0.5}

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING CASH FLOWS / TOTAL ASSETS

B1. IPO Firms						B2. Size-Book to Market-Industry Adjusted							
	From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)			From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST		LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST
HR / HINST	(-26 - (-40)) [1.1]{1.3}	(-26 - (-34)) [0.2]{0.0}	(-36 - (-34)) [0.2]{0.0}	(-36 - (-47)) [0.3]{0.1}	(-37 - (-45)) [0.5]{0.3}	(-37 - (-46)) [0.3]{0.1}		(-18 - (-13)) [0.0]{0.0}	(-18 - 5) [0.0]{0.0}	(-35 - 18) [2.0]{3.9}**	(-35 - 3) [1.4]{1.9}	(-42 - 18) [1.7]{3.0}*	(-42 - 18) [1.0]{0.9}
HR / LINST	(-29 - (-40)) [1.1]{1.1}	(-29 - (-34)) [0.2]{0.1}	(-46 - (-34)) [0.1]{0.0}	(-46 - (-47)) [0.2]{0.0}	(-42 - (-45)) [0.3]{0.1}	(-42 - (-46)) [0.1]{0.0}		(-3 - (-13)) [0.4]{0.2}	(-3 - 5) [0.2]{0.1}	(-3 - 18) [1.3]{1.8}	(-0 - 3) [0.9]{0.9}	(-23 - 18) [1.4]{2.0}	(-23 - 18) [0.8]{0.6}

Table 8A- Continued

MEDIAN CHANGE (%) DIFFERENCES IN TOBIN'S Q

<i>F1. IPO Firms</i>							<i>F2. Size-Book to Market-Industry Adjusted</i>					
	From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)		From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)	
	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST
HR / HINST	(-12 - (-5)) [0.6]{0.3}	(-12 - (-7)) [1.1]{1.2}	(-23 - (-11)) [1.1]{1.3}	(-23 - (-19)) [0.8]{0.7}	(-25 - (-31)) [0.1]{0.0}	(-25 - (-20)) [1.1]{1.3}	(-3 - 15) [1.8]{3.2}*	(-3 - 1) [0.6]{0.4}	(-3 - 21) [1.4]{1.9}	(-3 - 0) [0.2]{0.0}	(-2 - 1) [0.9]{0.8}	(-2 - 5) [1.4]{2.1}
HR / LINST	(-12 - (-5)) [0.4]{0.1}	(-12 - (-7)) [0.8]{0.7}	(-19 - (-11)) [0.5]{0.2}	(-19 - (-19)) [0.1]{0.0}	(-31 - (-31)) [0.1]{0.0}	(-31 - (-20)) [1.2]{1.4}	(-0 - 15) [0.8]{0.6}	(-0 - 1) [0.2]{0.0}	(-0 - 21) [0.8]{0.7}	(-0 - 0) [0.3]{0.1}	(-1 - 1) [0.3]{0.1}	(-1 - 5) [0.6]{0.3}

MEDIAN CHANGE (%) DIFFERENCES IN BOOK TO MARKET RATIO

<i>G1. IPO Firms</i>							<i>G2. Size-Book to Market-Industry Adjusted</i>					
	From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)		From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)	
	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST
HR / HINST	(19 - 23) [0.6]{0.3}	(19 - 8) [0.3]{0.1}	(29 - 12) [0.1]{0.0}	(29 - 20) [1.0]{1.0}	(38 - 32) [0.2]{0.0}	(38 - 21) [1.4]{2.0}	(2 - (-10)) [0.4]{0.1}	(2 - 2) [0.0]{0.0}	(15 - (-18)) [0.9]{0.9}	(15 - 2) [0.5]{0.3}	(37 - (-5)) [1.2]{1.5}	(37 - (-14)) [2.4]{5.6}**
HR / LINST	(23 - 23) [0.1]{0.0}	(23 - 8) [1.1]{1.2}	(30 - 12) [0.2]{0.0}	(30 - 20) [0.4]{0.2}	(44 - 32) [0.0]{0.0}	(44 - 21) [1.4]{1.9}	(0 - (-10)) [0.2]{0.1}	(0 - 2) [0.0]{0.0}	(6 - (-18)) [0.7]{0.4}	(6 - 2) [0.1]{0.0}	(5 - (-5)) [0.1]{0.0}	(5 - (-14)) [0.8]{0.7}

MEDIAN CHANGE (%) DIFFERENCES IN EXCESS MARKET VALUE

<i>H1. IPO Firms</i>							<i>H2. Size-Book to Market-Industry Adjusted</i>					
	From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)		From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)	
	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST
HR / HINST	(-15 - (-23)) [0.9]{0.8}	(-15 - (-18)) [0.1]{0.0}	(-41 - (-34)) [0.1]{0.0}	(-41 - (-44)) [0.9]{0.9}	(-46 - (-35)) [0.0]{0.0}	(-46 - (-38)) [0.9]{0.8}	(-4 - 33) [1.4]{2.1}	(-4 - (-24)) [0.7]{0.5}	(-20 - 2) [0.2]{0.1}	(-19 - (-27)) [0.4]{0.2}	(-20 - 10) [1.3]{1.7}	(-20 - 2) [0.5]{0.2}
HR / LINST	(-33 - (-23)) [0.2]{0.0}	(-33 - (-18)) [1.0]{1.0}	(-41 - (-34)) [0.1]{0.0}	(-41 - (-44)) [1.1]{1.1}	(-64 - (-35)) [0.9]{0.8}	(-64 - (-38)) [1.8]{3.3}*	(-8 - 33) [1.1]{1.2}	(-8 - (-24)) [0.6]{0.4}	(-9 - 2) [0.0]{0.0}	(-9 - (-27)) [0.8]{0.7}	(-10 - 10) [1.0]{1.1}	(-10 - 2) [0.2]{0.1}

* The observation numbers are very close to presented numbers for the groups for other operating performance measures.

**Panel B: Operating Performance Change Differences of IPO Firms: Investment Bankers' Reputation Versus Institutional Investors
(Based on Securities Data Corporations' Investment Bankers' Reputation Ranking)**

Operating performance change differences of U.S. firms announced public offering between 1989-1994. The IPOs in the sample are separated into four groups based on investment bankers' reputation and whether they have high institutional investors participation or low. The Securities Data Corporation's (SDC) underwriters ranking for the year 1996 is used. SDC ranks underwriter according to their market share. If underwriter of an IPO firm is ranked in top ten, this IPO firm is included in the high reputation group. Otherwise it is included in the low reputation group. If institutional investors have stakes in an IPO firm greater than the median value of institutional ownership of the sample at the end of the offering year (year 0), the IPO firm is classified as the firm with high institutional ownership (HIGH-INST). An IPO with low institutional ownership (LOW-INST) is the one that institutional investors' participation in this IPO firm is less than the median value of the sample. Table values are for the median percentage change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25) + data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales[(data item (24 x 25) - data item 60)/data item 12]. The first entry difference denotes the median percentage performance change between HR/HINST and LR/HINST (HR/LINST and LR/HINST) and the second entry difference denotes the median percentage performance change between HR/HINST and LR/LINST (HR/LINST and LR/LINST). The tests for differences between the groups are performed using Wilcoxon two-sample non-parametric rank test [the Z statistic-Normal approximation] and Kruskal-Wallis test {Chi Square approximation} in square brackets and curly brackets, respectively, which assume that observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level for both statistics.

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING RETURN ON ASSETS (EBITD/ASSETS)

<i>A1. IPO Firms</i>						<i>A2. Size-Book to Market-Industry Adjusted</i>					
From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)		From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
LR/HINST (N=78)*	LR/LINST (N=120)	LR/HINST (N=74)	LR/LINST (N=113)	LR/HINST (N=50)	LR/LINST (N=90)	LR/HINST (N=52)*	LR/LINST (N=77)	LR/HINSTLR/LINST (N=49) (N=69)	LR/HINSTLR/LINST (N=32) (N=55)	LR/HINSTLR/LINST (N=32) (N=55)	LR/HINSTLR/LINST (N=32) (N=55)
HR / HINST (N=123)	(-2 - (-14)) [2.2]{4.6}**	(-2 - (-15)) [1.9]{3.5}*	(-10 - (-23)) [1.6]{2.7}*	(-10 - (-35)) [3.4]{11}***	(-14 - (-12)) (-14 - (-39)) [0.7]{0.4} [2.6]{6.7}***	(-3 - (-4)) (-3 - (-15)) [0.4]{0.1} [0.5]{0.3}	(-2 - 6) (-2 - (-30)) [1.0]{1.0} [2.3]{5.4}**	(-9 - 9) (-9 - (-24)) [1.5]{2.2} [0.9]{0.9}	(-9 - 9) (-9 - (-24)) [1.5]{2.2} [0.9]{0.9}	(-9 - 9) (-9 - (-24)) [1.5]{2.2} [0.9]{0.9}	(-9 - 9) (-9 - (-24)) [1.5]{2.2} [0.9]{0.9}
HR / LINST (N=114)	(-16 - (-14)) (-16 - (-15)) [0.2]{0.0} [0.1]{0.0}	(-14 - (-23)) (-14 - (-35)) [1.1]{1.3} [2.0]{4.0}**	(-14 - (-23)) (-14 - (-35)) [1.1]{1.3} [2.0]{4.0}**	(-16 - (-12)) (-16 - (-39)) [0.2]{0.1} [1.4]{2.0}	(-16 - (-12)) (-16 - (-39)) [0.2]{0.1} [1.4]{2.0}	(-10 - (-4)) (-10 - (-15)) [0.6]{0.3} [0.5]{0.3}	(-5 - 6) (-5 - (-30)) [2.0]{4.1}** [1.2]{1.4}	(-12 - 9) (-12 - (-24)) [1.7]{2.8}* [0.9]{0.8}	(-12 - 9) (-12 - (-24)) [1.7]{2.8}* [0.9]{0.8}	(-12 - 9) (-12 - (-24)) [1.7]{2.8}* [0.9]{0.8}	(-12 - 9) (-12 - (-24)) [1.7]{2.8}* [0.9]{0.8}

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING CASH FLOWS / TOTAL ASSETS

<i>B1. IPO Firms</i>						<i>B2. Size-Book to Market-Industry Adjusted</i>					
From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)		From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST LR/LINST	LR/HINST LR/LINST	LR/HINST LR/LINST	LR/HINST LR/LINST
HR / HINST	(-31 - (-37)) (-31 - (-36)) [0.3]{0.1} [0.3]{0.1}	(-31 - (-39)) (-31 - (-51)) [1.1]{1.2} [1.4]{2.1}	(-31 - (-39)) (-31 - (-51)) [1.1]{1.2} [1.4]{2.1}	(-25 - (-49)) (-25 - (-49)) [1.8]{3.3}* [1.1]{1.3}	(-25 - (-49)) (-25 - (-49)) [1.8]{3.3}* [1.1]{1.3}	(-18 - (-16)) (-18 - (-2)) [0.3]{0.1} [0.7]{0.5}	(-27 - 3) (-27 - (-5)) [0.9]{0.9} [0.6]{0.3}	(-42 - 3) (-42 - (-9)) [1.0]{1.0} [0.7]{0.4}	(-42 - 3) (-42 - (-9)) [1.0]{1.0} [0.7]{0.4}	(-42 - 3) (-42 - (-9)) [1.0]{1.0} [0.7]{0.4}	(-42 - 3) (-42 - (-9)) [1.0]{1.0} [0.7]{0.4}
HR / LINST	(-27 - (-37)) (-27 - (-36)) [0.2]{0.1} [0.2]{0.0}	(-32 - (-39)) (-32 - (-51)) [1.1]{1.2} [1.4]{1.9}	(-32 - (-39)) (-32 - (-51)) [1.1]{1.2} [1.4]{1.9}	(-37 - (-49)) (-37 - (-49)) [1.3]{1.6} [1.3]{1.7}	(-37 - (-49)) (-37 - (-49)) [1.3]{1.6} [1.3]{1.7}	(-10 - (-16)) (-10 - (-2)) [0.2]{0.0} [0.6]{0.4}	(-0 - 3) (-0 - (-5)) [0.2]{0.1} [0.0]{0.0}	(-0 - 3) (-0 - (-9)) [0.2]{0.1} [0.0]{0.0}	(-0 - 3) (-0 - (-9)) [0.2]{0.1} [0.0]{0.0}	(-0 - 3) (-0 - (-9)) [0.2]{0.1} [0.0]{0.0}	(-0 - 3) (-0 - (-9)) [0.2]{0.1} [0.0]{0.0}

Table 8B- Continued

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING MARGIN (EBITD / SALES)

<i>C1. IPO Firms</i>							<i>C2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>		<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>	
	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST
HR / HINST	(9 - 14) [1.2]{1.4}	(9 - 10) [0.2]{0.1}	(14 - 12) [0.5]{0.3}	(14 - (-4)) [2.0]{4.2}**	(12 - 23) [0.8]{0.7}	(12 - (-23)) [2.5]{6.1}***	(13 - 27) [2.1]{4.4}**	(13 - 6) [0.2]{0.0}	(17 - 50) [2.1]{4.6}**	(17 - (-29)) [1.9]{3.6}*	(6 - 52) [1.9]{3.7}*	(6 - (-34)) [2.3]{5.2}**
HR / LINST	(0 - 14) [2.0]{4.2}**	(0 - 10) [1.1]{1.3}	(8 - 12) [1.2]{1.5}	(8 - (-4)) [0.8]{0.6}	(15 - 23) [1.0]{1.1}	(15 - (-23)) [2.4]{5.9}**	(-9 - 27) [3.0]{9.1}***	(-9 - 6) [1.4]{2.0}	(12 - 50) [2.7]{7.5}***	(12 - (-29)) [1.4]{2.0}	(9 - 52) [2.1]{4.6}**	(9 - (-34)) [2.4]{5.7}**

MEDIAN CHANGE (%) DIFFERENCES IN SALES

<i>D1. IPO Firms</i>							<i>D2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>		<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>	
	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST
HR / HINST	(52 - 45) [0.1]{0.0}	(52 - 70) [1.7]{2.8}*	(93 - 81) [0.2]{0.1}	(93 - 121) [1.4]{2.0}	(129 - 102) [0.4]{0.2}	(129 - 159) [0.8]{0.6}	(23 - 13) [1.3]{1.7}	(23 - 31) [0.1]{0.0}	(36 - 24) [0.4]{0.2}	(36 - 54) [0.6]{0.3}	(40 - 15) [0.4]{0.2}	(40 - 41) [0.2]{0.0}
HR / LINST	(51 - 45) [0.2]{0.1}	(51 - 70) [2.0]{4.1}**	(85 - 81) [0.1]{0.0}	(85 - 121) [1.8]{3.1}*	(125 - 102) [0.1]{0.0}	(125 - 159) [1.2]{1.4}	(19 - 13) [0.5]{0.2}	(19 - 31) [0.3]{0.1}	(45 - 24) [0.7]{0.5}	(45 - 54) [0.1]{0.0}	(41 - 15) [0.8]{0.6}	(41 - 41) [0.0]{0.0}

MEDIAN CHANGE (%) DIFFERENCES IN CAPITAL EXPENDITURES / TOTAL ASSETS

<i>E1. IPO Firms</i>							<i>E2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>		<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>	
	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST
HR / HINST	(48 - 7) [2.6]{6.8}***	(48 - 19) [1.7]{3.0}*	(43 - 7) [2.1]{4.5}**	(43 - 5) [2.3]{5.4}**	(11 - 18) [1.1]{1.3}	(11 - 7) [0.1]{0.0}	(37 - 30) [0.5]{0.3}	(37 - 16) [0.6]{0.3}	(52 - 32) [0.9]{0.7}	(52 - 8) [1.7]{3.0}*	(26 - 33) [0.1]{0.0}	(26 - (-7)) [1.5]{2.3}
HR / LINST	(3 - 7) [0.1]{0.0}	(3 - 19) [1.3]{1.8}	(16 - 7) [0.5]{0.2}	(16 - 5) [0.6]{0.4}	(5 - 18) [1.7]{2.9}*	(5 - 7) [0.4]{0.1}	(2 - 30) [0.8]{0.6}	(2 - 16) [0.7]{0.4}	(9 - 32) [0.7]{0.5}	(9 - 8) [0.6]{0.4}	(-8 - 33) [0.5]{0.3}	(-8 - (-7)) [0.6]{0.3}

Table 8B- Continued

MEDIAN CHANGE (%) DIFFERENCES IN TOBIN'S Q

<i>F1. IPO Firms</i>						<i>F2. Size-Book to Market-Industry Adjusted</i>						
From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)		From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)		
LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	
HR / HINST	(-11 - (-13)) [0.3]{0.1}	(-11 - (-9)) [0.5]{0.3}	(-23 - (-16)) [0.8]{0.6}	(-23 - (-20)) [0.7]{0.4}	(-27 - (-26)) [0.5]{0.3}	(-27 - (-40)) [0.1]{0.0}	(-0 - 1) [0.5]{0.3}	(0 - 2) [0.3]{0.1}	(1 - 0) [0.5]{0.3}	(1 - 1) [0.3]{0.1}	(-1 - 3) [0.3]{0.1}	(-1 - 1) [0.9]{0.7}
HR / LINST	(-12 - (-13)) [0.3]{0.1}	(-12 - (-9)) [0.3]{0.1}	(-17 - (-16)) [0.3]{0.1}	(-17 - (-20)) [0.3]{0.1}	(-27 - (-26)) [0.8]{0.7}	(-27 - (-40)) [0.6]{0.4}	(-0 - 1) [0.9]{0.9}	(-0 - 2) [0.0]{0.0}	(-0 - 0) [0.1]{0.0}	(-0 - 1) [0.3]{0.1}	(-0 - 3) [0.9]{0.8}	(-0 - 1) [0.1]{0.0}

MEDIAN CHANGE (%) DIFFERENCES IN BOOK TO MARKET RATIO

<i>G1. IPO Firms</i>						<i>G2. Size-Book to Market-Industry Adjusted</i>						
From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)		From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)		
LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	
HR / HINST	(18 - 23) [0.3]{0.1}	(18 - 27) [0.7]{0.5}	(26 - 36) [0.2]{0.0}	(26 - 40) [0.2]{0.0}	(37 - 39) [0.3]{0.1}	(37 - 41) [0.4]{0.2}	(-2 - 2) [1.0]{1.1}	(-2 - (-1)) [0.5]{0.2}	(9 - 15) [0.1]{0.0}	(9 - 8) [0.1]{0.0}	(39 - 14) [0.7]{0.4}	(39 - (-10)) [0.8]{0.7}
HR / LINST	(16 - 23) [0.1]{0.0}	(16 - 27) [0.5]{0.2}	(18 - 36) [1.0]{0.9}	(18 - 40) [1.1]{1.2}	(27 - 39) [0.9]{0.8}	(27 - 41) [0.2]{0.0}	(1 - 2) [0.6]{0.3}	(1 - (-1)) [0.0]{0.0}	(-5 - 15) [0.5]{0.3}	(-5 - 8) [1.0]{1.0}	(0 - 14) [1.0]{1.1}	(0 - (-10)) [0.4]{0.2}

MEDIAN CHANGE (%) DIFFERENCES IN EXCESS MARKET VALUE

<i>H1. IPO Firms</i>						<i>H2. Size-Book to Market-Industry Adjusted</i>						
From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)		From Year 0 to 1(%)		From Year 0 to 2(%)		From Year 0 to 3(%)		
LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	LR/HINST	LR/LINST	
HR / HINST	(-12 - (-23)) [0.7]{0.5}	(-12 - (-31)) [1.2]{1.5}	(-39 - (-40)) [0.2]{0.0}	(-39 - (-50)) [0.2]{0.0}	(-42 - (-49)) [0.6]{0.4}	(-42 - (-68)) [1.0]{0.9}	(2 - (-1)) [0.5]{0.2}	(2 - (-24)) [1.2]{1.4}	(-19 - (-17)) [0.4]{0.1}	(-19 - (-32)) [0.8]{0.7}	(-14 - (-8)) [0.2]{0.0}	(-14 - (-34)) [0.6]{0.3}
HR / LINST	(-20 - (-23)) [0.2]{0.0}	(-20 - (-26)) [0.6]{0.3}	(-35 - (-40)) [0.6]{0.4}	(-35 - (-50)) [0.7]{0.5}	(-48 - (-49)) [0.2]{0.0}	(-48 - (-68)) [0.6]{0.4}	(-1 - (-1)) [0.5]{0.2}	(-1 - (-24)) [0.9]{0.9}	(2 - (-17)) [0.6]{0.4}	(2 - (-32)) [1.8]{3.1}*	(1 - (-8)) [0.9]{0.8}	(1 - (-34)) [1.2]{1.5}

*The observation numbers are very close to presented numbers for the groups for other operating performance measures.

Table 9: Operating Performance Change Differences of IPO Firms: Venture Capitalists Versus Institutional Investors

Operating performance change differences of U.S. firms announced public offering between 1989-1994. Venture Capitalist IPOs are backed by a venture capitalist (VC), the others are classified as Non-Venture IPOs (Non-VC). If institutional investors have stakes in an IPO firm greater than the median value of institutional ownership of the sample at the end of the offering year (year 0), the IPO firm is classified as the firm with high institutional ownership (HIGH-INST). An IPO with low institutional ownership (LOW-INST) is the one that institutional investors' participation in this IPO firm is less than the median value of the sample. Table values are for the median percentage change after three years offering relative to year -1. Year -1 is the fiscal year preceding the year which is the fiscal year of the initial public offering (IPO) of common stock. Data for IPO firms is obtained from COMPUSTAT annual and research tapes. Operating Return on Assets is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25)+ data item 10 + data item (5 - 4) + data item 9 / data item 6]. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales[(data item (24 x 25) - data item 60)/data item 12]. The first entry difference denotes the median percentage performance change between VC/HINST and NonVC/HINST (VC/LINST and NonVC/HINST) and the second entry difference denotes the median percentage performance change between VC/HINST and NonVC/LINST (VC/LINST and NonVC/LINST). The tests for differences between the groups are performed using Wilcoxon two-sample non-parametric rank test [the Z statistic-Normal approximation] and Kruskal-Wallis test {Chi Square approximation} in square brackets and curly brackets, respectively, which assume that observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level for both statistics.

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING RETURN ON ASSETS (EBITD/ASSETS)

<i>A1. IPO Firms</i>							<i>A2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>		<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>	
	Non-VC HINST (N=99)*	Non-VC LINST (N=147)	Non-VC HINST (N=92)	Non-VC LINST (N=136)	Non-VC HINST (N=66)	Non-VC LINST (N=100)	Non-VC HINST (N=67)*	Non-VC LINST (N=98)	Non-VC HINST (N=60)	Non-VC LINST (N=88)	Non-VC HINST (N=42)	Non-VC LINST (N=63)
VC / HINST (N=103)	(-11- (-7)) [0.4]{0.2}	(-11-(-15)) [0.5]{0.2}	(-12 - (-15)) [0.8]{0.6}	(-12 - (-24)) [2.1]{4.2}**	(-9 -(-25)) [1.9]{3.8}**	(-9 - (-26)) [2.2]{5.0}**	(-0 - (-7)) [0.6]{0.3}	(-0 - (-10)) [0.7]{0.5}	(8 - (-3)) [1.0]{1.0}	(8 - (-22)) [2.9]{8.6}***	(-4 - (-5)) [1.0]{1.0}	(-9 - (-17)) [1.5]{2.1}
VC / LINST (N=89)	(-17- (-7)) [1.4]{2.0}	(-17- (-15)) [0.8]{0.6}	(-27 - (-15)) [1.1]{1.2}	(-27 - (-24)) [0.2]{0.0}	(-20 -(-25)) [0.4]{0.1}	(-20 -(-26)) [0.1]{0.0}	(-14 - (-7)) [0.1]{0.0}	(-14 -(-10)) [0.0]{0.0}	(-19 - (-3)) [1.3]{1.7}	(-19-(-22)) [0.4]{0.2}	(-23 -(-5)) [0.7]{0.4}	(-23 - (-17)) [0.3]{0.1}

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING CASH FLOWS / TOTAL ASSETS

<i>B1. IPO Firms</i>							<i>B2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>		<u>From Year -1 to 1(%)</u>		<u>From Year -1 to 2(%)</u>		<u>From Year -1 to 3(%)</u>	
	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST
VC / HINST	(-25 - (-38)) [1.7]{2.8}*	(-25 - (-39)) [1.1]{1.3}	(-30 - (-47)) [2.5]{6.3}***	(-30 - (-51)) [2.1]{4.5}**	(-21 - (-44)) [2.1]{4.2}**	(-21 - (-47)) [1.5]{2.4}	(1 - (-24)) [1.9]{3.5}*	(1 - 0) [0.7]{0.4}	(4 - (-45)) [2.4]{5.9}***	(4 - (-2)) [0.6]{0.4}	(-3 - (-46)) [0.8]{0.7}	(-3 - 18) [1.0]{1.0}
VC / LINST	(-26 - (-38)) [1.3]{1.6}	(-26- (-39)) [1.2]{1.5}	(-33 - (-47)) [1.8]{3.3}*	(-33 - (-51)) [1.8]{3.1}*	(-39 -(-44)) [2.1]{4.4}**	(-39 -(-47)) [1.4]{1.9}	(-4 - (-24)) [1.0]{0.9}	(-4 - 0) [0.1]{0.0}	(-9 - (-45)) [1.0]{1.1}	(-9 - (-2)) [0.8]{0.7}	(-59 - (-46)) [0.5]{0.3}	(-59 -18) [2.2]{5.0}**

Table 9- Continued

MEDIAN CHANGE (%) DIFFERENCES IN OPERATING MARGIN (EBITD / SALES)

<i>C1. IPO Firms</i>							<i>C2. Size-Book to Market-Industry Adjusted</i>					
	From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)		From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST
VC / HINST	(13 - 9) [0.3]{0.1}	(13 - 2) [1.0]{1.0}	(16 - 10) [0.0]{0.0}	(16 - (-4)) [1.9]{3.5}*	(18 - 10) [0.7]{0.5}	(18 - 2) [1.7]{3.0}*	(18 - 14) [0.1]{0.0}	(18 - 3) [1.4]{2.0}	(24 - 29) [0.4]{0.2}	(24 - (-1)) [2.2]{4.7}**	(18 - 22) [0.2]{0.0}	(18 - 4) [1.4]{2.0}
VC / LINST	(14 - 9) [0.0]{0.0}	(14 - 2) [1.1]{1.2}	(9 - 10) [0.5]{0.2}	(9 - (-4)) [1.1]{1.3}	(-4 - 10) [1.3]{1.6}	(-4 - 2) [0.4]{0.2}	(0 - 14) [0.8]{0.6}	(0 - 3) [0.3]{0.1}	(-6 - 29) [1.7]{2.8}*	(-6 - (-1)) [0.2]{0.0}	(-27 - 22) [1.9]{3.7}**	(-27 - 4) [1.4]{1.8}

MEDIAN CHANGE (%) DIFFERENCES IN SALES

<i>D1. IPO Firms</i>							<i>D2. Size-Book to Market-Industry Adjusted</i>					
	From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)		From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST
VC / HINST	(77 - 37) [3.6]{12}***	(77 - 52) [2.7]{7.4}***	(119 - 60) [3.3]{10}***	(119 - 80) [3.0]{9.1}***	(168 - 82) [2.8]{7.8}***	(168 - 105) [2.7]{7.4}***	(33 - 14) [1.8]{3.1}*	(33 - 18) [1.5]{2.2}	(46 - 15) [2.0]{4.1}**	(46 - 25) [1.4]{2.1}	(74 - 0) [2.0]{4.1}**	(74 - 34) [1.2]{1.6}
VC / LINST	(95 - 37) [4.2]{17}***	(95 - 52) [3.4]{11}***	(168 - 60) [4.4]{19}***	(168 - 80) [4.5]{20}***	(245 - 82) [3.4]{11}***	(245 - 105) [3.6]{13}***	(40 - 14) [1.4]{2.1}	(40 - 18) [1.1]{1.3}	(68 - 15) [2.6]{6.7}***	(68 - 25) 2.2]{4.7}**	(69 - 0) [1.9]{3.6}*	(69 - 34) [1.3]{1.6}

MEDIAN CHANGE (%) DIFFERENCES IN CAPITAL EXPENDITURES / TOTAL ASSETS

<i>E1. IPO Firms</i>							<i>E2. Size-Book to Market-Industry Adjusted</i>					
	From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)		From Year -1 to 1(%)		From Year -1 to 2(%)		From Year -1 to 3(%)	
	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST
VC / HINST	(29 - 41) [0.3]{0.1}	(29 - 11) [0.9]{0.9}	(39 - 13) [1.0]{1.1}	(39 - 8) [1.7]{2.8}*	(18 - 7) [0.7]{0.5}	(18 - 5) [1.7]{2.8}*	(30 - 36) [0.7]{0.5}	(30 - 16) [0.6]{0.3}	(49 - 37) [0.1]{0.0}	(49 - 6) [1.1]{1.3}	(47 - 17) [1.8]{3.3}*	(47 - (-15)) [2.9]{8.4}***
VC LINST	(21 - 41) [1.4]{2.0}	(21 - 11) [0.5]{0.3}	(20 - 13) [0.6]{0.4}	(20 - 8) [0.2]{0.0}	(21 - 7) [0.6]{0.3}	(21 - 5) [1.5]{2.3}	(8 - 36) [1.0]{1.0}	(8 - 16) [0.0]{0.0}	(8 - 37) [1.5]{2.2}	(8 - 6) [0.5]{0.2}	(-2 - 17) [0.6]{0.4}	(-2 - (-15)) [0.6]{0.4}

Table 9- Continued

MEDIAN CHANGE (%) DIFFERENCES IN TOBIN'S Q

<i>F1. IPO Firms</i>							<i>F2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>		<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>	
	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST
VC / HINST	(-16 -(-10)) [1.2]{1.4}	(-16 -(-11)) [0.3]{0.1}	(-23 - (-17)) [0.2]{0.1}	(-23 - (-36)) [0.1]{0.0}	(-27 -(-25)) [0.8]{0.6}	(-27 - (-36)) [0.8]{0.6}	(0 - 0) [0.0]{0.0}	(0 - (-4)) [0.3]{0.1}	(1 - (-5)) [0.6]{0.4}	(1 - (-1)) [0.4]{0.2}	(8 - (-18)) [1.5]{2.3}	(8 - 4) [0.5]{0.3}
VC / LINST	(-7 - (-10)) [0.9]{0.8}	(-7 -(-11)) [1.7]{2.8}*	(-0 - (-17)) [1.9]{3.4}*	(-0 - (-36)) [2.0]{3.9}**	(-8 -(-25)) [1.7]{3.0}*	(-8 - (-36)) [1.8]{3.1}*	(22 - 0) [1.6]{2.6}	(22 - (-4)) [1.3]{1.7}	(13 - (-5)) [1.0]{1.0}	(13 -(-1)) [0.8]{0.7}	(-8 - (-18)) [1.1]{1.3}	(-8 - 4) [0.7]{0.5}

MEDIAN CHANGE (%) DIFFERENCES IN BOOK TO MARKET RATIO

<i>G1. IPO Firms</i>							<i>G2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>		<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>	
	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST
VC / HINST	(21 - 17) [0.2]{0.0}	(21 - 25) [1.4]{2.0}	(18 - 42) [1.3]{1.7}	(18 - 39) [1.1]{1.1}	(31 - 40) [1.4]{2.0}	(31 - 59) [0.8]{0.6}	(3 - (-1)) [0.2]{0.1}	(3 - 9) [1.1]{1.3}	(8 - 17) [1.4]{1.9}	(8 - 5) [0.8]{0.7}	(9 - 35) [0.7]{0.5}	(9 - (-9)) [1.4]{1.9}
VC / LINST	(7 - 17) [1.5]{2.1}	(7 - 25) [2.7]{7.0}***	(8 - 42) [2.8]{7.7}***	(8 - 39) [2.6]{7.0}***	(18 - 40) [2.3]{5.4}**	(18 - 59) [1.7]{2.9}*	(-14 - (-1)) [1.3]{1.6}	(-14 - 9) [1.9]{3.5}*	(-8 - 17) [1.5]{2.3}	(-8 - 5) [1.0]{0.9}	(14 - 35) [1.8]{3.1}*	(14 - (-9)) [0.4]{0.1}

MEDIAN CHANGE (%) DIFFERENCES IN EXCESS MARKET VALUE

<i>H1. IPO Firms</i>							<i>H2. Size-Book to Market-Industry Adjusted</i>					
	<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>		<u>From Year 0 to 1(%)</u>		<u>From Year 0 to 2(%)</u>		<u>From Year 0 to 3(%)</u>	
	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST	Non-VC HINST	Non-VC LINST
VC / HINST	(-14 - (-17)) [0.0]{0.0}	(-14 - (-26)) [0.8]{0.6}	(-31 - (-49)) [1.4]{1.9}	(-31 - (-43)) [0.8]{0.6}	(-27 -(-50)) [1.5]{2.2}	(-27 - (-63)) [1.6]{2.6}	(-7 - 6) [0.2]{0.0}	(-7 - (-14)) [0.6]{0.4}	(-10 - (-22)) [1.0]{1.1}	(-10 -(-2)) [0.2]{0.0}	(-0 - (-32)) [1.2]{1.5}	(-0 - 5) [0.3]{0.1}
VC / LINST	(-20 - (-17)) [0.2]{0.1}	(-20 - (-26)) [0.3]{0.1}	(-39 - (-49)) [1.4]{2.0}	(-39 - (-43)) [0.9]{0.8}	(-48 -(-50)) [1.0]{1.0}	(-48 -(-63)) [0.9]{0.7}	(12 - 6) [0.3]{0.1}	(12 - (-14)) [0.2]{0.0}	(-11 - (-22)) [0.5]{0.2}	(-11 - (-2)) [0.4]{0.2}	(-44 -(-32)) [0.3]{0.1}	(-44 - 5) [1.6]{2.6}*

*The observation numbers are very close to presented numbers for the groups for other operating performance measures.

Table 10: Initial Returns for Different Classifications of IPO Firms

The initial return is the difference between the first CRSP-listed after-market price and the offering price as a proportion of the offering price. Venture Capitalist (VC) IPOs are backed by a venture capitalist, the others are classified as Non-Venture Capitalist (Non-VC) IPOs. One classification for investment bankers' reputation is Carter-Manaster measure. The Carter-Manaster measure is a discrete underwriter reputation variable 0-9 where a 9 is the most prestigious underwriter and 0 is the least prestigious underwriter. The low group (LR) consists of IPOs underwritten by investment bankers with a CM ranks lower than 8. The high group (HR) consists of CM ranks 8 and above. As a second investment bankers' reputation measure, the Securities Data Corporation's (SDC) underwriters ranking for the year 1996 is used. SDC ranks underwriter according to their market share. If underwriter of an IPO firm is ranked in top ten, this IPO firm is included in the high reputation group. Otherwise it is included in the low reputation group. For industry diversification, IPOs are classified as Multi and Single segment IPO firms by using COMPUSTAT Business Segment Descriptions. One classification is made by comparing two-digit primary SIC codes with the secondary two digit SIC codes given by Standard & Poor's. A firm with two or more different two-digit SIC codes are labeled as Multi-Segment IPO firm. The other diversity classification is used by using segment information from the COMPUSTAT Business Segment Descriptions. Firms with only one segment information are classified Single-Segment, firms with two or more segments are classified as Multi-Segment IPO firms. If institutional investors have stakes in an IPO firm more than median value of institutional ownership of the sample at the end of the offering year (year 0), this IPO is classified as an IPO with high institutional ownership (HINST). An IPO with low institutional ownership (LINST) is the one that institutional investors' participation in this IPO firm is less than median value of the sample. The tests for differences between the groups are performed using the F test (for mean differences), and Kruskal-Wallis test (Chi Square statistic for median differences), which assumes that observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Initial Returns							
	N	Mean	Median		N	Mean	Median
All IPOs	456	11.1	5.2	<i>Investment bankers' reputation Based on CM Ranking</i>			
Venture Capitalist IPOs	198	14.1	8.9	HR - VC IPOs	145	15.2	10.0
Non-Venture Cap. IPOs	256	8.96	4.4	HR - Non VC IPOs	171	9.3	4.2
Difference Test Statistics		(11)***	(5.7)**	LR - VC IPOs	52	10.9	3.5
				LR - Non VC IPOs	80	8.2	4.7
				Difference Test Statistics		(5.0)***	(9.5)**
<i>Investment bankers' reputation Based on CM Ranking</i>				<i>Investment bankers' reputation Based on SDC Ranking</i>			
High Reputation Group	316	12.0	5.9	HR - VC IPOs	112	14.8	8.8
Low Reputation Group	132	9.3	4.4	HR - Non VC IPOs	127	9.5	3.8
Difference Test Statistics		(2.7)*	(2.1)	LR - VC IPOs	84	13.3	7.6
				LR - Non VC IPOs	124	8.4	5.0
<i>Investment bankers' reputation Based on SDC Ranking</i>				Difference Test Statistics		(4.2)***	(6.0)*
High Reputation Group	239	12.0	5.2	<i>Investment bankers' reputation Based on CM Ranking</i>			
Low Reputation Group	208	10.4	5.6	HR - HINST	162	11.5	6.6
Difference Test Statistics		(1.1)	(0.0)	HR - LINST	154	12.6	4.7
<i>Corporate Diversification: Based on two-digit SIC Codes</i>				LR - HINST	44	7.9	2.6
Multi-Segment IPOs	201	10.9	4.0	LR - LINST	88	10.0	5.6
Single-Segment IPOs	254	11.5	6.4	Difference Test Statistics		(1.2)	(4.7)
Difference Test Statistics		(0.6)	(0.8)				

Table 10 - Continued

	N	Mean	Median		N	Mean	Median
<i>Corporate Diversification: Based on Segments</i>				<i>Investment bankers' reputation Based on SDC Ranking</i>			
Multi-Segment IPOs	39	6.3	0.9	HR - HINST	124	10.7	5.4
Single-Segment IPOs	416	11.7	5.9	HR - LINST	115	13.3	4.8
Difference Test Statistics		(3.5)***	(4.8)***	LR - HINST	82	11.0	6.1
IPOs with high Inst. Ownership	206	10.7	5.7	LR - LINST	126	10.2	5.1
IPOs with low Inst. Ownership	244	11.6	4.9	Difference Test Statistics		(0.9)	(1.5)
Difference Test Statistics		(0.4)	(0.2)	VC - HINST	104	14.5	9.0
				VC - LINST	93	13.7	7.1
				Non VC - HINST	102	9.4	3.5
				Non VC - LINST	151	10.3	4.7
				Difference Test Statistics		(5.0)***	(9.0)**

Table 11: Raw and Adjusted Buy-and-Hold Returns for Different Classifications of IPO Firms

Raw and Adjusted Buy-and-Hold Returns are presented for several periods (starting from third day of trading). Returns are adjusted by subtracting the contemporaneous CRSP NYSE/AMEX/Nasdaq value-weighted, equally-weighted market returns, S&P 500 index returns and returns of firms matched by size and book to market ratio along with two-digit industry classification. Venture Capitalist (VC) IPOs are backed by a venture capitalist, the others are classified as Non-Venture Capitalist (Non-VC) IPOs. One classification for investment bankers' reputation is Carter-Manaster measure. The Carter-Manaster measure is a discrete underwriter reputation variable 0-9 where a 9 is the most prestigious underwriter and 0 is the least prestigious underwriter. The low group (LR) consists of IPOs underwritten by investment bankers with a CM ranks lower than 8. The high group (HR) consists of CM ranks 8 and above. As a second investment bankers' reputation measure, the Securities Data Corporation's (SDC) underwriters ranking for the year 1996 is used. SDC ranks underwriter according to their market share. If underwriter of an IPO firm is ranked in top ten, this IPO firm is included in the high reputation group. Otherwise it is included in the low reputation group. For industry diversification, IPOs are classified as Multi and Single segment IPO firms by using COMPUSTAT Business Segment Descriptions. One classification is made by comparing two-digit primary SIC codes with the secondary two digit SIC codes given by Standard & Poor's. A firm with two or more different two-digit SIC codes are labeled as Multi-Segment IPO firm. The other diversity classification is used by using segment information from the COMPUSTAT Business Segment Descriptions. Firms with only one segment information are classified Single -Segment, firms with two or more segments are classified as Multi-Segment IPO firms. If institutional investors have stakes in an IPO firm greater than the median value of institutional ownership of the sample at the end of the offering year (year 0), the IPO firm is classified as the firm with high institutional ownership (HIGH-INST). An IPO with low institutional ownership (LOW-INST) is the one that institutional investors' participation in this IPO firm is less than the median value of the sample. The tests for differences between the groups are performed using the F statistic (for mean differences) and Kruskal-Wallis test (Chi Square statistic for median differences), which assumes that observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Panel A: Day 3 to 1 Month Returns (%)														
	N	Raw Returns		Adjusted Buy-and-Hold Returns (%)										
		Mean	Median	CRSP value-weighted		CRSP equally-weighted		S&P 500 Index		Size-B/M-indus.Match Firms				
				Mean	Median	Mean	Median	Mean	Median	Mean	Median	N	Mean	Median
All IPOs	456	4.03	2.4	3.2	2.4	1.4	-0.2	3.4	1.9	367	1.7	2.3		
Venture Capitalist IPOs	198	5.67	3.83	4.9	2.7	3.0	1.2	5.1	3.2	171	2.4	3.6		
Non-Venture Cap. IPOs	256	2.76	0.87	1.9	-0.4	0.2	-2.0	2.1	0.3	195	1.4	2.2		
Difference Test Statistics		(3.6)**	(4.0)**	(4.0)**	(4.1)**	(3.7)*	(4.4)**	(4.1)**	(4.1)**		(0.2)	(0.5)		
Investment Bankers' Reputation Based on CM Ranking														
High Reputation Group	316	3.93	2.55	3.2	1.8	1.6	0.6	3.4	2.3	264	1.7	3.3		
Low Reputation Group	132	4.39	1.51	3.3	1.4	1.2	-0.5	3.5	1.3	100	2.6	-0.2		
Difference Test Statistics		(0.1)	(0.0)	(0.0)	(0.0)	(0.1)	(0.2)	(0.0)	(0.1)		(0.1)	(0.2)		
Investment Bankers' Reputation Based on SDC Ranking														
High Reputation Group	239	3.65	2.43	2.8	1.5	1.1	-0.1	3.0	1.7	196	1.3	2.8		
Low Reputation Group	208	4.51	2.09	3.7	2.1	1.8	0.2	4.0	2.3	167	2.7	3.1		
Difference Test Statistics		(0.3)	(0.0)	(0.4)	(0.0)	(0.2)	(0.0)	(0.5)	(0.0)		(0.5)	(0.0)		
Corporate Diversification: Based on two-digit SIC Codes														
Multi-Segment IPOs	201	3.26	0.9	2.4	0.4	0.7	-0.7	2.6	0.6	162	1.4	2.1		
Single-Segment IPOs	254	4.64	3.8	3.8	2.4	2.0	0.7	4.0	3.0	212	1.8	3.0		
Difference Test Statistics		(0.8)	(1.6)	(0.9)	(1.9)	(0.9)	(1.7)	(0.9)	(1.9)		(0.1)	(0.4)		

Table 11- Continued

	N	Raw Returns		CRSP value-weighted		CRSP equally-weighted		S&P 500 Index		Size-B/M-indus.Match Firms		
		Mean	Median	Mean	Median	Mean	Median	Mean	Median	N	Mean	Median
<i>Corporate Diversification: Based on Segments</i>												
Multi-Segment IPOs	39	1.63	0.62	1.0	-0.5	-0.2	-0.4	1.2	-0.8	29	5.7	6.0
Single-Segment IPOs	416	4.26	3.13	3.4	1.8	1.6	0.4	3.6	2.3	345	1.3	2.3
Difference Test Statistics		(0.9)	(1.0)	(0.8)	(0.6)	(0.5)	(0.3)	(0.9)	(0.6)		(1.3)	(1.4)
IPOs with high Inst. Ownership	209	4.1	2.3	3.4	1.8	1.8	0.2	3.6	2.0	173	2.5	3.6
IPOs with low Inst. Ownership	245	4.0	3.1	3.0	1.6	1.1	-0.2	3.3	1.7	194	1.1	0.7
Difference Test Statistics		(0.0)	(0.3)	(0.1)	(0.6)	(0.2)	(1.0)	(0.0)	(0.5)		(0.5)	(1.5)

Panel B: Day 3 to 1 Year Returns (%)

	Raw Returns		CRSP value-weighted		CRSP equally-weighted		S&P 500 Index		Size-B/M-indus.Match Firms	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
All IPOs	26.5	15.9	12.3	4.1	-15.5	-21.1	15.2	7.6	-5.8	1.2
Venture Capitalist IPOs	31.8	22.8	15.5	11.2	-14.4	-17.3	18.7	15.0	-5.9	0.7
Non-Venture Cap. IPOs	22.3	9.3	10.1	-1.0	-16.3	-24.8	12.9	0.9	-5.4	2.3
Difference Test Statistics	(2.4)	(2.5)	(1.0)	(2.7)*	(0.1)	(0.8)	(1.2)	(3.0)*	(0.0)	(0.1)
<i>Investment Bankers' Reputation Based on CM Ranking</i>										
High Reputation Group	27.0	15.9	12.2	5.2	-15.2	-20.4	15.1	8.2	-7.7	7.4
Low Reputation Group	26.1	15.7	13.7	4.1	-15.0	-18.9	16.6	7.0	-0.2	-7.0
Difference Test Statistics	(0.0)	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.1)	(0.1)	(0.4)	(0.5)
<i>Investment Bankers' Reputation Based on SDC Ranking</i>										
High Reputation Group	29.1	15.9	13.4	5.8	-14.3	-21.0	16.4	8.8	-7.6	7.4
Low Reputation Group	24.0	15.4	11.6	3.5	-16.2	-19.5	14.6	6.6	-3.8	-7.7
Difference Test Statistics	(0.7)	(0.4)	(0.1)	(0.5)	(0.1)	(0.5)	(0.1)	(0.4)	(0.1)	(0.4)

Table 11 - Continued

	Raw Returns		CRSP value-weighted		CRSP equally-weighted		S&P 500 Index		Size-B/M-indus.Match Firms		
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	N	Mean	Median
Corporate Diversification: Based on two-digit SIC Codes											
Multi-Segment IPOs	20.3	7.3	5.9	-1.8	-21.2	-26.4	8.8	0.1		-13.5	-3.2
Single-Segment IPOs	31.3	23.4	17.6	8.7	-11.0	-18.3	20.6	14.9		2.5	4.6
Difference Test Statistics	(3.2)*	(4.7)**	(4.8)**	(4.3)*	(3.7)*	(3.1)*	(4.9)**	(4.5)**		(2.3)	(0.7)
Corporate Diversification: Based on Segments											
Multi-Segment IPOs	17.7	6.8	6.7	-5.2	-19.5	-26.3	9.3	-0.7		12.8	13.3
Single-Segment IPOs	27.3	17.1	13.0	4.8	-15.1	-20.3	15.9	8.1		-5.9	-2.0
Difference Test Statistics	(0.8)	(0.4)	(0.5)	(0.3)	(0.2)	(0.1)	(0.5)	(0.3)		(0.9)	(1.4)
IPOs with high Inst. Ownership	32.8	22.7	16.3	9.0	-13.5	-17.5	19.5	14.0		0.2	7.8
IPOs with low Inst. Ownership	21.1	9.6	9.2	-1.4	-17.1	-24.5	12.0	1.5		-11.2	-4.5
Difference Test Statistics	(3.6)*	(4.5)**	(1.8)	(3.4)*	(0.4)	(0.6)	(2.0)	(3.7)**		(1.2)	(1.2)

Panel C: Day 3 to 2 Year Returns (%)

	Raw Returns		CRSP value-weighted		CRSP equally-weighted		S&P 500 Index		Size-B/M-indus.Match Firms		
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	
All IPOs	60.4	18.9	16.1	-11.5	-56.4	-81.5	22.3	-4.2		-8.4	0.7
Venture Capitalist IPOs	82.3	29.0	27.3	-0.5	-48.5	-78.8	34.3	5.4		-7.1	1.2
Non-Venture Cap. IPOs	43.4	12.0	6.3	-16.7	-62.9	-85.0	12.7	-10.0		-9.7	-1.4
Difference Test Statistics	(3.7)**	(7.1)***	(3.9)**	(8.1)***	(1.7)	(2.1)	(4.2)**	(8.6)***		(0.0)	(0.7)
Investment Bankers' Reputation Based on CM Ranking											
High Reputation Group	56.6	20.1	9.7	-12.4	-62.5	-84.5	16.5	-5.8		-11.1	-1.7
Low Reputation Group	72.4	21.8	30.8	-1.5	-40.3	-75.2	37.3	3.7		-2.5	-8.3
Difference Test Statistics	(0.5)	(1.4)	(3.3)*	(1.6)	(3.4)*	(2.3)	(3.2)*	(1.6)		(0.2)	(0.4)

Table 11 - Continued

	Raw Returns		CRSP value-weighted		CRSP equally-weighted		S&P 500 Index		Size-B/M-indus.Match Firms		
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	N	Mean	Median
<i>Investment Bankers' Reputation Based on SDC Ranking</i>											
High Reputation Group	65.0	23.7	13.3	-9.9	-58.6	-78.1	20.1	-1.5		-1.8	10.9
Low Reputation Group	57.0	16.8	18.8	-12.0	-52.7	-83.8	25.4	-5.0		-16.3	-8.4
Difference Test Statistics	(0.2)	(0.2)	(0.3)	(0.2)	(0.3)	(0.4)	(0.3)	(0.1)		(0.8)	(3.9)**
<i>Corporate Diversification: Based on two-digit SIC Codes</i>											
Multi-Segment IPOs	73.8	26.9	18.6	-2.2	-54.8	-78.4	25.5	4.6		4.0	8.1
Single-Segment IPOs	49.9	14.6	12.8	-15.8	-58.2	-85.5	19.3	-8.4		-6.4	-2.6
Difference Test Statistics	(1.4)	(0.5)	(0.3)	(0.3)	(0.1)	(0.0)	(0.3)	(0.4)		(0.3)	(1.1)
<i>Corporate Diversification: Based on Segments</i>											
Multi-Segment IPOs	54.3	18.6	26.5	0.0	-48.4	-71.5	33.7	5.1		35.9	28.1
Single-Segment IPOs	61.0	19.0	14.3	-12.3	-57.5	-83.5	20.9	-5.6		-5.1	-1.9
Difference Test Statistics	(0.1)	(0.2)	(0.4)	(0.4)	(0.3)	(0.5)	(0.5)	(0.4)		(1.6)	(4.2)**
IPOs with high Inst. Ownership	70.0	83.8	12.3	-1.3	-62.9	-78.6	19.3	4.3		-11.0	2.6
IPOs with low Inst. Ownership	52.5	79.7	17.9	-16.2	-51.6	-84.2	24.3	-9.0		-6.2	-1.4
Difference Test Statistics	(0.8)	(1.1)	(0.3)	(1.8)	(1.1)	(0.2)	(0.2)	(1.9)		(0.1)	(0.9)

Panel D: Day 3 to 3 Year Returns (%)

	Raw Returns		CRSP value-weighted		CRSP equally-weighted		S&P 500 Index		Size-B/M-indus.Match Firms		
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	
All IPOs	83.7	19.4	12.4	-28.6	-111	-145	22.3	-18.3		-17.1	-4.7
Venture Capitalist IPOs	119.5	35.1	28.0	-16.0	-104	-137	38.5	-2.5		-12.1	-10.4
Non-Venture Cap. IPOs	56.0	9.8	1.0	-37.4	-116	-147	10.5	-27.8		-20.8	-3.2
Difference Test Statistics	(8.0)***	(6.9)***	(4.4)**	(5.2)**	(0.7)	(0.2)	(4.7)**	(5.8)**		(0.2)	(0.0)

Table 11 - Continued

	Raw Returns		CRSP value-weighted		CRSP equally-weighted		S&P 500 Index		Size-B/M-indus. Match Firms N	Match Firms	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median		Mean	Median
<i>Investment Bankers' Reputation Based on CM Ranking</i>											
High Reputation Group	81.9	19.4	9.7	-29.5	-115	-144	19.8	-18.9		-12.7	-2.7
Low Reputation Group	93.4	30.9	23.6	-19.3	-96.6	-140	33.2	-8.7		-27.7	-14.4
Difference Test Statistics	(0.2)	(0.5)	(1.0)	(0.1)	(1.4)	(1.4)	(0.9)	(0.1)		(0.4)	(0.9)
<i>Investment Bankers' Reputation Based on SDC Ranking</i>											
High Reputation Group	87.9	23.9	11.7	-22.5	-112	-134	21.7	-13.5		-5.4	1.5
Low Reputation Group	82.3	17.2	15.9	-31.0	-107	-150	25.7	-20.0		-5.4	1.5
Difference Test Statistics	(0.1)	(0.6)	(0.1)	(0.7)	(0.1)	(0.4)	(0.1)	(0.7)		(0.4)	(0.9)
<i>Corporate Diversification: Based on two-digit SIC Codes</i>											
Multi-Segment IPOs	92.6	20.1	12.6	-31.8	-115	-149	22.8	-22.0		4.9	-7.0
Single-Segment IPOs	76.7	19.1	12.7	-24.4	-108	-136	22.3	-13.5		-10.8	-3.2
Difference Test Statistics	(0.5)	(0.2)	(0.0)	(0.4)	(0.2)	(0.7)	(0.0)	(0.4)		(0.4)	(0.0)
<i>Corporate Diversification: Based on Segments</i>											
Multi-Segment IPOs	59.8	19.5	14.2	-27.0	-114	-143	24.5	-18.8		35.6	19.2
Single-Segment IPOs	86.0	19.3	12.5	-28.4	-110	-145	22.3	-18.2		-7.2	-4.8
Difference Test Statistics	(0.4)	(0.0)	(0.0)	(0.2)	(0.0)	(0.0)	(0.0)	(0.2)		(0.8)	(2.2)
IPOs with high Inst. Ownership	91.8	30.2	14.6	-15.6	-113	-132	24.9	-3.1		-7.5	-0.3
IPOs with low Inst. Ownership	76.9	12.0	11.0	-39.7	-109	-148	20.6	-30.9		-25.5	-14.3
Difference Test Statistics	(0.4)	(1.6)	(0.1)	(3.3)*	(0.1)	(0.3)	(0.1)	(3.5)*		(0.7)	(1.5)

Table 12: Raw and Adjusted Buy-and-Hold Return Differences of IPO Firms: Venture Capitalists Versus Investment Bankers' Reputation

Raw and Adjusted Buy-and-Hold Return differences are presented for several periods (starting from third day of trading). Returns are adjusted by subtracting the contemporaneous CRSP NYSE/AMEX/Nasdaq value-weighted, equally-weighted market returns, S&P 500 index returns and returns of firms matched by size and book to market ratio along with two-digit industry classification. Venture Capitalist (VC) IPOs are backed by a venture capitalist, the others are classified as Non-Venture Capitalist (Non-VC) IPOs. One classification for investment bankers' reputation is Carter-Manaster measure. The Carter-Manaster measure is a discrete underwriter reputation variable 0-9 where a 9 is the most prestigious underwriter and 0 is the least prestigious underwriter. The low group (LR) consists of IPOs underwritten by investment bankers with a CM ranks lower than 8. The high group (HR) consists of CM ranks 8 and above. As a second investment bankers' reputation measure, the Securities Data Corporation's (SDC) underwriters ranking for the year 1996 is used. SDC ranks underwriter according to their market share. If underwriter of an IPO firm is ranked in top ten, this IPO firm is included in the high reputation group. Otherwise it is included in the low reputation group. The first entry difference denotes the median percentage return difference between HR/VC and LR/VC (HR/NonVC and LR/VC) and the second entry difference denotes the median percentage return difference between HR/VC and LR/Non VC (HR/Non VC and LR/NonVC). The tests for differences between the groups are performed using Wilcoxon two-sample non-parametric rank test [the Z statistic-Normal approximation] and Kruskal-Wallis test {Chi Square approximation} in square brackets and curly brackets, respectively, which assume that observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Panel A: MEDIAN RAW RETURN (%) DIFFERENCES

<i>A1. Investment Bankers' Reputation Based on Carter-Manaster Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / VC (N=52)	LR/Non VC (N=80)	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC
HR /VC* (N=145)*	(3.8 - 4.2) [0.1]{0.0}	(3.8-(-0.0)) [1.2]{1.6}	(23.9 - 15.7) [0.2]{0.0}	(23.9 - 16.6) [0.5]{0.3}	(26.2 - 52.9) [-0.7]{0.6}	(26.2 - 16.3) [0.9]{0.8}	(28.1 - 58.8) [-0.6]{0.3}	(28.1 - 7.4) [1.0]{1.0}
HR /NonVC* (N=171)	(1.3 - 4.2) [1.1]{1.2}	(1.3-(-0.0)) [0.5]{0.2}	(7.9 -15.7) [1.0]{1.0}	(7.9 - 16.6) [0.6]{0.4}	(12.2 - 52.9) [2.3]**{5.5}**	(12.2 - 16.3) [1.1]{1.1}	(16.8 - 58.8) [2.1]**{4.6}**	(16.8 - 7.4) [0.8]{0.6}

*These two groups are statistically different each other for each period.

<i>A2. Investment Bankers' Reputation Based on Securities Data Corporation's Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / VC (N=84)	LR/Non VC (N=124)	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC
HR /VC* (N=112)*	(3.8 - 3.9) [-0.5]{0.3}	(3.8 - 0.0) [1.3]{1.6}	(20.6 - 25.9) [-0.3]{0.1}	(20.6 - 7.3) [1.4]{2.0}	(34.1 - 18.3) [0.5]{0.3}	(34.1 - 11.4) [2.1]**{4.4}**	(46.5 - 28.0) [0.7]{0.4}	(46.5 - 6.4) [2.0]**{4.0}**
HR/NonVC* (N=127)	(1.4 - 3.9) [1.5]{2.2}	(1.4 - 0.0) [-0.2]{0.1}	(13.3 - 25.9) [0.8]{0.7}	(13.3 - 7.3) [-0.9]{0.9}	(18.6 - 18.3) [1.5]{2.3}	(18.6 - 11.4) [-0.1]{0.0}	(17.6 - 28.0) [1.2]{1.4}	(17.6 - 6.4) [-0.2]{0.0}

*These two groups are statistically different each other in two-year and three-year buy-and-hold period.

*The observation numbers are the same for the groups for Raw, value, equally, and S&P index adjusted returns in every period.

Table 12- Continued

Panel B: MEDIAN CRSP VALUE-WEIGHTED ADJUSTED RETURN (%) DIFFERENCES

<i>B1. Investment Bankers' Reputation Based on Carter-Manaster Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC
HR /VC^a	(2.9 - 2.8) [0.3]{0.1}	(2.9 - (-1.5)) [1.5]{2.1}	(13.8 - 3.8) [0.1]{0.0}	(13.8 - 4.1) [0.8]{0.6}	(-1.2 - 5.0) [-0.9]{0.9}	(-1.2 - (-12.0)) [0.8]{0.7}	(-18.2 - 4.5) [-0.3]{0.1}	(-18.2 - (-31.3)) [-1.1]{1.1}
HR /NonVC^a	(0.5 - 2.8) [0.9]{0.7}	(0.5 - (-1.5)) [0.5]{0.1}	(-1.6 - 3.8) [1.2]{1.4}	(-1.6 - 4.1) [0.4]{0.2}	(-21.4 - 5.0) [2.5]***{6.3}***	(-21.4 - (-12.0)) [1.2]{1.3}	(-37.1 - 4.5) [1.6]*{2.6}*	(-37.1 - (-31.3)) [0.4]{0.1}

^aThese two groups are statistically different each other for each period.

<i>B2. Investment Bankers' Reputation Based on Securities Data Corporation's Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / VC ^b	LR/Non VC ^b	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC
HR /VC^a	(2.1 - 3.4) [-0.7]{0.5}	(2.1 - (-1.0)) [1.5]{2.1}	(9.9 - 13.1) [-0.2]{0.0}	(9.9 - (-4.3)) [1.6]{2.4}	(5.5 - (-1.7)) [0.3]{0.3}	(5.5 - (-15.1)) [2.0]**{4.1}**	(1.9 - (-25.3)) [0.9]{0.9}	(1.9 - (-39.4)) [1.7]*{2.9}*
HR /NonVC^a	(0.5 - 3.4) [1.8]*{3.3}*	(0.5 - (-1.0)) [-0.3]{0.1}	(2.8 - 13.1) [1.0]{0.9}	(2.8 - (-4.3)) [-1.0]{1.1}	(-17.2 - (-1.7)) [1.8]*{3.2}*	(-17.2 - (-15.1)) [0.0]{0.0}	(-34.4 - (-25.3)) [0.8]{0.6}	(-34.4 - (-39.4)) [-0.2]{0.0}

^aThese two groups are statistically different each other in two-year and three-year buy-and-hold period.

^bThese two groups are statistically different each other in one-month and one-year buy-and-hold period.

Panel C: MEDIAN CRSP EQUALLY WEIGHTED ADJUSTED RETURN (%) DIFFERENCES

<i>C1. Investment Bankers' Reputation Based on Carter-Manaster Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / VC ^b	LR/Non VC ^b	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC
HR /VC^a	(1.5 - 0.4) [0.5]{0.4}	(1.5 - (-2.3)) [1.6]{2.5}	(-17.3 - (-17.6)) [-0.1]{0.0}	(-17.3 - (-23.7)) [0.6]{0.4}	(-80.4 - (-58.3)) [-1.2]{1.4}	(-80.4 - (-77.3)) [-0.2]{0.0}	(-142 - (-130)) [-1.1]{1.2}	(-142 - (-147)) [-0.6]{0.4}
HR /NonVC^a	(-1.5 - 0.4) [0.7]{0.5}	(-1.5 - (-2.3)) [0.3]{0.1}	(-26.3 - (-17.6)) [0.5]{0.3}	(-26.3 - (-23.7)) [0.0]{0.0}	(-86.1 - (-58.3)) [1.9]**{3.7}**	(-86.1 - (-77.3)) [1.1]{1.2}	(-146 - (-130)) [1.3]{1.6}	(-146 - (-147)) [0.5]{0.3}

^aThese two groups are statistically different each other only in one-month buy-and-hold period.

^bThese two groups are statistically different each other only in one-month buy-and-hold period.

Table 12- Continued

<i>C2. Investment Bankers' Reputation Based on Securities Data Corporation's Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / VC ^b	LR/Non VC ^b	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC
HR /VC^a	(1.0 - 2.1) [-0.6]{0.3}	(1.0 - (-1.4)) [-1.5]{2.3}	(-20.7 - (-16.3)) [0.6]{0.0}	(-20.7 - (-29.2)) [-1.1]{1.1}	(-61.2 - (-85.8)) [0.8]{0.7}	(-61.2 - (-83.5)) [-1.2]{1.5}	(-127 - (-150)) [1.0]{0.9}	(-127 - (-148)) [-0.4]{0.2}
HR /NonVC^a	(-2.1 - 2.1) [1.9]*{3.5}*	(-2.1 - (-1.4)) [-0.1]{0.0}	(-21.2 - (-16.3)) [0.3]{0.1}	(-21.2 - (-29.2)) [-0.8]{0.7}	(-84.5 - (-85.8)) [0.3]{0.1}	(-84.5 - (-83.5)) [0.1]{0.0}	(-140 - (-150)) [-0.4]{0.2}	(-140 - (-148)) [0.2]{0.0}

^aThese two groups are statistically different each other in two-year and three-year buy-and-hold period.

^bThese two groups are statistically different each other in one-month and one-year buy-and-hold period.

Panel D: MEDIAN S&P 500 INDEX ADJUSTED RETURN (%) DIFFERENCES

<i>D1. Investment bankers' reputation Based on Carter-Manaster Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC
HR /VC^a	(3.0 - 3.2) [0.3]{0.1}	(3.2 - (-1.0)) [1.5]{2.1}	(16.4 - 8.3) [0.1]{0.0}	(16.4 - 7.0) [0.8]{0.7}	(4.4 - 13.2) [-0.9]{0.9}	(4.4 - (-6.4)) [0.9]{0.8}	(-6.5 - 15.6) [-0.2]{0.0}	(-6.5 - (-21.9)) [1.1]{1.3}
HR /NonVC^a	(0.7 - 3.2) [0.8]{0.7}	(0.7 - (-1.0)) [0.3]{0.1}	(0.8 - 8.3) [1.3]{1.6}	(0.8 - 7.0) [0.4]{0.2}	(-18.9 - 13.2) [2.5]***{6.4}***	(-18.9 - (-6.4)) [1.2]{1.4}	(-27.8 - 15.6) [1.6]*{2.6}*	(-27.8 - (-21.9)) [0.4]{0.1}

^aThese two groups are statistically different each other for each period.

<i>D2. Investment Bankers' Reputation Based on Securities Data Corporation's Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / VC ^b	LR/Non VC ^b	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC
HR /VC^a	(2.8 - 3.5) [-0.7]{0.5}	(2.8 - (-0.6)) [1.5]{2.1}	(14.2 - 16.6) [-0.3]{0.1}	(14.2 - (-3.1)) [1.6]{2.6}	(12.2 - 4.4) [0.3]{0.3}	(12.2 - (-10.1)) [2.0]**{4.2}**	(12.9 - (-15.6)) [0.9]{0.9}	(12.9 - (-30.9)) [1.8]*{3.2}*
HR /NonVC^a	(0.8 - 3.5) [1.8]*{3.3}*	(0.8 - (-0.6)) [-0.3]{0.1}	(3.3 - 16.6) [1.0]{1.1}	(3.3 - (-3.1)) [-1.0]{1.1}	(-10.4 - 4.4) [1.9]*{3.7}*	(-10.4 - (-10.1)) [0.1]{0.0}	(-24.8 - (-15.6)) [0.9]{0.9}	(-24.8 - (-30.9)) [-0.1]{0.0}

^aThese two groups are statistically different each other in two-year and three-year buy-and-hold period.

^bThese two groups are statistically different each other in one-month and one-year buy-and-hold period.

Table 12 - Continued

Panel E: MEDIAN SIZE-BOOK TO MARKET-INDUSTRY ADJUSTED RETURN (%) DIFFERENCES

<i>E1. Investment Bankers' Reputation Based on Carter-Manaster Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / VC (N=45)	LR/Non VC (N=55)	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC
HR /VC (N=126)	(4.6 - (-0.9)) [0.8]{0.7}	(4.6 - 0.7) [0.4]{0.2}	(9.7 - (-8.5)) [0.2]{0.1}	(9.7 - (-6.1)) [0.7]{0.5}	(9.2 - (-11.2)) [0.2]{0.1}	(9.2 - (-1.7)) [1.0]{1.0}	(-4.3 - (-26.7)) [0.5]{0.2}	(-4.3 - (-4.7)) [0.7]{0.4}
HR /NonVC (N=138)	(2.2 - (-0.9)) [0.3]{0.1}	(2.2 - 0.7) [0.1]{0.0}	(3.2 - (-8.5)) [-0.3]{0.1}	(3.2 - (-6.1)) [-0.8]{0.6}	(-2.5 - (-11.2)) [0.0]{0.0}	(-2.5 - (-1.7)) [-0.4]{0.2}	(-1.5 - (-26.7)) [-0.6]{0.4}	(-1.5 - (-4.7)) [-0.9]{0.8}

<i>E2. Investment Bankers' Reputation Based on Securities Data Corporation's Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / VC(N:75)	LR/Non VC(N:92)	LR / VC	LR/Non VC	LR / VC	LR/Non VC	LR / VC	LR/Non VC
HR /VC (N=95)	(3.6 - 3.6) [-0.2]{0.0}	(3.6 - 1.0) [0.3]{0.1}	(4.6 - (-1.7)) [-0.2]{0.0}	(4.6 - (-11.1)) [1.0]{0.9}	(15.5 - (-11.2)) [1.5]{2.2}	(-15.5 - (-6.6)) [2.2]**{4.8}**	(1.4 - (-36.9)) [1.7]*{2.8}*	(-1.4 - (-5.4)) [1.2]{1.3}
HR /NonVC (N=101)	(2.3 - 3.6) [0.6]{0.4}	(2.3 - 1.0) [0.1]{0.0}	(8.7 - (-1.7)) [-0.4]{0.1}	(8.7 - (-11.1)) [-1.6]{2.5}	(-4.5 - (-11.2)) [-0.8]{0.6}	(-4.5 - (-6.6)) [-1.3]{1.7}	(6.8 - (-36.9)) [-1.0]{0.9}	(6.8 - (-5.4)) [-0.3]{0.1}

Table 13: Raw and Adjusted Buy-and-Hold Return Differences of IPO Firms: Investment Bankers' Reputation Versus Institutional Investors

Raw and Adjusted Buy-and-Hold Return differences are presented for several periods (starting from third day of trading). Returns are adjusted by subtracting the contemporaneous CRSP NYSE/AMEX/Nasdaq value-weighted, equally-weighted market returns, S&P 500 index returns and returns of firms matched by size and book to market ratio along with two-digit industry classification. One classification for investment bankers' reputation is Carter-Manaster measure. The Carter-Manaster measure is a discrete underwriter reputation variable 0-9 where a 9 is the most prestigious underwriter and 0 is the least prestigious underwriter. The low group (LR) consists of IPOs underwritten by investment bankers with a CM ranks lower than 8. The high group (HR) consists of CM ranks 8 and above. As a second investment bankers' reputation measure, the Securities Data Corporation's (SDC) underwriters ranking for the year 1996 is used. SDC ranks underwriter according to their market share. If underwriter of an IPO firm is ranked in top ten, this IPO firm is included in the high reputation group. Otherwise it is included in the low reputation group. If institutional investors have stakes in an IPO firm greater than the median value of institutional ownership of the sample at the end of the offering year (year 0), the IPO firm is classified as the firm with high institutional ownership (HIGH-INST). An IPO with low institutional ownership (LOW-INST) is the one that institutional investors' participation in this IPO firm is less than the median value of the sample. The first entry difference denotes the median percentage return difference between HR/HINST and LR/HINST (HR/LINST and LR/HINST) and the second entry difference denotes the median percentage return difference between HR/HINST and LR/LINST (HR/LINST and LR/LINST). The tests for differences between the groups are performed using Wilcoxon two-sample non-parametric rank test [the Z statistic-Normal approximation] and Kruskal-Wallis test {Chi Square approximation} in square brackets and curly brackets, respectively, which assume that observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Panel A: MEDIAN RAW RETURN (%) DIFFERENCES

<i>A1. Investment Bankers' Reputation Based on Carter-Manaster Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / HINST (N=44)	LR/LINST (N=88)	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST
HR /HINST (N=162)*	(3.1 - 0.0) [0.6]{0.4}	(3.1 - 3.3) [0.1]{0.0}	(25.0 - 19.5) [0.6]{0.3}	(25.0 - 13.1) [0.9]{0.7}	(25.1 - 36.8) [-0.4]{0.1}	(25.1 - 18.7) [-0.2]{0.0}	(28.8 - 58.0) [-0.2]{0.8}	(28.8 - 16.8) [0.1]{0.0}
HR /LINST (N=154)	(2.2 - 0.0) [0.0]{0.0}	(2.2 - 3.3) [0.7]{0.4}	(6.7 - 19.5) [1.1]{1.1}	(6.7 - 13.1) [1.4]{2.0}	(10.1 - 36.8) [1.4]{2.0}	(10.1 - 18.7) [1.3]{1.6}	(12.1 - 58.0) [1.1]{1.4}	(12.1 - 16.8) [0.9]{1.3}

<i>A2. Investment Bankers' Reputation Based on Securities Data Corporation's Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / HINST (N=82)	LR/LINST (N=126)	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST
HR /HINST (N=124)*	(2.4 - 1.9) [-0.6]{0.4}	(2.4 - 2.5) [0.3]{0.1}	(21.2 - 29.2) [0.1]{0.4}	(21.2 - 6.5) [1.9]**{3.7}**	(25.3 - 28.1) [-0.4]{0.2}	(25.3 - 7.1) [1.1]{1.3}	(40.4 - 28.2) [-0.4]{0.2}	(40.4 - 5.3) [1.2]{1.5}
HR /LINST (N=115)	(3.1 - 1.9) [0.3]{0.1}	(3.1 - 2.5) [-0.7]{0.5}	(11.1 - 29.2) [1.3]{1.7}	(11.1 - 6.5) [0.5]{0.2}	(22.5 - 28.1) [0.6]{0.4}	(22.5 - 7.1) [0.3]{0.1}	(18.0 - 28.2) [0.5]{0.2}	(18.0 - 5.3) [0.4]{0.2}

*The Observations are the same for the groups for Raw, value, equally, and S&P index adjusted returns.

Table 13 - Continued

Panel B: MEDIAN CRSP VALUE-WEIGHTED ADJUSTED RETURN (%) DIFFERENCES

<i>B1. Investment Bankers' Reputation Based on Carter-Manaster Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST
HR /HINST*	(2.3 - (-0.8)) [-1.1]{1.3}	(2.3 - 2.1) [0.3]{0.1}	(11.7 - 4.2) [-0.7]{0.4}	(11.7 - 3.9) [0.6]{0.4}	(-1.2 - (-1.4)) [0.4]{0.2}	(-1.2 - (-6.4)) [0.3]{0.1}	(-18.5 - (-1.6)) [0.0]{0.0}	(-18.5 - (-37.4)) [-0.6]{1.1}
HR /LINST*	(1.5 - (-0.8)) [-0.1]{0.0}	(1.5 - 2.1) [0.7]{0.5}	(-2.2 - 4.2) [0.7]{0.5}	(-2.2 - 3.9) [1.2]{1.4}	(-19.8 - (-1.4)) [1.4]{2.1}	(-19.8 - (-6.4)) [1.5]{2.2}	(-39.6 - (-1.6)) [1.1]{1.3}	(-39.6 - (-37.4)) [0.7]{0.4}

*These two groups are statistically different each other for each period, except one-month.

<i>B2. Investment Bankers' Reputation Based on Securities Data Corporation's Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST
HR /HINST	(2.1 - 1.3) [-0.8]{0.6}	(2.1 - 2.3) [-0.4]{0.2}	(8.6 - 12.8) [0.0]{0.0}	(8.6 - (-4.4)) [1.7]*{2.8}*	(-4.3 - (-1.1)) [-0.4]{0.2}	(-4.3 - (-16.8)) [-1.0]{1.1}	(-15.5 - (-18.5)) [-0.5]{0.3}	(-15.5 - (-45.7)) [1.6]{2.5}
HR /LINST	(1.4 - 1.3) [0.5]{0.3}	(1.4 - 2.3) [1.0]{0.9}	(2.8 - 12.8) [0.8]{0.7}	(2.8 - (-4.4)) [-0.7]{0.5}	(-13.3 - (-1.1)) [0.6]{0.4}	(-13.3 - (-16.8)) [-0.1]{0.0}	(-37.1 - (-18.5)) [0.7]{0.6}	(-37.1 - (-45.7)) [-0.1]{0.4}

Panel C: MEDIAN CRSP EQUALLY WEIGHTED ADJUSTED RETURN (%) DIFFERENCES

<i>C1. Investment Bankers' Reputation Based on Carter-Manaster Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST
HR /HINST	(0.7 - (-2.7)) [1.5]{2.2}	(0.7 - 0.7) [0.6]{0.3}	(-17.6 - (-16.3)) [-0.9]{0.8}	(-17.6 - (-19.4)) [0.2]{0.0}	(-79.7 - (-76.8)) [0.2]{1.1}	(-79.7 - (-74.4)) [-1.1]{1.1}	(-132 - (-123)) [0.4]{0.1}	(-132 - (-140)) [-0.6]{0.4}
HR /LINST	(-0.4 - (-2.7)) [-0.1]{0.0}	(-0.4 - 0.7) [0.7]{0.5}	(-26.3 - (-16.3)) [0.1]{0.0}	(-26.3 - (-19.4)) [0.8]{0.6}	(-85.8 - (-76.8)) [1.0]{0.9}	(-85.8 - (-74.4)) [1.7]*{2.9}*	(-150 - (-123)) [1.0]{1.0}	(-150 - (-140)) [1.3]{1.6}

Table 13 - Continued

<i>C2. Investment Bankers' Reputation Based on Securities Data Corporation's Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST
HR /HINST	(0.7 - (-0.2)) [1.0]{1.0}	(0.7 - 0.9) [-0.6]{0.3}	(-19.9 - (-13.7)) [0.3]{0.1}	(-19.9 - (-29.3)) [-1.0]{1.0}	(-77.0 - (-79.7)) [-0.5]{0.3}	(-77.0 - (-84.9)) [-0.5]{0.3}	(-132 - (-141)) [-0.1]{0.0}	(-132 - (-151)) [-0.7]{0.5}
HR /LINST	(-1.4 - (-0.2)) [1.7]{0.5}	(-1.4 - 0.9) [1.1]{1.3}	(-22.2 - (-13.7)) [0.0]{0.0}	(-22.2 - (-29.3)) [-1.0]{1.0}	(-78.6 - (-79.7)) [-0.3]{0.1}	(-78.6 - (-84.9)) [-0.5]{0.2}	(-135 - (-141)) [-0.1]{0.0}	(-135 - (-151)) [-0.7]{0.5}

Panel D: MEDIAN S&P 500 INDEX ADJUSTED RETURN (%) DIFFERENCES

<i>D1. Investment Bankers' Reputation Based on Carter-Manaster Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST
HR /HINST*	(2.5 - (-0.7)) [1.1]{1.2}	(2.5 - 3.1) [-0.3]{0.1}	(16.2 - 6.6) [0.6]{0.4}	(16.2 - 7.3) [0.7]{0.5}	(3.8 - 5.1) [0.5]{0.2}	(3.8 - 2.3) [0.3]{0.1}	(-7.3 - 12.9) [0.0]{0.0}	(-7.3 - (-22.5)) [-0.7]{0.4}
HR /LINST*	(1.7 - (-0.7)) [0.1]{0.0}	(1.7 - 3.1) [0.7]{0.4}	(-1.3 - 6.6) [0.8]{0.6}	(-1.3 - 7.3) [1.2]{0.2}	(-12.9 - 5.1) [1.4]{2.0}	(-12.9 - 2.3) [1.5]{2.2}	(-29.2 - 12.9) [1.1]{1.2}	(-29.2 - (-22.5)) [0.7]{0.5}

* These two groups are statistically different each other for each period, except one-month.

<i>D2. Investment Bankers' Reputation Based on Securities Data Corporation's Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST
HR /HINST	(2.4 - 0.9) [-0.7]{0.5}	(2.4 - 3.1) [0.4]{0.1}	(12.0 - 16.6) [0.0]{0.0}	(12.0 - (-1.9)) [1.7]*{3.0}* [0.6]{0.3}	(2.7 - 5.0) [-0.4]{0.2}	(2.7 - (-9.6)) [1.1]{1.1}	(-1.8 - (-3.1)) [-0.5]{0.3}	(-1.8 - (-32.9)) [-1.6]*{2.6}* [-0.6]{0.3}
HR /LINST	(1.4 - 0.9) [0.5]{0.3}	(1.4 - 3.1) [-0.9]{0.8}	(3.2 - 16.6) [0.9]{0.9}	(3.2 - (-1.9)) [0.6]{0.3}	(6.3 - 5.0) [0.7]{0.5}	(6.3 - (-9.6)) [0.0]{0.2}	(-25.8 - (-3.1)) [0.8]{0.7}	(-25.8 - (-32.9)) [-0.6]{0.3}

Table 13 - Continued

Panel E: MEDIAN SIZE-BOOK TO MARKET-INDUSTRY ADJUSTED RETURN (%) DIFFERENCES

<i>E1. Investment Bankers' Reputation Based on Carter-Manaster Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / HINST (N=34)	LR/LINST (N=69)	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST
HR /HINST (N=142)*	(4.7 - 0.2) [0.5]{0.2}	(4.7 - 0.3) [0.9]{0.9}	(10.8 - (-4.7)) [0.2]{0.0}	(10.8 - (-7.7)) [1.3]{1.6}	(-2.5 - 29.6) [1.4]{1.9}	(-2.5 - (-22.4)) [1.4]{2.1}	(1.2 - 5.1) [0.2]{0.0}	(1.2 - (-29.1)) [1.2]{1.5}
HR /LINST (N=126)	(2.2 - 0.2) [0.1]{0.0}	(2.2 - 0.3) [0.1]{0.0}	(0.6 - (-4.7)) [0.2]{0.1}	(0.6 - (-7.7)) [-0.8]{0.6}	(9.2 - 29.6) [1.5]{1.3}	(9.2 - (-22.4)) [-1.4]{2.0}	(-3.2 - 5.1) [-0.5]{0.3}	(-3.2 - (-29.1)) [-0.9]{0.8}

<i>E2. Investment Bankers' Reputation Based on Securities Data Corporation's Ranking</i>								
	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	LR / HINST (N=72)	LR/LINST (N=99)	LR / HINST	LR/LINST	LR / HINST	LR/LINST	LR / HINST	LR/LINST
HR /HINST (N=104)	(4.8 - 3.6) [-0.5]{0.3}	(4.8 - 0.5) [0.6]{0.4}	(7.4 - 11.1) [0.0]{0.0}	(7.4 - (-12.7)) [1.4]{2.1}	(10.9 - (-2.6)) [1.1]{1.2}	(10.9 - (-15.4)) [2.0]**{4.0}**	(6.6 - (-4.1)) [0.9]{0.9}	(6.6 - (-34.4)) [1.6]{2.5}
HR /LINST (N=95)	(2.1 - 3.6) [0.9]{0.8}	(2.1 - 0.5) [0.7]{0.5}	(9.5 - 11.1) [-0.4]{0.1}	(7.4 - (-12.7)) [-1.1]{1.2}	(15.5 - (-2.6)) [-0.8]{0.5}	(15.5 - (-15.4)) [-1.5]{2.1}	(1.5 - (-4.1)) [-0.3]{1.0}	(1.5 - (-34.4)) [-0.9]{0.8}

Table 14: Raw and Adjusted Buy-and-Hold Return Differences of IPO Firms: Venture Capitalists Versus Institutional Investors

Raw and Adjusted Buy-and-Hold Return differences are presented for several periods (starting from third day of trading). Returns are adjusted by subtracting the contemporaneous CRSP NYSE/AMEX/Nasdaq value-weighted, equally-weighted market returns, S&P 500 index returns and returns of firms matched by size and book to market ratio along with two-digit industry classification. Venture Capitalist (VC) IPOs are backed by a venture capitalist, the others are classified as Non-Venture Capitalist (Non-VC) IPOs. If institutional investors have stakes in an IPO firm greater than the median value of institutional ownership of the sample at the end of the offering year (year 0), the IPO firm is classified as the firm with high institutional ownership (HIGH-INST). An IPO with low institutional ownership (LOW-INST) is the one that institutional investors' participation in this IPO firm is less than the median value of the sample. The first entry difference denotes the median percentage return difference between VC/HINST and NonVC/HINST (VC/LINST and NonVC/HINST) and the second entry difference denotes the median percentage return difference between VC/HINST and NonVC/LINST (VC/LINST and NonVC/LINST). The tests for differences between the groups are performed using Wilcoxon two-sample non-parametric rank test [the Z statistic-Normal approximation] and Kruskal-Wallis test {Chi Square approximation} in square brackets and queerly brackets, respectively, which assume that observations are independent. *, **, *** denote significance at 10%, 5%, and 1% level.

Panel A: MEDIAN RAW RETURN (%) DIFFERENCES

	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	NonVC/ HINST (N=102)	NonVC/LINST (N=151)	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST
VC / HINST (N=104)*	(4.1 - 0.0) [2.7]***{7.3}***	(4.1 - 1.5) [1.9]*{3.6}*	(29.8 - 15.9) [1.6]*2.6)*	(29.8 - 6.9) [2.7]***{7.4}***	(32.9 - 21.1) [2.0]**{3.8}**	(32.9 - 6.2) [2.5]***{6.5}***	(50.1 - 17.4) [2.3]**{5.1}**	(50.1 - 7.1) [2.6]***{6.9}***
VC / LINST (N=93)	(3.5 - 0.0) [1.0]{1.0}	(3.5 - 1.5) [0.3]{0.1}	(13.0 - 15.9) [0.6]{0.3}	(13.0 - 6.9) [0.2]{0.0}	(28.4 - 21.1) [1.2]{1.4}	(28.4 - 6.2) [1.6]*{2.7}*	(18.4 - 17.4) [0.9]{0.8}	(18.4 - 7.1) [1.0]{1.0}

Panel B: MEDIAN CRSP VALUE-WEIGHTED ADJUSTED RETURN (%) DIFFERENCES

	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST
VC / HINST	(3.7 - (-1.2)) [3.0]***{8.7}***	(3.7 - 1.3) [2.0]**{4.1}**	(15.5 - 2.2) [1.9]*{3.6}*	(15.5 - (-1.7)) [2.5]***{6.2}***	(1.4 - (-10.5)) [2.0]**{4.1}**	(1.4 - (-24.2)) [2.7]***{7.1}***	(-0.6 - (-20.0)) [1.9]*{3.5}*	(-0.6 - (-41.2)) [2.7]***{7.2}***
VC / LINST	(1.7 - (-1.2)) [0.8]{0.7}	(1.7 - 1.3) [0.2]{0.0}	(2.7 - 2.2) [0.1]{0.0}	(2.7 - (-1.7)) [0.3]{0.1}	(-3.1 - (-10.5)) [1.2]{1.5}	(-3.1 - (-24.2)) [1.7]*{3.0}*	(-27.8 - (-20.0)) [0.5]{0.2}	(-27.8 - (-41.2)) [0.8]{0.7}

*The observations are the same for the groups for raw, value, equally, and S&P index adjusted returns in every period.

Table 14 - Continued

Panel C: MEDIAN CRSP EQUALLY WEIGHTED ADJUSTED RETURN (%) DIFFERENCES

	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST
VC / HINST	(2.1 - (-2.8)) [2.7]***{7.2}***	(2.1 - (-0.4)) [2.7]**{5.1}**	(-14.5 - (-20.0)) [1.1]{0.0}	(-14.5 - (-25.7)) [1.2]{1.6}	(-75.7 - (-84.3)) [1.3]{1.8}	(-75.7 - (-84.2)) [-1.2]{1.4}	(-125 - (-140)) [0.6]{0.4}	(-125 - (-147)) [-0.6]{0.4}
VC / LINST	(0.5 - (-2.8)) [0.7]{0.5}	(0.5 - (-0.4)) [0.4]{0.2}	(-21.8 - (-20.0)) [0.2]{0.0}	(-21.8 - (-25.7)) [0.2]{0.0}	(-79.9 - (-84.3)) [0.8]{0.7}	(-79.9 - (-84.2)) [0.6]{0.4}	(-146 - (-140)) [0.1]{0.0}	(-146 - (-147)) [-0.2]{0.0}

Panel D: MEDIAN S&P 500 INDEX ADJUSTED RETURN (%) DIFFERENCES

	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST
VC / HINST	(3.8 - (-0.9)) [3.0]***{9.0}***	(3.8 - 1.1) [2.0]**{4.1}**	(20.8 - (-3.6)) [1.9]**{3.8}**	(20.8 - (-1.8)) [2.6]***{6.7}***	(9.5 - (-5.1)) [2.1]**{4.3}**	(9.5 - (-19.0)) [2.7]***{7.5}***	(12.2 - (-10.8)) [2.0]**{3.9}**	(12.2 - (-31.7)) [2.8]***{7.9}***
VC / LINST	(2.3 - (-0.9)) [0.9]{0.7}	(2.3 - 1.1) [0.1]{0.0}	(4.8 - (-3.6)) [0.1]{0.0}	(4.8 - (-1.8)) [0.3]{0.1}	(4.6 - (-5.1)) [1.2]{1.6}	(4.6 - (-19.0)) [1.9]*{3.5}*	(-18.7 - (-10.8)) [0.5]{0.3}	(-18.7 - (-10.8)) [0.9]{0.8}

Panel E: MEDIAN SIZE-BOOK TO MARKET-INDUSTRY ADJUSTED RETURN (%) DIFFERENCES

	<u>Day 3 to 1 Month (%)</u>		<u>Day 3 to 1 Year (%)</u>		<u>Day 3 to 2 Year (%)</u>		<u>Day 3 to 3Year (%)</u>	
	NonVC/ HINST (N=85)	NonVC/LINST (N=112)	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST	NonVC/ HINST	NonVC/LINST
VC / HINST (N=91)	(5.2 - 2.3) [1.4]{1.9}	(5.2 - 1.6) [1.4]{1.9}	(11.3 - 4.8) [0.9]{0.8}	(11.3 - (-0.9)) [1.1]{1.2}	(8.0 - (-0.2)) [0.9]{0.7}	(8.0 - 0.3) [1.4]{1.8}	(6.6 - (-4.1)) [1.2]{1.5}	(6.6 - (-1.3)) [1.0]{1.0}
VC / LINST (N=85)	(0.2 - 2.3) [-0.5]{0.2}	(0.2 - 1.6) [0.7]{0.5}	(-5.3 - 4.8) [0.6]{0.3}	(-5.3 - (-0.9)) [0.4]{0.1}	(-2.0 - (-0.2)) [0.1]{0.0}	(-2.0 - 0.3) [-0.5]{0.2}	(-30.1 - (-4.1)) [-0.6]{0.5}	(-30.1 - (-1.3)) [0.8]{0.7}

Table 15: Cross-Sectional Regressions Explaining Raw and Adjusted Buy-and-Hold Returns

The dependent variables are the raw and adjusted Buy-and-Hold Returns (starting from third day of trading) for 456 U.S. firms announced public offering between 1989-1994. Returns are adjusted by subtracting the contemporaneous CRSP NYSE/AMEX/Nasdaq value-weighted, equally-weighted market returns, and returns of firms matched by size and book to market ratio along with two-digit industry classification. These returns are regressed on three dummy variables. First dummy variable represents whether an IPO firm is venture-backed or not (VBDUMMY). It takes 1 if the IPO firm is backed by a venture capitalist, and zero if it is not. Investment bankers' reputation is presented by another dummy variable (REPDUM). It takes 1 if IPOs are underwritten by high reputable investment bank, otherwise zero. Another dummy variable (DIVDUM) is used for corporate diversification. It takes 1 for a firm defined a single segment IPO firm if it has only one 2-digit SIC code. For a firm with two or more different two-digit SIC codes labeled as Multi-Segment IPO firm, it takes 0. Independent variables include issue size (ISSUE) which is defined as total value of the offering divided by total assets at the year prior to the offering (year -1), the percentage of the total issue offered by current shareholders (SECOND), and ownership variables, which are percentage of shares held by institutional (INST), blockholders (LARGE), and Insiders (INSD). The t statistics are given in parentheses. *, **, *** denote significance at 10%, 5%, and 1% level.

Panel A: Cross-Sectional Regression Results (Based on Carter-Manaster Investment Bankers' Reputation Ranking)

Independent Variables	Dependent Variables															
	Raw BHRs				Value Weighted Adjusted BHRs				Equally Weighted Adjusted BHRs				Size-B/M-Industry Adj. BHRs			
	Day 3 to 1 Month	Day 3 to 1 Year	Day 3 to 2 Year	Day 3 to 3 Year	Day 3 to 1 Month	Day 3 to 1 Year	Day 3 to 2 Year	Day 3 to 3 Year	Day 3 to 1 Month	Day 3 to 1 Year	Day 3 to 2 Year	Day 3 to 3 Year	Day 3 to 1 Month	Day 3 to 1 Year	Day 3 to 2 Year	Day 3 to 3 Year
Intercept	0.02 (0.8)	0.12 (1.6)*	0.53 (3.5)***	0.59 (3.2)***	0.01 (0.5)	0.01 (0.2)	0.19 (1.3)	0.05 (0.3)	-0.00 (-0.5)	-0.22 (-3.0)***	-0.42 (-2.7)***	-0.97 (-4.9)***	0.01 (0.3)	-0.13 (-0.9)	-0.02 (-0.1)	-0.37 (-1.1)
VBDUMMY	0.05 (2.2)**	0.05 (0.8)	0.17 (1.5)	0.26 (1.9)**	0.03 (2.1)**	0.06 (1.1)	0.20 (1.7)*	0.26 (1.9)**	0.03 (1.8)*	0.03 (0.5)	0.13 (1.1)	0.10 (0.6)	0.02 (0.8)	0.01 (0.1)	0.04 (0.2)	0.15 (0.6)
REPDUM1	0.00 (0.3)	-0.05 (-0.8)	-0.29 (-2.2)**	-0.30 (-1.9)**	0.01 (0.5)	-0.05 (-0.9)	-0.30 (-2.3)**	-0.30 (-1.9)**	0.01 (0.4)	-0.04 (-0.7)	-0.31 (-2.3)**	-0.35 (-2.0)**	-0.01 (-0.4)	-0.04 (-0.4)	-0.19 (-0.9)	0.23 (0.8)
DIVDUM	0.02 (0.9)	0.10 (1.7)*	-0.04 (-0.4)	0.09 (0.6)	0.02 (1.0)	0.10 (1.8)*	-0.03 (-0.3)	0.09 (0.7)	0.01 (0.9)	0.08 (1.4)	-0.01 (-0.1)	0.16 (1.1)	0.03 (1.3)	0.20 (1.8)*	0.02 (0.1)	0.07 (0.3)
ISSUE	0.00 (1.2)	-0.00 (-0.8)	-0.00 (-0.6)	-0.00 (-0.5)	0.00 (1.0)	-0.00 (-0.9)	-0.00 (-0.6)	-0.00 (-0.5)	0.00 (1.2)	-0.00 (-0.6)	-0.00 (-0.5)	-0.00 (-0.7)	0.00 (1.3)	-0.00 (-1.0)	-0.00 (-0.7)	-0.00 (-1.0)
SECOND	-0.00 (-0.1)	-0.10 (-1.0)	-0.06 (-0.3)	-0.08 (-0.3)	-0.01 (-0.2)	-0.08 (-0.8)	-0.02 (-0.1)	-0.05 (-0.2)	-0.00 (-0.1)	-0.05 (-0.5)	0.03 (0.1)	-0.15 (-0.5)	0.02 (0.5)	-0.38 (-1.9)**	-0.15 (-0.4)	-0.18 (-0.4)
INST	-0.00 (-0.2)	0.00 (2.6)***	0.00 (1.0)	0.00 (0.60)	-0.00 (0.00)	0.01 (2.4)**	0.00 (1.2)	0.00 (1.0)	0.00 (0.1)	0.00 (1.4)	0.00 (0.3)	0.00 (0.5)	-0.00 (-0.0)	0.01 (2.2)**	0.01 (1.8)*	0.01 (1.0)
LARGE	-0.00 (-0.1)	-0.01 (-3.9)***	-0.01 (-2.6)***	-0.01 (-2.4)**	-0.00 (-0.3)	-0.01 (-3.7)***	-0.01 (-2.8)***	-0.01 (-2.6)***	-0.00 (-0.3)	-0.01 (-2.7)***	-0.01 (-2.1)**	-0.01 (2.0)**	0.00 (0.1)	-0.00 (-1.7)*	-0.01 (-1.8)*	-0.01 (-1.3)
INSD	-0.00 (-0.8)	0.00 (1.9)*	0.00 (1.4)	0.00 (1.6)*	-0.00 (-0.6)	0.00 (1.6)*	0.00 (1.5)	0.01 (2.0)**	-0.00 (-0.2)	0.00 (1.0)	0.00 (0.7)	0.00 (0.4)	-0.00 (-0.8)	-0.00 (-0.4)	0.00 (0.5)	0.00 (0.4)
Adj. R ²	0.001 (0.41)	0.053 (0.00)***	0.019 (0.05)**	0.019 (0.05)**	-0.001 (0.49)	0.049 (0.00)***	0.026 (0.02)**	0.024 (0.03)**	-0.004 (0.60)	0.012 (0.12)	0.008 (0.19)	0.006 (0.23)	-0.008 (0.72)	0.022 (0.06)*	0.000 (0.43)	-0.008 (0.72)
p for F-st.																
# of Obs	387	387	387	387	387	387	387	387	387	387	387	387	326	326	326	326

Panel B: Cross-Sectional Regression Results (Based on Securities Data Corporations' Investment Bankers' Reputation Ranking)

Independent Variables	Dependent Variable															
	Raw BHRs				Value Weighted Adjusted BHRs				Equally Weighted Adjusted BHRs				Size-B/M-Industry Adj. BHRs			
	Day 3 to 1 Month	Day 3 to 1 Year	Day 3 to 2 Year	Day 3 to 3 Year	Day 3 to 1 Month	Day 3 to 1 Year	Day 3 to 2 Year	Day 3 to 3 Year	Day 3 to 1 Month	Day 3 to 1 Year	Day 3 to 2 Year	Day 3 to 3 Year	Day 3 to 1 Month	Day 3 to 1 Year	Day 3 to 2 Year	Day 3 to 3 Year
Intercept	0.02 (1.1)	0.09 (1.4)	0.41 (2.9)***	0.47 (2.7)***	0.02 (0.8)	-0.02 (-0.3)	0.07 (0.5)	-0.06 (-0.4)	-0.00 (-0.3)	-0.24 (-3.6)***	-0.56 (-3.9)***	-1.13 (-6.0)***	0.00 (0.2)	-0.17 (-1.3)	-0.20 (-0.9)	-0.42 (-1.3)
VBDUMMY	0.04 (2.2)**	0.04 (0.8)	0.16 (1.4)	0.25 (1.8)*	0.03 (2.1)**	0.06 (1.0)	0.19 (1.7)*	0.25 (1.8)*	0.03 (1.9)*	0.02 (0.4)	0.11 (0.9)	0.08 (0.5)	0.02 (0.8)	-0.00 (-0.0)	0.02 (0.1)	0.13 (0.5)
REPDUM2	-0.00 (-0.1)	0.00 (0.0)	-0.08 (-0.7)	-0.10 (-0.7)	-0.00 (-0.3)	0.01 (0.1)	-0.09 (-0.7)	-0.12 (-0.8)	-0.00 (-0.2)	0.01 (0.2)	-0.05 (-0.4)	-0.07 (-0.5)	-0.01 (-0.2)	0.07 (0.6)	0.21 (1.1)	0.45 (1.8)*
DIVDUM	0.02 (0.9)	0.10 (1.8)*	-0.03 (-0.3)	0.10 (0.7)	0.02 (1.0)	0.10 (1.8)*	-0.02 (-0.2)	0.10 (0.7)	0.01 (0.8)	0.08 (1.5)	0.00 (0.0)	0.17 (1.1)	0.03 (1.3)	0.20 (1.9)*	0.04 (0.2)	0.08 (0.3)
ISSUE	0.00 (1.2)	-0.00 (-0.8)	-0.00 (-0.7)	-0.00 (-0.6)	0.00 (1.0)	-0.00 (-0.9)	-0.00 (-0.7)	-0.00 (-0.6)	0.00 (1.2)	-0.00 (-0.6)	-0.00 (-0.6)	-0.00 (-0.8)	0.00 (1.3)	-0.00 (-1.0)	-0.00 (-0.7)	-0.00 (-0.9)
SECOND	-0.00 (-0.1)	-0.11 (-1.1)	-0.10 (-0.5)	-0.12 (-0.5)	-0.00 (-0.1)	-0.09 (-0.9)	-0.06 (-0.3)	-0.08 (-0.3)	-0.00 (-0.1)	-0.06 (-0.6)	-0.1 (-0.1)	-0.20 (-0.7)	0.02 (0.5)	-0.38 (-1.9)**	-0.22 (-0.7)	-0.23 (-0.5)
INST	-0.00 (-0.1)	0.00 (2.5)***	0.00 (0.7)	0.00 (0.4)	-0.00 (0.0)	0.01 (2.3)**	0.00 (0.9)	0.00 (0.8)	0.00 (0.2)	0.00 (1.3)	0.00 (0.2)	0.00 (0.3)	-0.00 (-0.1)	0.01 (2.1)**	0.01 (1.5)	0.01 (0.9)
LARGE	-0.00 (-0.0)	-0.01 (-3.9)***	-0.01 (-2.6)***	-0.01 (-2.4)**	-0.00 (-0.3)	-0.01 (-3.8)***	-0.01 (-2.8)***	-0.01 (-2.6)***	-0.00 (-0.2)	-0.01 (-2.7)***	-0.01 (-2.1)**	-0.01 (2.0)**	0.00 (0.1)	-0.00 (-1.8)*	-0.01 (-2.0)**	-0.01 (-1.4)
INSD	-0.00 (-0.8)	0.00 (1.9)*	0.00 (1.2)	0.00 (1.5)	-0.00 (-0.6)	0.00 (1.6)	0.00 (1.4)	0.00 (1.8)*	-0.00 (-0.1)	0.00 (0.9)	0.00 (0.6)	0.00 (0.3)	-0.00 (-0.8)	-0.00 (-0.5)	0.00 (0.5)	0.00 (0.4)
Adj. R ²	0.001 (0.41)	0.051 (0.00)***	0.008 (0.21)	0.011 (0.10)*	-0.001 (0.49)	0.047 (0.00)***	0.014 (0.10)*	0.016 (0.07)*	-0.005 (0.62)	0.011 (0.14)	-0.005 (0.64)	-0.003 (0.57)	-0.009 (0.73)	0.023 (0.05)**	0.001 (0.39)	-0.000 (0.44)
p for F-st.																
# of Obs	387	387	387	387	387	387	387	387	387	387	387	387	326	326	326	326

Table 16: Cross-Sectional Regressions Explaining Operating Performance Changes

The dependent variables are several operating performance changes of 456 U.S. firms announced public offering between 1989-1994. Operating performance changes are adjusted by subtracting the performance changes of firms matched by size and book to market ratio along with two-digit industry classification. Following variables are used as the dependent variables. Operating Return on Assets (EBITD/Assets) is operating income before depreciation divided by total assets (data item 13/data item 6). Operating Cash Flows are operating income before depreciation less capital expenditures (data item 13 - data item 128). Tobin's q is computed as market value of outstanding shares plus liquidation value of preferred stocks plus net current assets plus long term debt divided by total assets [data item (24 x 25)+ data item 10 + data item (5 - 4) + data item 9 / data item 6]. The dependent variables are regressed on three dummy variables. First dummy variable represents whether an IPO firm is venture-backed or not (VBDUMMY). It takes 1 if the IPO firm is backed by a venture capitalist, and zero if it is not. Investment bankers' reputation based on Carter-Manaster Investment Bankers' Reputation rankings is presented by another dummy variable (REPDUM). It takes 1 if IPOs are underwritten by high reputable investment bank, otherwise zero. Another dummy variable (DIVDUM) is used for corporate diversification. It takes 1 for a firm defined a single segment IPO firm if it has only one 2-digit SIC code. For a firm with two or more different two-digit SIC codes labeled as Multi-Segment IPO firm, it takes 0. Independent variables include issue size (ISSUE) which is defined as total value of the offering divided by total assets at the year prior to the offering (year -1), the percentage of the total issue offered by current shareholders (SECOND), and ownership variables, which are percentage of shares held by institutional (INST), blockholders (LARGE), and Insiders (INSD). The t statistics are given in parentheses. *, **, *** denote significance at 10%, 5%, and 1% level.

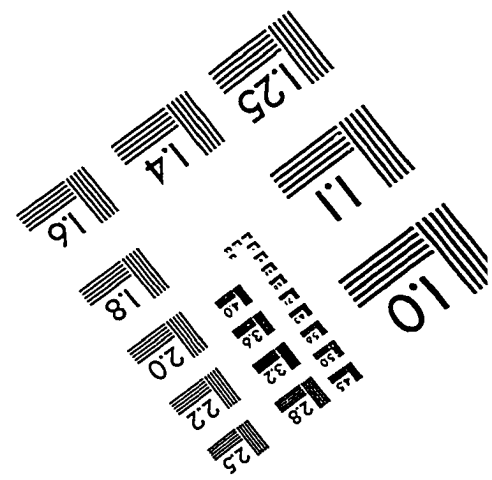
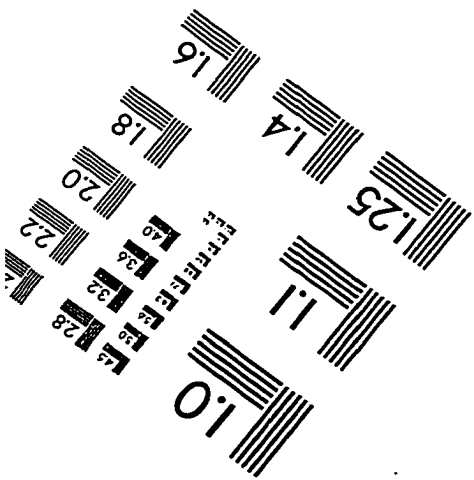
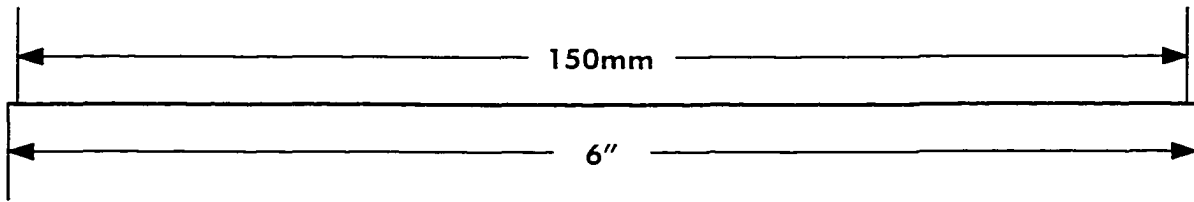
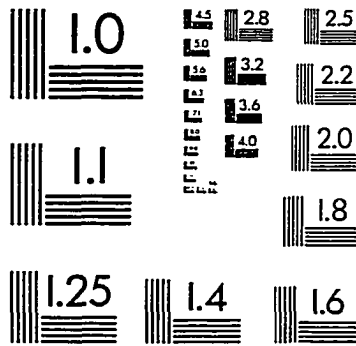
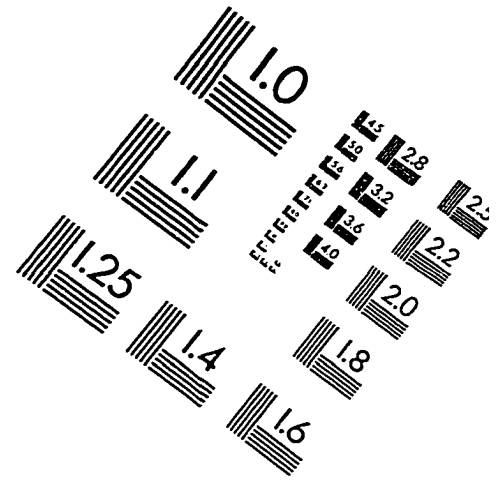
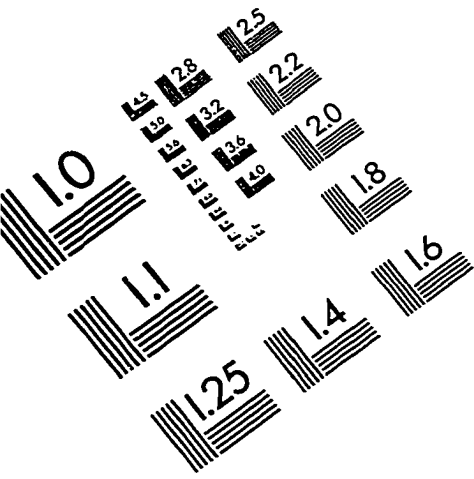
	Dependent Variables															
	Tobin's Q				Size-B/M-Industry Adjusted				Operating Return on Assets				Operating Cash Flows/Assets			
	Year 1	IPO Firms			Year 1	IPO Firms			Year 1	IPO Firms			Year 1	IPO Firms		
	0 to 1	0 to 2	0 to 3	0 to 1	0 to 2	0 to 3	0 to 1	0 to 2	0 to 3	-1 to 1	-1 to 2	-1 to 3	-1 to 1	-1 to 2	-1 to 3	
Intercept	2.28 (4.6)***	0.98 (2.8)***	0.56 (2.3)**	0.23 (0.8)	1.79 (5.7)***	1.60 (3.0)***	0.68 (1.8)*	0.34 (0.7)	0.04 (0.9)	0.36 (0.5)	0.28 (0.2)	0.50 (0.3)	-0.06 (-1.3)	0.50 (0.6)	2.22 (1.2)	1.90 (1.8)*
VBDUMMY	1.20 (3.1)***	0.09 (0.3)	0.14 (0.7)	0.05 (0.2)	0.26 (1.2)	-0.01 (-0.0)	0.07 (0.3)	-0.06 (-0.2)	-0.04 (-1.3)	-0.25 (-0.4)	-0.52 (-0.6)	-0.92 (-0.8)	-0.01 (-0.4)	0.63 (0.9)	2.1 (1.6)*	1.14 (1.5)
REPDUM	-0.88 (-2.0)**	-0.55 (-1.8)*	-0.44 (-2.1)**	-0.40 (-1.5)	-0.48 (-1.9)*	-0.76 (-1.7)*	-0.50 (-1.6)*	-0.53 (-1.4)	0.08 (2.3)**	-0.34 (-0.5)	-0.45 (-0.4)	-0.63 (-0.5)	0.06 (1.7)*	-0.73 (-0.9)	-2.4 (-1.6)*	-1.78 (-2.0)**
DIVDUM	-0.06 (-0.2)	-0.44 (-1.6)*	0.00 (0.0)	0.13 (0.6)	0.19 (0.8)	-0.54 (-1.4)	0.15 (0.6)	0.36 (1.1)	0.04 (1.3)	-0.19 (-0.3)	-0.55 (-0.6)	-0.86 (-0.7)	0.03 (0.9)	-0.52 (-0.7)	-1.77 (-1.4)	-1.43 (-1.9)*
ISSUE	0.00 (0.3)	0.00 (0.3)	0.00 (0.4)	0.00 (0.2)	-0.00 (-0.1)	0.00 (0.1)	-0.00 (-0.1)	-0.00 (-0.1)	-0.01 (-6.6)***	-0.00 (-0.1)	0.00 (0.2)	0.00 (0.2)	-0.01 (-6.7)***	-0.00 (-0.8)	-0.00 (-0.8)	-0.00 (-1.0)
SECOND	-0.27 (-0.4)	-0.16 (-0.3)	0.01 (0.0)	0.45 (1.1)	-0.05 (-0.1)	-0.36 (-0.5)	-0.12 (-0.3)	0.43 (0.8)	0.09 (1.7)*	-0.76 (-0.7)	-1.08 (-0.6)	-1.50 (-0.7)	0.11 (1.8)*	-1.0 (-0.7)	-1.40 (-0.6)	-0.68 (-0.5)
INST	-0.01 (-0.9)	-0.01 (-1.0)	-0.01 (-1.9)**	-0.01 (-1.5)	0.00 (0.1)	-0.01 (-1.0)	-0.01 (-1.4)	-0.01 (-1.3)	0.01 (2.2)**	0.00 (0.3)	0.01 (0.3)	0.01 (0.2)	0.01 (2.4)**	0.02 (1.1)	0.03 (1.0)	0.02 (0.9)
LARGE	-0.02 (-2.0)**	0.00 (0.6)	0.00 (0.2)	-0.00 (-0.2)	-0.01 (-0.9)	0.01 (0.9)	-0.00 (-0.0)	-0.00 (-0.3)	-0.01 (-1.7)*	0.00 (0.2)	0.00 (0.2)	0.01 (0.2)	-0.01 (-1.4)	0.00 (0.3)	-0.00 (-0.1)	-0.00 (-0.2)
INSD	0.02 (2.4)**	-0.00 (-0.1)	0.00 (0.2)	0.00 (0.9)	0.00 (0.6)	-0.01 (-1.0)	-0.00 (-0.5)	0.00 (0.6)	0.01 (2.3)**	-0.00 (-0.2)	0.00 (0.1)	0.01 (0.2)	0.01 (2.3)**	-0.01 (-0.5)	-0.02 (-0.9)	-0.01 (-1.0)
Adj. R ²	0.037	0.003	0.007	-0.007	-0.004	0.009	-0.006	-0.010	0.183	-0.018	-0.019	-0.023	0.176	-0.011	0.002	0.014
p for F-sta.	(0.00)***	(0.33)	(0.25)	(0.63)	(0.53)	(0.24)	(0.58)	(0.63)	(0.0)***	(0.99)	(0.99)	(0.98)	(0.0)***	(0.86)	(0.37)	(0.17)
# of obs	380	380	358	270	269	269	250	189	381	381	356	272	371	372	347	265

Table 17: Cross-Sectional Regressions Explaining Operating Performance at Year 1

The dependent variables are several operating performances of 456 U.S. firms announced public offering between 1989-1994. Operating performance are adjusted by subtracting the performance of firms matched by size and book to market ratio along with two-digit industry classification. Following variables are used as the dependent variables. One dependent variable is capital expenditures over total assets (data item 128/data item 6). Operating margin is operating income before depreciation divided by total sales (data item 13/data item 12). Book to Market ratio is book value divided by market value. Book value is defined as common equity plus balance sheet deferred taxes (data item 60 + data item 35). Excess market value is the difference between market value of outstanding shares and book value of equity divided by total sales[(data item (24 x 25) - data item 60)/data item 12]. The dependent variables are regressed on three dummy variables. First dummy variable represents whether an IPO firm is venture-backed or not (VBDUMMY). It takes 1 if the IPO firm is backed by a venture capitalist, and zero if it is not. Investment bankers' reputation based on Carter-Manaster Investment Bankers' Reputation rankings is presented by another dummy variable (REPDUM). It takes 1 if IPOs are underwritten by high reputable investment bank, otherwise zero. Another dummy variable (DIVDUM) is used for corporate diversification. It takes 1 for a firm defined a single segment IPO firm if it has only one 2-digit SIC code. For a firm with two or more different two-digit SIC codes labeled as Multi-Segment IPO firm, it takes 0. Independent variables include issue size (ISSUE) which is defined as total value of the offering divided by total assets at the year prior to the offering (year -1), the percentage of the total issue offered by current shareholders (SECOND), and ownership variables, which are percentage of shares held by institutional (INST), blockholders (LARGE), and Insiders (INSD). The t statistics are given in parentheses. *, **, *** denote significance at 10%, 5%, and 1% level.

	Dependent Variables							
	Operating margin		Capital Expend./Assets		Book to Market		Excess market Value	
	<i>IPO Firms</i>	<i>Adjusted</i>	<i>IPO Firms</i>	<i>Adjusted</i>	<i>IPO Firms</i>	<i>Adjusted</i>	<i>IPO Firms</i>	<i>Adjusted</i>
Intercept	-0.50 (-1.0)	-0.35 (-0.8)	0.09 (6.6)***	0.07 (5.4)***	0.50 (10)***	0.59 (9.6)***	9.9 (1.8)*	12.2 (2.3)**
VBDUMMY	-0.67 (-1.8)*	-0.39 (-1.4)	-0.02 (-2.3)**	0.01 (1.2)	-0.15 (-3.9)***	-0.13 (-2.9)***	10.8 (2.5)***	5.14 (1.4)
REPDUM	0.24 (0.6)	0.61 (1.8)*	0.01 (1.2)	0.02 (2.0)**	0.02 (0.4)	-0.03 (-0.6)	0.40 (0.1)	-8.9 (-2.0)**
DIVDUM	0.05 (0.1)	0.39 (1.4)	0.02 (1.5)	0.01 (0.7)	0.06 (1.5)	-0.02 (-0.3)	1.45 (0.3)	-3.11 (-0.8)
ISSUE	-0.00 (-2.4)**	-0.00 (-2.6)***	0.00 (1.2)	-0.00 (-1.7)*	0.01 (2.8)***	0.00 (0.4)	0.00 (0.4)	0.00 (0.4)
SECOND	0.31 (0.5)	0.30 (0.6)	-0.01 (-0.6)	-0.00 (-0.0)	0.05 (0.7)	0.11 (1.4)	-9.43 (-1.2)	-4.93 (-0.7)
INST	0.01 (1.5)	0.00 (0.3)	-0.00 (-1.1)	-0.00 (-1.3)	-0.00 (-0.7)	0.00 (0.6)	-0.15 (-1.3)	-0.07 (-0.7)
LARGE	-0.01 (-0.8)	0.00 (0.0)	-0.00 (-0.5)	0.00 (1.3)	0.01 (3.3)***	0.00 (1.3)	-0.05 (-0.4)	-0.01 (-0.1)
INSD	0.01 (1.4)	-0.01 (-1.0)	-0.00 (0.7)	-0.00 (-1.1)	-0.01 (-2.3)**	-0.01 (-2.5)***	-0.11 (-1.4)	0.04 (0.5)
Adj. R ²	0.028	0.037	0.006	0.019	0.080	0.035	0.015	0.004
p for F-sta.	(0.02)**	(0.03)**	(0.25)	(0.12)	(0.00)***	(0.02)**	(0.09)*	(0.34)
# of obs	344	247	369	257	386	278	378	272

IMAGE EVALUATION TEST TARGET (QA-3)



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1653 East Main Street
Rochester, NY 14609 USA
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