Underpricing and CEO Stock Options: Do Board Characteristics Matter?

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Abstract

This paper examines the conditions under which CEOs are able to affect the timing and the price of the stock options they are granted at the time of their firm's IPO. Contrary to Lowry and Murphy (2007) who do not find a relationship between IPO grants and IPO underpricing, this paper finds such a relationship when board independence, the power of the CEO and venture capital (VC) backing are taken into account. The results suggest that powerful CEOs and VCs are able to reap substantial gains from IPO options to the detriment of the shareholders.

Keywords: stock options, board independence, venture capital involvement, CEO power, initial public offerings, underpricing, conflicts of interest, corporate governance

JEL Classifications: G20, G30, J33

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The high levels of underpricing witnessed for initial public offerings (IPOs) during the late nineties have started a debate on the role of executives, especially powerful CEOs, in setting their firm's offer price.[1] If powerful CEOs set their own compensation package (Yermack, 1997; Bebchuk and Fried, 2003), they should also be able to time their option grants to coincide with their firm's IPO and to set the options' exercise price equal to a deliberately low offer price so as to maximize their option gains (Lowry and Murphy, 2007). Powerful CEOs granting themselves IPO options at favorable terms may thus expropriate the firm's pre-IPO shareholders not only via these IPO options grants, but also via higher levels of underpricing. This paper studies a representative sample of 435 firms going public during 1997-2004. In about 24% of the sample firms (104 firms), CEOs receive stock options around the IPO date. These stock options have an exercise price close to the offering price. Based on the first day underpricing, these IPO options provide CEOs with an average gain of $693,901, which represents 1% of the average IPO gross proceeds.

This study analyses the conditions under which CEOs are able to affect the offer price and the granting and timing of their stock options at the IPO. More specifically, it examines whether the leadership and composition of the board of directors as well as the presence of VCs have an impact on the link between stock option grants and underpricing.[2]

[1] Bach and Smith (2007) define power as the capacity of the CEO to exert influence to change the behavior of a person or group in some intended way.

[2] A large number of IPO prospectuses indicate the explicit involvement of the board of directors in the determination of the number of stock options and their related exercise price. For example, the prospectus of Acadia Pharmaceutical (p,64, 5/26/2004) states that: "Options were granted by our board of directors at an exercise price

The chief executive officer is typically the most powerful executive within a corporation (see e.g. Harrison et al., 1988). The power of the CEO is even greater in small firms, which typically lack the constraints associated with the more rigid organizational systems and structures found in larger firms (Daily and Dalton, 1992, 1993; Finkelstein and Hambrick, 1996). Founder-CEOs and CEOs who also act as chairmen of the board of directors are likely to be entrenched, resulting in higher underpricing (Certo et al., 2001), especially in firms where powerful CEOs are able to grant themselves IPO options. This paper finds a strong positive link between underpricing and the ex ante gain related to underpricing in firms with powerful CEOs who are founders, chairmen, or both.

However, firms with good corporate governance, such as highly independent boards of directors, may be able to counterbalance the power of the CEO (Core et al., 1999). This study measures board independence by the percentage of non-executives not linked to the firm's venture capitalists (VCs). While the paper finds that underpricing increases with the ex ante gain from the number of IPO options, it is lower for firms with more independent boards of directors. This result supports the hypothesis that independent directors ensure that the CEO's interests are aligned with those of the shareholders. However, the monitoring role of independent directors may be reduced by the presence of VCs.

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determined by them in good faith to be the fair value of our common stock as of the date of grant. In determining the fair value of our common stock our board of directors evaluated a number of factors, including our financial condition and business prospects, our stage of development and achievement of key technical and business milestones, private and public market conditions, the terms of our private financings and the valuations of similar companies in our industry." .

Indeed, while most VCs favor value-maximizing CEOs, some VCs may be mainly concerned with building up their reputational capital through a successful IPO. These VCs may therefore be more willing to bear the cost of underpricing (Gompers, 1996). They may bribe the CEO, e.g. via IPO options, to gain support for an early IPO which would leave more money on the table for the other shareholders.[3] Our empirical results offer support for this argument as, in VC-backed firms, the impact of IPO options on underpricing is higher. In addition, robustness tests indicate that this effect is even stronger for firms backed by young VC firms. This is in line with recent evidence on the tendency of VCs with a lower reputation to grandstand and take companies public at an early stage in order to build their reputation (Gompers, 1996; and Lee and Wahal, 2004). Further there is evidence that the impact of IPO option grants on IPO underpricing is stronger the more powerful the VC. This is the case for both measures of VC power used in this paper. First, a greater fraction of board seats held by the VCs in the issuing firms causes a higher impact of IPO options on underpricing. Second, the impact of IPO options is also stronger for firms whose CEO is linked to one of the VCs.

In order to test the robustness of our results, we also look at stock options granted before the IPO date. Almost half of the sample firms (49.6%) offer stock options to their CEOs during the year prior to the IPO. In support of the results obtained for IPO options, there is evidence suggesting that an independent board reduces the impact of CEO stock options on underpricing whereas the presence of VCs in the boardroom increases this impact.

[3] For CEOs with pre-IPO share ownership, IPO options may also be a way to compensate for the loss caused by the high underpricing.

This paper contributes to the existing research in two major ways. First, in contrast to Lowry and Murphy (2007) who do not find a link between IPO options and underpricing, this paper finds strong evidence of such a link when adjusting for differences in the power of the CEO and VCs across IPO firms. As such, it suggests that the effectiveness of stock options in general, and IPO option grants in particular, as an incentivizing and monitoring tool needs to be studied in the context of the firm's overall corporate governance. Second, this paper sheds additional light on the potential conflicts of interests that VCs in IPO firms may suffer from. The paper finds strong evidence that more powerful VCs use IPO options to bribe CEOs to agree to an early IPO at a lower offer price. This effect is stronger for firms backed by young VC firms who are still building up their reputation through successful IPO exits and who are thus likely to grandstand and accept higher underpricing.

This paper is structured as follows. Section I reviews the literature. Section II discusses the research methodology. Section III presents the empirical findings and Section IV provides details on the battery of tests conducted to ensure the robustness of the results. Section V concludes the paper.

I. Review of the literature

Prior research suggests that CEOs have a strong influence on firm performance (Daily and Johnson, 1997), especially in small firms where they are the locus of control and decision-making (Daily et al., 2002). CEO compensation may be a mechanism to alter the risk-taking

incentives of CEOs, who may otherwise be too conservative and shy away from risky but shareholder-value creating investments (Coles, Williams, and Sen, 2002).

Stock options are contracts that give their holders the right to buy a specific number of shares at a predetermined price over a predetermined period. Stock options do not incur cash outlays until they are exercised, which results in less downside risk than equity (Certo et al., 2003), thus inducing risk-taking. Therefore, stock options are likely to align CEO and shareholder interests (Jensen and Meckling, 1976) and provide IPO firms with "upside potential" (Sanders, 2001) which, by encouraging a higher propensity to take risks (Wiseman and Gomez-Mejia, 1998; Beatty and Zajac, 1994), may result in higher firm performance (Hall and Liebman, 1998).

However, Yermack (1997) provides strong evidence that executives are self serving. They influence the timing of option grants and are likely to receive 'in the money' options just prior to releasing news that increases their company's share price, thereby maximizing their option gains. Lowry and Murphy (2007) argue that, via underpricing at the IPO, CEOs generate themselves gains from IPO options by setting the options' exercise price equal to the offer price. Lowry and Murphy (2007) expect a positive impact on underpricing of share options issued at the time of the IPO. However, their study of 854 companies over the period 1996-2000 suggests that IPO underpricing is related neither to the existence nor the magnitude of IPO share option grants. This result is inconsistent with their argument that managers that have been granted stock options around the IPO have clear incentives to set a lower issue price in order to maximize their personal wealth.

Given the potentially perverse incentives generated by stock options, outside investors may insist on additional monitoring mechanisms to ensure that the CEO has the right incentives to maximize firm value. For example, the board of directors, provided that it has sufficient independence, may help mitigate the agency problems generated by the separation of ownership and control and improve firm value (Fama and Jensen, 1983; Weisbach, 1988; Shleifer and Vishny, 1997). More specifically, non-executive directors are likely to complement the executives' technical competencies and good knowledge of the firm. They also allow for greater objectivity in assessing the behavior of managers, and operate as a signal of effective monitoring and control systems in IPO firms (Daily et al., 1999). Therefore, investors may prefer IPO firms with more independent boards (Gompers, 1995) that are more likely to ensure the effectiveness of CEO stock options (Ryan and Wiggins, 2004). In support of this argument, Filatotchev and Bishop (2002) find that board impendence reduces IPO underpricing. Further, Core et al. (1999) find that both the characteristics of the board of directors and the ownership structure have a significant impact on the level of CEO compensation. They show that CEOs earn more and that they perform worse when governance structures are less effective.

The presence of VC firms may also affect board composition and leadership. Hellmann and Puri (2002) find that VC-backing is related to a variety of professionalization measures, such as human resource policies, the adoption of stock option plans, and the hiring of a marketing VP. VC involvement in the firm's strategy and organization, including the granting of IPO options, is more likely when VCs are on the board of directors (Fried et al., 1998). Moreover, VCs often

play a significant role in persuading founder-CEOs to step down prior to the IPO in favor of more experienced and credible executives in order to manage the IPO process (Jain and Tabak, 2008). To summarize, there is ample evidence of substantial involvement by VCs in their investee firms. Powerful VCs may then grandstand and take their investee companies public at an early stage in order to build up their reputation and attract more funds for further investments (Gompers, 1996; and Lee and Wahal, 2004). VCs may therefore issue IPO options to the CEOs of their investee firms and issue them at an exercise price equal to a deliberately low offer price in order to bribe or compensate the CEO for his support for an early IPO. Hence, VCs may have a positive effect on the link between underpricing and the gain from IPO option grants. This positive link may be further intensified if the CEO is related to the VC. For example, for IPO firms whose CEO is a partner of the VC, the IPO options would directly compensate the VC for any money left on the table due to the early IPO.

Furthermore, board efficiency declines as the CEO gains power over the board (Hermalin and Weisbach, 1998). For example, a CEO serving as chairman of the board may intentionally appoint board members who will be less likely to monitor the management (Prevost, Rao and Hossain, 2002). As such, the potentially negative impact of this dual leadership structure on corporate governance may also increase underpricing (Certo, Daily and Dalton, 2001). In support of this argument, Core et al. (1999) find that CEO compensation is higher when the CEO is also the board's chair. Stock options granted at the time of the IPO may thus increase the potential for conflicts of interests in firms with a dual leadership structure, and may thus increase IPO

underpricing. Board efficiency is also likely to be lower in IPO firms with founder-CEOs. Based on a sample of Fortune 500 firms, Shleifer and Vishny (1989) provide evidence on the entrenchment of founder-CEOs: firms with founder-CEOs have lower turnover and are less likely to be the target of a hostile takeover. Although founder-CEOs often consider their firms to be their life achievement and are thus likely to focus on long-term value maximizing rather than short-term objectives, there is empirical evidence on higher underpricing in founder-CEOs' IPOs. Since founder-CEOs who take their firms public are basically doing so for the first time, they represent "untested managers" (Wat, 1983). This leads to greater uncertainty (Tashakori, 1980), and increases the risk aversion of underwriters about the quality of an issue, thus inducing higher underpricing. Within this context, founder-CEOs who are granted stock options at the IPO may be seen as opportunistic managers using the options to generate gains that offset the wealth loss from underpricing due to their pre-IPO ownership. As such, the presence of a founder-CEO may positively affect the impact of IPO grants on underpricing.

Based on the above discussion, we propose to test the following hypotheses.

Hypothesis 1: Underpricing is positively related to the IPO option-related gains

Hypothesis 2: Underpricing is negatively related to the IPO option-related gains in firms with more independent boards of directors

Hypothesis 3: Underpricing is positively related to the IPO option-related gains in IPOs with greater involvement by venture capital firms

Hypothesis 4: Underpricing is positively related to the IPO option-related gains in IPOs with greater CEO entrenchment

II. Data and Methodology

A. Data Sources

To form the IPO sample, we first collect data on all IPOs during 1997-2004 in the US markets from the Securities Data Company (SDC) database. Similar to Lowry and Murphy (2007), we exclude REITs, ADRs, closed-end funds, foreign IPOs, unit offerings, financial IPOs, and those with a lower-than-five dollars offer price. This leaves 1725 IPOs. The data on CEO stock options, ownership, and other IPO characteristics is collected from the IPO prospectuses as well as the proxy statement for the fiscal year of the IPO, which are available from the Securities and Exchange Commission's (SEC's) Electronic Data Gathering, Analysis, and Retrieval system (EDGAR).

Since the primary focus of the paper is on the effect of board composition and CEO and VC power on stock option grants around the IPO date and in turn their effect on IPO underpricing, the analysis is based on a representative sample of 435 IPOs for which the IPO prospectuses show stable leadership, i.e. no board changes during the year prior to the IPO. As the IPO process takes several months of negotiation and preparation, focusing on firms with stable boards allows for the board to assume its full monitoring role. The final sample represents 25.2% of the entire IPO population during the period under study and consists of 435 IPOs. Table I compares

the sample to the entire IPO population. The table shows that the sample has a distribution of IPOs per year and per industry similar to the population. It also shows that both have similar percentages of hi-tech and VC-backed IPOs, which confirms the representativeness of the sample. Hence, we are confident that the sample is representative of the population of IPOs.

[Table I About Here]

For each IPO, we hand-collect data on the compensation scheme of the CEO from the prospectus as well as the proxy statement that covers the fiscal year of the IPO. We also collect the number of shares held by the CEO as well as the other pre-IPO shareholders, such as the VCs, immediately before and after the IPO. Data is also collected on all stock options granted in the year prior to the IPO date as well as on the IPO options most usually issued on (or within a few days of) the offering date. The board's composition is also collected from the IPO prospectus, by consulting the footnotes of both the "MANAGEMENT" and "PRINCIPAL STOCKHOLDERS" tables in order to have data that is as accurate as possible.

B. Methodology

The main aim of the paper is to explain the link between underpricing and IPO options by adjusting for the influence of board independence, VC involvement and managerial entrenchment on both. The three models which we estimate are as follows:

$$Underpricing_i = \alpha + \beta_1 \, x \, Ex\ ante\ Gain\ from\ Underpricing_i + \beta_2 \, x \, Board\ Independence_i$$
$$+ \beta_3 \, x \, Ex\ ante\ Gain\ from\ Underpricing_i \, x \, Board\ Independence_i$$
$$+ \beta_4 \, x \, CEO\ Pre\text{-}IPO\ Ownership_i + \beta_5 \, x \, Control\ variables_i + \varepsilon_i \qquad (1)$$

$$Underpricing_i = \alpha + \beta_1 \, x \, Ex\ ante\ Gain\ from\ Underpricing_i + \beta_2 \, x \, VC\ Involvement_i$$
$$+ \beta_3 \, x \, Ex\ ante\ Gain\ from\ Underpricing_i \, x \, VC\ Involvement_i$$
$$+ \beta_4 \, x \, CEO\ Pre\text{-}IPO\ Ownership_i + \beta_5 \, x \, Control\ variables_i + \varepsilon_i \qquad (2)$$

$$Underpricing_i = \alpha + \beta_1 \, x \, Ex\ ante\ Gain\ from\ Underpricing_i + \beta_2 \, x \, CEO\ Entrenchment_i$$
$$+ \beta_3 \, x \, Ex\ ante\ Gain\ from\ Underpricing_i \, x \, CEO\ Entrenchment_i$$
$$+ \beta_4 \, x \, CEO\ Pre\text{-}IPO\ Ownership_i + \beta_5 \, x \, Control\ variables_i + \varepsilon_i \qquad (3)$$

Model (1), (2) and (3) test the validity of Hypothesis 2, 3 and 4, respectively. In line with the prior IPO literature, the dependent variable, *Underpricing*, is equal to the ratio of the difference between the price at the end of the first day of trading and the offer price over the offer price.

Lowry and Murphy (2007) argue that a CEO receiving IPO options with an exercise price equal to the offer price benefits from higher underpricing as each IPO option generates a gain equal to the dollar amount of underpricing. Conversely, CEO wealth is adversely affected by the new shares sold at the too low offer price (Barry, 1989). In order to calculate the net gain from underpricing, we follow Lowry and Murphy (2007, p.45), and compute the hypothetical gains

and losses from each $1 decrease in the offer price (holding the aftermarket price constant) as follows.

$$\textit{Ex ante Gain} = \textit{Number of IPO Options} \qquad (4)$$

$$\textit{Ex ante Loss} = \textit{Number of Shares}_{\textit{CEO Sold in IPO}} + \textit{Number of New Shares}_{\textit{Offered in IPO}} \times \textit{CEO's Portion of Total}_{\textit{Shares Retained in Company}} \qquad (5)$$

The *Ex ante Gain from Underpricing*, i.e. the IPO option-related gain, is calculated as the number of IPO options. The *Ex ante Loss from Underpricing* is the number of secondary shares sold by the CEO plus the number of primary shares offered in the IPO multiplied by the CEO's portion of shares he retains in the company (including options granted prior to the IPO and excluding all secondary shares) and it is the direct wealth effect of underpricing on CEO ownership prior to the IPO date.

Board Independence is equal to the number of non-executive and non-VC related board directors expressed as a proportion of the total number of board members. Outside directors exclude VC-related board members.

VC involvement is measured by a VC dummy and the proportion of VC-related directors. The *VC dummy* is equal to one if an IPO firm is VC-backed, and zero otherwise. This dummy is used to identify the role played by venture capital firms. Megginson and Weiss (1991) argue that venture capitalists act as a third party certifying agent, reducing asymmetric information and thus

underpricing. Venture capitalists may, however, have other motives such as building up their reputation. Younger VCs may therefore grandstand and take firms public earlier than expected which results in higher underpricing (Gompers, 1996). In robustness tests, we use the age of VC firms which is collected from SDC Platinum Venture Expert database to control for VC reputation. The age of a VC firm is equal to the difference between the IPO date and the founding date of the VC firm. We use *Old VC dummy* (*Young VC dummy*) which is equal to 1 if the average age of VC firms for a specific IPO is higher (lower) than the median age of VC firms in the sample, and zero otherwise.

CEO entrenchment is measured by three separate dummy variables. The *CEO Founder dummy* is set to one if the CEO is also the firm's founder. The *CEO Chairman dummy* equals one if the CEO also assumes the role of company chairman, and equals zero otherwise. Finally, the *CEO Founder Chairman dummy* equals one if the CEO happens to be both the founder and chairman of the firm, and is zero otherwise.

Prior research shows evidence that underpricing depends on firm characteristics and market conditions. Hence, we control for price revision, CEO pre-IPO ownership, firm age, industry, size (proxied by the sales revenue for the year prior to the IPO), overhang, participation ratio, use of proceeds, pre-IPO leverage, and market conditions. In addition, we use the same control variables as those used by Lowry and Murphy (2007): they use a VC dummy, underwriter reputation, industry membership, and year dummies.

Price Revision is equal to the ratio of the difference between the offer price and the mid-point of the initial price range over the latter. Hanley (1993) argues that price revision may be used as a proxy for investor feedback and notes that Benveniste and Spindt's (1989) model of book building predicts partial adjustment to private information. As such, price revision controls for the information gathering during the pre-IPO period.

Prior research also suggests that CEO ownership is a possible way to reduce the agency problems caused by the separation of ownership and control (Oswald and Jahera, 1991; Mehran, 1995). Were therefore use a *Pre-IPO CEO Ownership* variable, which is equal to the percentage of shares owned by the CEO before the IPO as reported in the IPO prospectus.

Pre-IPO Sales is the proxy for firm size and is the natural logarithm of sales (or revenue) during the year prior to the IPO. Since there is typically more information available to the public about larger firms, larger firms should have lower underpricing. A *Hi-Tech dummy* is added to control for the presence of higher asymmetric information in such firms and its likely effect on underpricing. It is equal to one if the IPO firm is a hi-tech firm, and zero otherwise.[4]

Leland and Pyle (1977) argue that the sale of secondary shares by the existing shareholders represents a negative signal about the firm value and that the signal is stronger the higher the percentage of secondary shares sold. On the contrary, Habib and Ljungqvist (2001) find evidence

[4] In line with Loughran and Ritter (2004), Hi-Tech stocks are defined as those with SIC codes 3571, 3572, 3575, 3577, 3578 (computer hardware), 3661, 3663, 3669 (communications equipment), 3671, 3672, 3674, 3675, 3677, 3678, 3679 (electronics), 3812 (navigation equipment), 3823, 3825, 3826, 3827, 3829 (measuring and controlling devices), 3841, 3845 (medical instruments), 4812, 4813 (telephone equipment), 4899 (communications services), and 7371, 7372, 7373, 7374, 7375, 7378, and 7379 (software).

that pre-IPO shareholders who participate to a larger extent in the offering, i.e. by selling more of their existing shares, are more concerned about the wealth loss from underpricing. In particular, they are likely to pay higher marketing costs to entice uninformed investors to invest in the IPO, thereby reducing underpricing. Therefore, we use the *Participation Ratio*, which is equal to the number of existing shares sold expressed as a fraction of the total number of shares offered in the IPO. We also consider *Overhang*, which is defined as the ratio of pre-IPO shares retained over the shares issued in the IPO. In line with Bradley and Jordan (2002), firms with greater overhang suffer less dilution, which suggests that the cost of underpricing is lower and the level of underpricing is likely to be greater.

Leone et al. (2007) document substantial variation in the specificity of disclosures on the use of proceeds and find a negative association between such specificity and underpricing. They argue that IPOs that provide specific use-of-proceeds disclosures have less ex ante uncertainty, as these voluntary disclosures help investors estimate the distribution of secondary market values. This paper uses *Specific Use of Proceeds* as a control variable, which is equal to the fraction of IPO proceeds designated for a specific use such as expansion, acquisitions, R&D, product development, advertising, marketing, promotion or sales, working capital use, and other uses.

Prior research indicates that pre-IPO leverage may play a monitoring role (Jensen, 1986), thus mitigating underpricing. *Pre-IPO Leverage* is equal to pre-IPO long-term debt as a percentage of pre-IPO total assets.

Underwriter Ranking is calculated as in Carter and Manaster (1990) and Loughran and Ritter (2004), with more reputable underwriters certifying the quality of managed offerings and thus have a lower underpricing. *Underwriter Ranking* is a dummy variable equal to one for the most prestigious underwriters, and zero otherwise.

Market Return is the compounded return of the value-weighted CRSP index over the 20 trading days preceding the day of the IPO. It controls for the effect of market momentum and is expected to affect underpricing positively (Logue, 1973; Hanley, 1993; Loughran and Ritter, 2002, Lowry and Schwert, 2004). A *Bubble Period Dummy* is also included in the regressions. It controls for the effect of the internet bubble in 1999-2000, when underpricing was highest.

III. Empirical Results

A. Descriptive Statistics

Table II presents the descriptive statistics for the entire sample as well as the sub-samples of firms with and without IPO options. Panel A shows that average underpricing is 37.6% for the entire sample following an average price revision of 6.2% during the pre-IPO period. While the average underpricing for the firms with CEO IPO options is lower (30.6%) than that for the firms without IPO options (39.8%), the difference is not significant. Further, the median underpricing for both sub-samples is virtually identical. This result is in line with Lowry and Murphy (2007) who also do not find a difference in underpricing between firms with and without IPO options. Panel B reports that 63.4% of the sample firms are VC-backed IPOs as evidenced by the VC

dummy and a lower percentage of firms with IPO options (52.95) is backed by VCs than firms without IPO options (66.8%). VC board representation makes out on average 20.8% of the board seats, and as such, 46.3% of board directors are likely to be truly independent. Firms without IPO options have a significantly higher percentage of VC representatives (22%) compared to firms with IPO options (16.9%), reflecting the higher percentage of VC-backed firms in the former sub-sample. According to Panel C, 6.4% of the CEOs are linked to one of the VC firms. Although the percentage of VC-related CEOs is economically higher (9.6%) for the firms with IPO options compared to the firms without IPO options (5.4%), the difference is not statistically significant. Founder-CEOs are present in 39.1% of the sample whereas 51% of the CEOs also act as chairmen of the board. About 26.7% of the CEOs are both chairmen and founders. None of these CEO characteristics differs significantly across the two sub-samples. Interestingly, there is no significant difference in terms of CEO pre-IPO ownership between the two sub-samples: the CEOs of both types of firms own roughly 20% of the shares before the IPO. There is also no difference in CEO ownership after the IPO.

Panel C also reports the descriptives for IPO grants, stock options granted during the year preceding the IPO and those granted more than one year before the IPO. The table reveals two patterns. First, the CEOs of firms with IPO options have significantly more options when options are aggregated across the three periods. Second, these CEOs also have significantly fewer options granted more than one year before the IPO. Further, when one ignores IPO options altogether, firms with IPO options have a higher percentage (77%) of IPOs granted in the year

before the IPO than those without IPO options (67%).[5] Hence, there is some evidence that firms with IPO options tend to time their options closer to the IPO.

[Table II About Here]

Panel D of Table II reports descriptive statistics on the offering characteristics. There are no significant differences in terms of sales revenue, pre-IPO leverage, overhang, underwriter ranking and gross proceeds. However, as one would expect from the above analysis of the evolution of CEO ownership, firms with IPO options have a higher participation ratio. The fraction of the IPO proceeds designated for a specific use is also higher for firms with IPO options. Conversely, there are more hi-tech firms among the firms without IPO options.

Finally, while Panel E does not report a significant difference in terms of market conditions when these are measured by the market return over the 20 days preceding the IPO, it reports a significantly higher percentage (46.5% vs. 24%) of firms without IPO options going public during the bubble period.

Table III presents the descriptive statistics for the sample of 104 IPOs whose CEOs receive IPO option grants at the time of the IPO. Panel A is on the offer characteristics. The average (median) initial underpricing is $5.50 ($0.84) per share which amounts to an average (median) of $31 million ($1.8 million) left on the table on the first day of trading. Panel B reports information on the IPO options grants. CEOs are granted an average of 149,163 options at the time of the IPO

[5] These percentages are obtained as follows: 77% = 0.010 / (0.003 + 0.010) and 67% = 0.014 / (0.007 + 0.014).

with an exercise price that is on average 2.91% lower than the offer price. Panel C shows that CEOs make an average (median) gain of $693,901 ($55,306) from their IPO options during the first day of trading. Interestingly, this gain exceeds the average loss suffered by the CEOs from underpricing, and results on average in a net gain of $167,983. Based on the SEC stock option valuation method, and assuming a 10% growth rate of the stock price till maturity, Panel D of Table III reports an average gain of $3.011 million, which is equal to the difference between the total value of the IPO options and their cost based on their exercise price. Further, controlling for the loss due to CEO pre-IPO ownership ($525,917 on average), the CEO makes an average (median) net gain of $2.485 million ($1.416 million). The results in Table III suggest that firms with IPO options pay their CEOs, on average, 1% (the first trading day gain of the IPO option) to 4.5% (the theoretical value of the IPO options minus their cost) of the gross proceeds.

[Table III About Here]

Table IV reports underpricing in relation to (above- and below-median) board independence and the existence of IPO grants (Panel A) as well as in relation to VC backing and the existence of IPO grants (Panel B). Panel A shows that firms with high board independence (sub-samples III and IV) have significantly lower underpricing (at the 1% confidence level) than those with lower board independence (sub-samples I and II). Panel A also suggests that underpricing for firms with high board independence as well as IPO options (sub-sample IV) is significantly lower (at the 5% level or better) compared to all the other sub-samples. This result suggests that underpricing is lowest for those firms with high board independence that grant their CEOs IPO

options. However at first sight, there are also some conflicting results in Panel A. Indeed, the level of underpricing is virtually identical across firms with IPO options (sub-sample I) and those without IPO options (sub-sample II), when board independence is low. This is in direct contradiction with Hypothesis 1 which states that underpricing should increase in line with IPO option-related gains. Further, when board independence is high, firms with IPO options actually have significantly lower underpricing. Again, this pattern contradicts Hypothesis 1.[6,7]

However, when the characteristics of sub-samples I and II are compared, there are significant differences. Indeed, firms from the former sub-sample are more likely to be VC-backed (at the 10% level of confidence), more likely to go public during the bubble period (at the 5% level) and have less post-IPO CEO ownership (at the 10% level). Similarly, there are significant differences between sub-samples I and IV. Firms from the former sub-sample are smaller for both measures of size – total assets (at the 10% level) and sales (at the 1% level), they are also more likely to be VC-backed (at the 1% level), more likely to go public during the bubble period (at the 1% level) and more likely to be high-tech firms (at the 1% level).[8] This suggests that these contradictory results may be due to the fact that differences in underpricing across the four sub-samples are

[6] Finally, to a lesser extent, the fact that firms with low board independence and no IPO options (sub-sample I) have significantly higher underpricing than firms with high board independence and with IPO options somewhat contradicts Hypothesis 2. Indeed, if Hypothesis 2 is valid, one would expect that the high board independence counteracts the positive effect of IPO options on underpricing, thereby rendering levels of underpricing which are no different from those in firms with no IPO options.

[7] These conflicting results remain when median underpricing rather than average underpricing is considered.

[8] There are also significant differences in firm characteristics between sub-samples III and IV. IPO firms in sub-sample III are more likely to be hi-tech firms, VC-backed and are more likely to go public during the bubble period than those in sub-sample IV.

also to a large extent driven by differences in firm characteristics which Table IV does not adjust for. Hence, it is important to adjust for these firm characteristics in the regressions.

[Table IV About Here]

Panel B shows the average underpricing in relation to VC backing and the existence of IPO options. Interestingly, VC-backed firms (both sub-samples III and IV) have significantly higher underpricing (at the 1% level) than IPOs without VC backing (sub-samples I and II). However, there is no significant difference in terms of underpricing between firms with and without IPO option grants. Overall, Table IV suggests that board independence has a significantly negative effect on underpricing while VC backing has a significantly positive effect on underpricing. Both patterns hold irrespective of the presence or absence of IPO options.

A. Regression Results

Board Independence and IPO Option Grants

Table V controls for the effect of IPO options on underpricing using the methodology of Lowry and Murphy (2007). Model (1) shows the results from regressing underpricing on the ex ante gain and loss from underpricing as well as the control variables. The coefficient on the ex ante loss variable is significant, which suggests that CEOs are less likely to accept underpricing when this results in a higher loss from underpricing via their pre-IPO ownership. There is however no significant association between underpricing and the ex ante gain from underpricing. Model (2) includes an interaction term between the ex ante gain and the independent board dummy, which

is equal to one if board independence is higher than the sample median of 0.467, and zero otherwise. Model (2) shows that underpricing increases with the *Ex ante Gain from Underpricing*, whereas it is lower for IPOs with a higher ex ante gain and more independent boards, which is consistent with Hypotheses 1 and 2. The results suggest that increasing the number of IPO options by one thousand increases underpricing by 0.275% for firms with less independent boards, and reduces underpricing by 0.299% (0.275% – 0.574%) for firms with more independent boards. This suggests that CEOs grant themselves IPO options in firms with lower monitoring. Although not tabulated, using an IPO option dummy as a substitute for the ex ante gain variable yields qualitatively similar results, albeit with weaker economic significance.[9]

[Table V About Here]

The results pertaining to the control variables are consistent with those from the existing literature. For instance, as shown in Table V, there is a negative link between underpricing and the independent board dummy (*p=1%*). This result is consistent with the monitoring role played by independent board members. In line with the information gathering hypothesis (Hanley, 1993), underpricing is positively related to price revision (*p=1%*). It is also negatively related to the size of the IPO firm (*p=10%*), to the fraction of secondary shares sold (*p=5%*), as well as the percentage of specific use of the proceeds (*p=1%*). Pre-IPO leverage also seems to play a monitoring role as it reduces underpricing (*p=10%*). Underpricing is higher in hi-tech IPOs

[9] In line with Lowry and Murphy (2007), we examine the effect of a joint endogeneity of IPO option grants and underpricing, and find results consistent with the complementary role played by board independence. The results are available upon request. We also rerun the regressions using IPO options granted to all the executives rather than just the CEO and find consistent but slightly less significant results.

(*p=10%*), and those managed by more reputable underwriters (*p=5%*). It is also higher for firms going public during the bubble period (*p=1%*) or following a positive market return (*p=5%*).

While Panel A of Table IV reported some patterns in the data which seemed to be in contradiction with Hypotheses 1 and 2, Table V provides strong support for both hypotheses. Table V also suggests a reason why the results change so dramatically across the two tables. Indeed, the regression results suggest that it is important to adjust for firm characteristics as several of these are significant in the regressions. These include firm size (log of sales), the high-tech dummy and the bubble dummy. A closer analysis of the sub-samples in Panel A of Table IV revealed significant differences in precisely these variables across the sub-samples.

Venture Capital Involvement and IPO Option Grants

We test whether the monitoring role played by board independence is still effective in the case where VC-related board members are included among the independent directors (the results are not tabulated). We find evidence to the contrary. This suggests that VC-related directors may collude with the CEO and support the distribution of stock options at the time of the IPO.

Table VI further investigates whether there is a differential effect of VC involvement at the IPO on the link between IPO option grants and underpricing. VC involvement is proxied by the following three variables: (1) the *VC-related Directors* dummy, which is equal to one, if the percentage of VC-related directors on the board of directors is higher than the median value of 16.7%, and zero otherwise ; (2) the *VC dummy*, which is equal to one if the IPO firm is VC-

backed, and zero otherwise; and (3) the *CEO related to VCs dummy*, which is equal to one if the CEO is related to one of the VC firms backing the firm, and zero otherwise.

[Table VI About Here]

Model (3) in Table VI shows that underpricing is higher in firms where the VC-related directors dummy is equal to one (*p=1%*), i.e. when the percentage of VC-related directors on the board of directors is higher than the sample median of 16.7%. However, underpricing is not related to the VC dummy and the CEO related to VCs dummy (Models (4) and (5), respectively). More importantly, Models (3), (4) and (5) confirm Hypothesis 3 as underpricing is positively related to the interaction terms between *Ex ante Gain from Underpricing* and each of the VC characteristics (*p=10%*). The results suggest that VC-backed IPOs whose CEOs are granted stock options around the IPO have higher underpricing. The involvement of VCs with the board of directors as well as the relation they may have with the CEO seem to result in the granting of IPO options with an exercise price equal to a deliberately underpriced offer price. The results also suggest that increasing the number of granted IPO options by one thousand decreases underpricing by 0.252% for firms with fewer VC-related directors, which are likely to have more independent boards, and increases underpricing by 0.284% (-0.252% + 0.536%) for firms with more VC-related directors. In the latter firms, IPO options might therefore be used by the VCs as a tool to gain the CEO's support for their grandstanding strategy.

CEO Characteristics and IPO Options

In addition to VC grandstanding, underpricing may also be the consequence of powerful CEOs who do not act in the best interest of the existing shareholders. The entrenchment of the CEO is likely to be higher if he is also the founder, chairman, or both. In turn, higher CEO entrenchment may result in higher underpricing. Table VII presents the results from the regressions which allow for the possible differential effect of CEO characteristics on the link between underpricing and the ex ante gain from the IPO option grants.

[Table VII About Here]

Table VII focuses on the three following CEO characteristics: (1) CEO-founders, (2) CEOs who are also chairmen of the board, and (3) CEOs who are both founders and chairmen (Models 6, 7 and 8 respectively). In line with Hypothesis 4, Table VII shows that underpricing is positively related to the interaction variables between the *Ex ante Gain from Underpricing* and each of the three CEO characteristics (*p=10%*). The relevant coefficients suggest that, increasing the number of IPO options by 10%, increases underpricing from between 4.74% and 6.98% for firms with a powerful CEO.

IV. Robustness Tests

A. VC reputation and IPO options

Prior research suggests that grandstanding is negatively related to VC reputation. Gompers (1996) argues that, since fundraising is easier for older and more established VCs, younger VCs, with typically lower reputational capital, need to signal their quality through successful IPOs of their investee companies and are therefore more willing to bear the cost of higher underpricing. Gompers finds that younger VCs grandstand and take their portfolio companies public with higher underpricing. Lee and Wahal (2004) find evidence which is consistent with the grandstanding hypothesis as they report a negative coefficient on the interaction term between VC age and underpricing, and between the number of a VC's prior IPOs and underpricing. Table VIII concentrates on VC age as an indicator for VC reputation. It repeats the regressions run in Table VI on the association between VC characteristics and IPO options and considers the differential effect of VC age. VC age is measured by two dummy variables: *Old VC dummy* and *Young VC dummy* which are set to one if the average VC age for a firm is higher and lower, respectively, than sample median VC age, and zero otherwise.

[Table VIII About Here]

Table VIII shows evidence of a positive and significant link between underpricing and the interaction between the number of IPO options (the ex ante gain) and the Young VC age. Hence, young and thus less prestigious VCs are more likely to grandstand and use IPO options as a way to enforce the decision to go public at too low an offer price. When the number of previously

backed IPOs I is used as a proxy for VC reputation, the results (which are not reported in a table) remain consistent but are slightly less significant.[10]

B. Underpricing, Corporate Governance and CEO Stock Option Grants prior to the IPO

The timing of stock options might not be limited to the short period surrounding stock offerings. Panel A of Table IX shows that the vast majority of issuing firms (70% or 304 IPOs) grant their CEOs stock options during the period before the IPO. CEOs hold on average 432,556 stock options in these 304 firms by the time the company decides to go public (2% of the total number of shares outstanding). In detail, 49% of the sample firms (214 IPOs) distribute an average of 418,354 stock options to their CEO during the year prior to the IPO, and around 20% of the firms (90 IPOs) grant on average 293,958 stock options during the period before the year prior to the IPO.[11] [12] Panel B reports that these stock options have exercise prices which are highly discounted compared to the offer price, 1596% and 1235% on average for stock option grants before and during the one year prior to the IPO, respectively (an average 692% for all the stock options held at the IPO). These figures compare to an average discount of only 2.91% for IPO options (see Panel B of Table II).

[10] Further investigations use VC reputation as an instrumental variable to control for the endogenous decision to grant IPO options to CEOs, and confirm the main findings of the paper.
[11] The choice of "one Year prior to the IPO" relates to the fact that IPO prospectuses have usually more detailed information on the stock options distributed during the year prior to IPO than those distributed before this period.
[12] Out of the 90 firms that granted stock options during the period before the year preceding the IPO, 55 granted stock options during the one year before the IPO and 14 granted options at the IPO. Out of the 214 firms that granted stock options during the year prior to the IPO, 55 granted options during the period one year before the IPO and 43 granted options at the IPO. Out of the 104 firms that granted IPO options, 14 granted options during the period one year before the IPO and 43 granted options during the one year before the IPO. There are only 8 firms that granted options during all three periods.

[Table IX About Here]

In sum, CEOs are granted stock options with an average discount of $4,037,803 as measured by the difference between the offer price and the exercise price of the stock options (Panel C). These stock options have an average value that is $12.39 million higher than the offer price (Panel D), which represents a total gain of $16.43 million through stock option grants based on the SEC option pricing method (Panel E).

Since stock options granted before the year prior to the IPO can be related to factors other than underpricing, Table X focuses on the impact on underpricing of both IPO options and stock options granted during the year prior to the IPO. Based on the entire sample of 435 IPOs, the regressions control for the (1) possible moderating effect of board independence, (2) the possible amplifying effect of the fraction of VC-related directors, and (3) the possible amplifying effect of the CEO founder-chairman dummy on the link between underpricing on the one hand and the value of both IPO option grants and option grants during the year prior to the IPO on the other hand.

As stated above, the sample is selected from IPOs with a stable board composition and power of the CEO during the year prior to the IPO. While we expect various corporate governance mechanisms to affect the distribution of both types of stock options, they might not necessarily affect those options granted before the year prior to the IPO. Hence, IPO underpricing might be affected by both IPO options and those granted during the year prior to the IPO date. Also, Table X refers to stock option value (calculated as the difference between the option value according to

the SEC method and the exercise price) and thus uses the total theoretical wealth granted to the CEO, rather than the difference between the offer price and the exercise price.

[Table X About Here]

As predicted, Model (12) of Table X confirms the monitoring role played by an independent board, as measured by the Independent Board dummy, interacted with the value of IPO options and stock options granted during the year prior to the IPO. The coefficients are significantly negative at the 10% and 5% level, respectively. Moreover, Model (13) indicates that underpricing is positively and significantly (at the 10% level) related to the interaction terms between the fraction of VC-related directors on the board, using the VC-related directors dummy, and the value of IPO options, and options granted during the year prior to the IPO. Finally, Model (14) shows that underpricing is positively related to the interaction term between the CEO founder-chairman dummy and the value of IPO option grants at the IPO (*p=10%*). These results confirm the previous results and lend further support for Hypothesis 2 and Hypothesis 3. All in all, the regressions in Table X suggest that similar effects of option grants during the year before the IPO to those uncovered for IPO options.

Interestingly, Models (12), (13) and (14) show that the value of stock options granted before the year prior to the IPO has a negative and significant (at the 10% level or better) effect on

underpricing.[13] The control variables show effects consistent with those reported in the previous tables.

V. Conclusion

When do CEOs benefit from the stock options granted around an initial public offering? While prior research focuses on the association between IPO options and underpricing, this paper studies the conditions under which IPO options may cause higher IPO underpricing. While Lowry and Murphy (2007) do not find an effect of IPO options on underpricing, this study finds such a link when controlling for board independence, which is likely to counteract CEO power. More specifically, underpricing is positively related to the ex ante gain from the IPO option grants, but this link is relatively weaker in firms with greater board independence. This paper provides further evidence on the potential entrenchment or opportunistic behavior of the CEO as it finds higher underpricing in firms with IPO options and a CEO who is the founder and/or the chairman of the board of directors.

The results also suggest the existence of a further conflict of interest relating to the use of stock options in IPOs. Indeed, for firms with VC backers, underpricing is positively related to the ex ante gain from IPO option grants, those with a greater percentage of VC-related directors, and those with a CEO related to one of the VCs. Interestingly, these relationships are stronger for

[13] Panel C of Table II suggested that firms with IPO options grant significantly fewer options during the period preceding one year before the IPO. The above result seems to be in line with this pattern.

firms with younger, i.e. less reputable VCs, which is consistent with recent evidence on the grandstanding role played by venture capital firms.

To summarize, this paper suggests that it is important to take account of potential conflicts of interest that the CEO and the VC backers may suffer from when assessing the impact of CEO IPO options on IPO underpricing. When taking account of these potential conflicts of interest, there is a strong positive effect of IPO options on underpricing.

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Table I. Sample Representativeness

This table compares the distribution across time and industries of the IPOs in the sample to that of the entire IPO population. *: data until 05/27/04

	Sample (N=435)		Entire Population (N=1725)	
Year	No.	%	No.	%
1997	171	39.31	455	26.38
1998	50	11.49	257	14.90
1999	87	20.00	444	25.74
2000	92	21.15	342	19.83
2001	6	1.38	70	4.06
2002	7	1.61	61	3.54
2003	8	1.84	52	3.01
2004*	14	3.22	44	2.55
Industry Classification	No.	%	No.	%
Agriculture, forestry, and fishing	2	0.46	11	0.64
Mining and Construction Industries	10	2.30	44	2.55
Manufacturing	157	36.09	561	32.52
Transportation, Communication, and Utilities	37	8.51	166	9.62
Wholesale and Retail Trade	32	7.36	164	9.51
Service Industries	197	45.29	779	45.16
Hi-Tech IPOs	0.379		0.379	
VC-backed IPOs	0.634		0.618	

Table II. Descriptive Statistics of IPO firms

This table provides descriptive statistics for the sample of 435 IPOs as well for the sub-samples of IPOs with and without CEO IPO options from 1997 to 2004. *Underpricing* is equal to the ratio of the difference between the closing price at the end of the first day of trading and the offer price over the offer price. *Price Revision* is equal to the ratio of the difference between the offer price and the mid-point of the price range over the latter. *VC dummy* is equal to one if the IPO firm is VC-backed, and zero otherwise. *VC-related Directors* is equal to the fraction of VC-related directors on the board. *Board Independence* is equal to the proportion of non-executives and unrelated directors on the board. *CEO related to VCs*, *CEO Founder dummy*, *CEO Chairman dummy*, *CEO Founder & Chairman dummy* are dummy variables which are set to one if the CEO is related to one of the firm's VCs, the CEO is the founder, the CEO is also the chairman, the CEO is the founder as well as the chairman, respectively, and zero otherwise. *CEO Pre-IPO* and *CEO Post-IPO Ownership* are calculated based on the pre-IPO and post-IPO number of shares outstanding (excluding all granted stock options), respectively. *Pre-IPO (post-IPO) CEO stock option ownership* is the number of shares owned by the CEO before (after) the IPO expressed as a fraction of the sum of all pre-IPO (post-IPO) shares outstanding and all granted stock options. The number of stock options is reported according to the time it was granted and includes: *Stock Options Granted More than 1 Year before IPO*, *Stock Options Granted During 1 Year before IPO*, *IPO Stock Options*, and *All Granted Stock Options*. *Pre-IPO Sales Revenue* is the sales revenue for the year preceding the IPO. *Pre-IPO Leverage* is the ratio of total debt over total assets in the year preceding the IPO. *Participation Ratio* is equal to the fraction of shares sold by the existing shareholders. *Overhang* is defined as the number of shares retained by the pre-IPO shareholders divided by the shares issued in the IPO. *Hi-tech dummy* is equal to one if the IPO is a hi-tech firm, and zero otherwise. *Underwriter Ranking* is based on the ranking of Loughran and Ritter (2004). It is a dummy variable set to one for the most prestigious underwriters (class 9.1), and zero otherwise. *Gross Proceeds* is calculated based on the offer price. *Specific Use of Proceeds* is equal to the fraction of the IPO proceeds designated for a specific use such as expansion, acquisitions, R&D, product development, advertising, marketing, promotion or sales, working capital uses, and other uses. *Market return* is the compounded daily return of a value weighted index over the 20 trading days preceding the day of the offer. *Bubble dummy* is equal to one is the IPO occurs during 1999-2000, and zero otherwise.

	Entire Sample		IPOs with CEO IPO Options		IPOs without CEO IPO Options		
	N = 435		N = 104		N = 331		P-Value
	Mean	Median	Mean	Median	Mean	Median	of T-Diff
	s.d.		*s.d.*		*s.d.*		
Panel A – IPO Price Discovery Process							
Initial Underpricing	0.376	0.102	0.306	0.103	0.398	0.102	0.245
	0.708		*0.711*		*0.707*		
Price Revision	0.062	0.000	0.024	0.000	0.073	0.000	0.169
	0.320		*0.300*		*0.326*		
Panel B – VC Involvement and Board Independence							
VC dummy	0.634	1.000	0.529	1.000	0.668	1.000	0.010
	0.482		*0.502*		*0.472*		
VC-related Directors	0.208	0.167	0.169	0.000	0.220	0.200	0.034
	0.212		*0.207*		*0.213*		
Board Independence	0.463	0.467	0.481	0.500	0.457	0.444	0.341
	0.223		*0.225*		*0.222*		
Panel C – CEO Characteristics							
CEO related to VCs	0.064	0.000	0.096	0.000	0.054	0.000	0.131
	0.246		*0.296*		*0.227*		
CEO Founder dummy	0.391	0.000	0.365	0.000	0.399	0.000	0.544
	0.488		*0.484*		*0.490*		
CEO Chairman dummy	0.510	1.000	0.481	0.000	0.520	1.000	0.490
	0.500		*0.502*		*0.500*		
CEO Founder & Chairman dummy	0.267	0.000	0.279	0.000	0.263	0.000	0.748
	0.443		*0.451*		*0.441*		
CEO Pre-IPO Ownership	0.205	0.100	0.232	0.092	0.197	0.102	0.213
(Exc. All Granted Stock Options)	*0.251*		*0.297*		*0.235*		
CEO Post-IPO Ownership	0.157	0.093	0.167	0.083	0.154	0.093	0.473
(Exc. All Granted Stock Options)	*0.168*		*0.187*		*0.162*		

Table II—Continued

	Entire Sample		IPOs with CEO IPO Options		IPOs without CEO IPO Options		
	N = 435		N = 104		N = 331		P-Value
	Mean	Median	Mean	Median	Mean	Median	of T-Diff
	s.d.		*s.d.*		*s.d.*		
Pre-IPO CEO Stock-Option Ownership (as a fraction of no. of Pre-IPO shares outstanding + all granted stock Options)							
(Stock Options Granted	0.006	0.000	0.003	0.000	0.007	0.000	0.048
More than 1 Year before IPO)	*0.017*		*0.010*		*0.018*		
(Stock Options Granted	0.013	0.000	0.010	0.000	0.014	0.001	0.188
During 1 Year before IPO)	*0.032*		*0.029*		*0.033*		
(IPO Stock Options)	0.004	0.000	0.019	0.010	0.000	0.000	0.000
	0.015		*0.026*		*0.000*		
All Granted Stock Options	0.023	0.012	0.031	0.018	0.021	0.008	0.017
	0.038		*0.040*		*0.037*		
Post-IPO CEO Stock-Option Ownership (as a fraction of no. of Post-IPO shares outstanding + all granted stock Options)							
(Stock Options Granted	0.004	0.000	0.002	0.000	0.005	0.000	0.059
More than 1 Year before IPO)	*0.012*		*0.008*		*0.013*		
(Stock Options Granted	0.010	0.000	0.007	0.000	0.011	0.001	0.158
During 1 Year before IPO)	*0.026*		*0.021*		*0.027*		
(IPO Stock Options)	0.003	0.000	0.012	0.007	0.000	0.000	0.000
	0.010		*0.016*		*0.000*		
All Granted Stock Options	0.017	0.008	0.022	0.014	0.016	0.006	0.076
	0.029		*0.028*		*0.029*		
Panel D – Offering Characteristics							
Pre-IPO Sales Revenue	105.5	14.9	119.621	19.917	101.063	13.530	0.778
(in Million USD)	*583.3*		*456.496*		*618.346*		
Pre-IPO Leverage	0.297	0.145	0.297	0.195	0.298	0.131	0.986
(Total Debt/Total Asset)	*0.496*		*0.397*		*0.524*		
Participation Ratio	0.076	0.000	0.107	0.000	0.067	0.000	0.031
	0.165		*0.215*		*0.145*		
Overhang	4.710	3.966	4.619	3.469	4.738	4.075	0.812
	4.449		*8.055*		*2.404*		
Hi-tech dummy	0.379	0.000	0.240	0.000	0.423	0.000	0.001
	0.486		*0.429*		*0.495*		
Underwriter Ranking	0.375	0.000	0.394	0.000	0.369	0.000	0.638
	0.485		*0.491*		*0.483*		
Gross Proceeds	64.906	36.500	49.935	31.100	69.609	39.000	0.190
	133.501		*74.310*		*147.047*		
Specific Use of Proceeds	0.458	0.425	0.538	0.608	0.433	0.380	0.020
	0.398		*0.386*		*0.399*		
Panel E – Market Conditions							
Market Return	0.015	0.020	0.019	0.027	0.014	0.018	0.343
	0.042		*0.042*		*0.043*		
Bubble dummy	0.411	0.000	0.240	0.000	0.465	0.000	0.000
	0.493		*0.429*		*0.500*		

Table III. CEO IPO Option Schemes

This table provides descriptive statistics for the 104 issuing firms with stock options at IPOs over the period 1997-2004. *Underpricing per Share (in USD)* is equal to the difference between the offer price and the closing price at the end of the first day of trading. *Money left on the Table* is equal to the product of the *Total Number of New Shares Offered* and the *Underpricing per Share in USD*. *Gross Proceeds* is calculated at the offer price. *Number of IPO Options granted* is the number of stock options granted to CEOs around the IPO date. *Discount on the IPO options* is equal to the difference (as a percentage and in USD, respectively) between the offer price and the exercise price of the options. *Gain from IPO Underpricing* is equal to the product of the number of IPO options and the underpricing per share. *Loss from Underpricing due to pre-IPO ownership* is equal to the number of secondary shares sold by the CEO, plus the number of primary shares offered multiplied by the CEO's portion of total shares retained by the company (including options granted prior to the IPO and excluding all secondary shares). The *Net Gain from IPO Underpricing* is the difference between the *Gain from IPO Underpricing* and the *Loss from Underpricing due to pre-IPO Ownership*. *Gain (Value - Cost) using the SEC method at the 10% Growth rate (in USD)* is calculated based on the difference between the theoretically calculated value and the exercise price of granted stock options, and the *Net Gain from IPO Options (Gain - Loss)* is calculated after deducting the *Loss from Underpricing due to pre-IPO CEO Ownership*.

	Mean	Median	Std-dev
Panel A – Offering Characteristics			
Underpricing per Share (in USD)	5.50	0.84	17.58
Total Number Shares Offered	4,669,435	3,500,000	4,546,252
Total Number of New Shares Offered	3,869,919	3,000,000	3,553,062
CEO's Percentage of Shares Retained in Company	18.4%	11.2%	18.7%
Money left on the Table	32,165,930	2,987,509	121,452,229
Gross Proceeds	66,860,856	40,000,000	92,207,662
Panel B – IPO Option Grants			
Number of IPO Options granted	149,163	100,000	185,735
Discount on the IPO options (Exercise Price versus Offer Price) (%)	2.91%	0.00%	14.00%
Discount on the IPO options (Exercise Price versus Offer Price) (in USD)	0.215	0.00	1.109
Panel C – Gain and Loss to CEO from Underpricing			
Gain from Underpricing	693,901	55,306	2,032,525
Loss from Underpricing due to pre-IPO CEO Ownership	525,917	328,950	777,358
Net Gain from IPO Underpricing (Gain - Loss)	*167,983*	*(167,371)*	*2,177,979*
Panel D – Gain from IPO Grants to CEO			
Gain (Value - Cost) using the SEC method at the 10% Growth rate (in USD)	3,011,485	1,673,430	4,508,164
Net Gain from IPO Options (Gain - Loss)	*2,485,568*	*1,416,372*	*4,483,050*

Table IV. Underpricing in Relation to the Existence of IPO Options, Board Independence and VC Backing

The table provides descriptive statistics on underpricing in relation to the existence of IPO option grants, board independence and venture capital involvement. Panel A reports the average (and standard deviation between parentheses) for underpricing in relationship to the existence of IPO option grants and above- and below-median board independence. Panel B reports the average (and standard deviation in parentheses) for underpricing in relation to the existence of IPO option grants and VC backing. *P-values* for the differences in means across sub-samples are reported in italic.

Panel A – Underpricing in Relation to IPO Options and Board Independence

	IPO Options				
	No		Yes		
	N	Mean (s.d.)	N	Mean (s.d.)	P-Value of T-Diff
Board Independence					
		I		II	I vs. II
Low	169	0.548 (0.817)	49	0.548 (0.975)	*0.999*
		III		IV	III vs. IV
High	162	0.242 (0.527)	55	0.090 (0.139)	*0.036*
	II vs. III	I vs. III		II vs. IV	I vs. IV
P-Value of T-Diff	*0.005*	*0.000*		*0.001*	*0.000*

Panel B – Underpricing in Relation to IPO Options and Venture Capital Involvement

	IPO Options				
	No		Yes		
	N	Mean (s.d.)	N	Mean (s.d.)	P-Value of T-Diff
VC backed IPOs					
		I		II	I vs. II
No	109	0.158 (0.437)	57	0.109 (0.137)	*0.416*
		III		IV	III vs. IV
Yes	222	0.517 (0.781)	47	0.544 (1.002)	*0.835*
	II vs. III	I vs. III		II vs. IV	I vs. IV
P-Value of T-Diff	*0.000*	*0.000*		*0.002*	*0.000*

Table V. Impact of Board Independence and IPO Options on Underpricing

The sample consists of 435 IPOs between 1997 and 2004. The dependent variable is *Underpricing* defined as the ratio of the difference between the stock price at the end of the first day of trading and the offer price over the offer price. The table controls for the differential effect of board independence on the association between underpricing and the ex ante gain from the IPO option grants. *Ex ante Gain from Underpricing* is equal to the number of IPO options. The *Independent Board dummy* is equal to one if board independence is higher than the median of 0.467, and zero otherwise. *Ex ante Loss from Underpricing* is equal to the number of secondary shares sold by the CEO plus the number of primary shares offered multiplied by the CEO's portion of total shares retained in the company (including options granted prior to the IPO and excluding all secondary shares). Both the gain and loss are in millions and are divided by the offer price. All other variables are defined as in table II. Heteroskedasticity-consistent standard errors are reported in italic beneath the coefficient estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level (for the two-sided test), respectively.

	(1)	(2)
Constant	0.350***	0.326**
	0.136	*0.136*
Ex ante Gain from Underpricing	-0.067	0.275*
	0.195	*0.158*
Independent Board dummy	-0.160***	-0.140***
	0.051	*0.052*
Ex ante Gain from Underpricing x Independent Board dummy		-0.574*
		0.317
Ex ante Loss from Underpricing	-0.031*	-0.031*
	0.018	*0.018*
Price Revision	0.917***	0.919***
	0.127	*0.127*
CEO Pre-IPO Ownership	-0.001	-0.004
	0.117	*0.118*
Overhang	0.005	0.005
	0.006	*0.006*
Log (1 + Sales)	-0.010*	-0.010*
	0.005	*0.005*
Participation Ratio	-0.292**	-0.278**
	0.122	*0.122*
Specific Use of Proceeds	-0.219***	-0.220***
	0.083	*0.083*
Pre-IPO Leverage	-0.053*	-0.048*
	0.031	*0.029*
Hi-tech dummy	0.079*	0.080*
	0.047	*0.047*
VC dummy	0.063	0.061
	0.046	*0.046*
Underwriter Ranking	0.132**	0.131**
	0.061	*0.061*
Bubble dummy	0.260***	0.265***
	0.066	*0.066*
Market Return	1.084**	1.111**
	0.544	*0.555*
Adjusted R-squared	0.443	0.444
F-statistic	24.044	22.658
Prob(F-statistic)	0.000	0.000
Number of observations	435	435

Table VI. Impact of Venture Capital firms Involvement and IPO Options on Underpricing

The sample consists of 435 IPOs between 1997 and 2004. The dependent variable is *Underpricing* defined as the ratio of the difference between the stock price at the end of the first day of trading and the offer price over the offer price. The table controls for the possible differential effect of venture capital (VC) firm characteristics on the link between underpricing and the ex ante gain from the IPO option grants. The *VC-related Directors dummy* is equal to one if the fraction of VC-related directors on the board of directors is higher than the median value of 16.7%, and zero otherwise. The *VC dummy* is equal to one if the IPO firm is VC-backed, and zero otherwise. The *CEO related to VCs dummy* is equal to one if the CEO is related to one of the VC firms backing the firm, and zero otherwise. All variables are defined in Table II and Table V. Heteroskedasticity-consistent standard errors are reported in italic beneath the coefficient estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level (for the two-sided test), respectively.

	(3)	(4)	(5)
Constant	0.173*	0.447*	0.488***
	0.102	*0.150*	*0.130*
Ex ante Gain from Underpricing	-0.252*	-0.282	-0.221
	0.147	*0.190*	*0.178*
VC-related Directors dummy	0.200***		
	0.051		
Ex ante Gain from Underpricing x VC-related Directors dummy	0.536*		
	0.306		
VC dummy		0.036	
		0.050	
Ex ante Gain from Underpricing x VC dummy		0.377*	
		0.217	
CEO related to VCs dummy			0.121
			0.152
Ex ante Gain from Underpricing x CEO related to VCs dummy			2.490*
			1.510
Ex ante Loss from Underpricing	-0.034*	-0.034**	-0.028*
	0.021	*0.019*	*0.017*
Board Independence		-0.356***	-0.376***
		0.110	*0.095*
Price Revision	0.919***	0.933***	0.921***
	0.126	*0.125*	*0.127*
CEO Pre-IPO Ownership	0.078	-0.018	-0.040
	0.110	*0.118*	*0.109*
Overhang	0.005	0.005	0.004
	0.006	*0.006*	*0.005*
Log (1 + Sales)	-0.010*	-0.010*	-0.010*
	0.006	*0.006*	*0.006*
Participation Ratio	-0.281**	-0.314**	-0.323**
	0.117	*0.125*	*0.123*
Specific Use of Proceeds	-0.203**	-0.219***	-0.218***
	0.079	*0.083*	*0.077*
Pre-IPO Leverage	-0.048*	-0.053**	-0.053*
	0.028	*0.031*	*0.030*
Hi-tech dummy	0.089*	0.082*	0.093*
	0.053	*0.048*	*0.055*
Underwriter Ranking	0.127**	0.133**	0.132**
	0.061	*0.061*	*0.059*
Bubble dummy	0.251***	0.260***	0.246***
	0.066	*0.066*	*0.067*
Market Return	1.220**	0.987**	0.934*
	0.551	*0.491*	*0.545*
Adjusted R-squared	0.448	0.442	0.457
F-statistic	24.518	22.500	23.787
Prob(F-statistic)	0.000	0.000	0.000
Number of observations	435	435	435

Table VII. Impact of CEO Entrenchment and IPO Options on Underpricing

The sample consists of 435 IPOs between 1997 and 2004. The dependent variable is *Underpricing* defined as the ratio of the difference between the stock price at the end of the first day of trading and the offer price over the offer price. The table controls for the differential effect of CEO characteristics on the link between underpricing and the ex ante gain from the IPO option grants. All variables are defined in Table II and Table V. Heteroskedasticity-consistent standard errors are reported in italic beneath the coefficient estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level (for the two-sided test), respectively.

	(6)	(7)	(8)
Constant	0.411***	0.436***	0.422***
	0.140	*0.144*	*0.140*
Ex ante Gain from Underpricing	-0.200	-0.232	-0.241
	0.208	*0.216*	*0.198*
CEO Founder dummy	0.028		
	0.059		
Ex ante Gain from Underpricing x CEO Founder dummy	0.474*		
	0.281		
CEO Chairman dummy		-0.019	
		0.059	
Ex ante Gain from Underpricing x CEO Chairman dummy		0.502*	
		0.301	
CEO Founder Chairman dummy			0.022
			0.068
Ex ante Gain from Underpricing x CEO Founder Chairman dummy			0.698*
			0.380
Ex ante Loss from Underpricing	-0.033*	-0.034*	-0.033*
	0.019	*0.019*	*0.019*
Board Independence	-0.332***	-0.350***	-0.339***
	0.109	*0.109*	*0.110*
Price Revision	0.927***	0.929***	0.933***
	0.125	*0.126*	*0.125*
CEO Pre-IPO Ownership	-0.031	-0.015	-0.032
	0.121	*0.122*	*0.121*
Overhang	0.005	0.005	0.005
	0.006	*0.006*	*0.006*
Log (1 + Sales)	-0.010*	-0.010*	-0.010*
	0.005	*0.006*	*0.005*
Participation Ratio	-0.315**	-0.311**	-0.329**
	0.125	*0.129*	*0.129*
Specific Use of Proceeds	-0.222***	-0.225***	-0.227***
	0.082	*0.084*	*0.083*
Pre-IPO Leverage	-0.050*	-0.047*	-0.047*
	0.029	*0.027*	*0.028*
Hi-tech dummy	0.078*	0.082*	0.078*
	0.045	*0.049*	*0.045*
VC dummy	0.050	0.046	0.044
	0.048	*0.048*	*0.048*
Underwriter Ranking	0.130**	0.133**	0.131**
	0.061	*0.062*	*0.061*
Bubble dummy	0.263***	0.262***	0.263***
	0.065	*0.066*	*0.065*
Market Return	1.026*	1.018*	1.065**
	0.562	*0.559*	*0.526*
Adjusted R-squared	0.442	0.441	0.443
F-statistic	21.226	21.171	21.313
Prob(F-statistic)	0.000	0.000	0.000
Number of observations	435	435	435

Table VIII. Impact of VC Characteristics, VC Reputation and IPO Options on Underpricing

The sample consists of 435 IPOs between 1997 and 2004. The dependent variable is *Underpricing* defined as the ratio of the difference between the stock price at the end of the first day of trading and the offer price over the offer price. The table controls for the differential effect of venture capital (VC) firm characteristics on the link between underpricing and the ex ante gain from the IPO option grants. The *VC-related Directors dummy* is equal to one if the fraction of VC-related directors on the board of directors is higher than the median value of 16.7%, and zero otherwise. The *VC dummy* is equal to one if the IPO firm is VC-backed, and zero otherwise. The *CEO related to VCs dummy* is equal to one if the CEO is related to one of the VC firms backing the firm, and zero otherwise. The *Old VC dummy* (*Young VC dummy*) is equal to 1 if the average age of the VC firms for a specific IPO is higher (lower) than the sample median VC age of 12 years, and zero otherwise. All other variables are defined in Table II and Table V. Heteroskedasticity-consistent standard errors are reported in italic beneath the coefficient estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level (for the two-sided test), respectively.

	(9)	(10)	(11)
Constant	0.168	0.444***	0.427***
	0.124	*0.149*	*0.134*
Ex ante Gain from Underpricing	-0.246*	-0.286	-0.239
	0.147	*0.192*	*0.185*
VC-related Directors dummy	0.165***		
	0.055		
VC dummy		-0.009	
		0.062	
CEO related to VCs dummy			0.177
			0.133
Old VC dummy	0.067	0.087	0.068
	0.067	*0.075*	*0.062*
Ex ante Gain x VC-related Directors dummy x Old VC dummy	0.223		
	0.362		
Ex ante Gain x VC-related Directors dummy x Young VC dummy	1.615*		
	0.953		
Ex ante Gain x VC dummy x Old VC dummy		0.214	
		0.314	
Ex ante Gain x VC dummy x Young VC dummy		1.089*	
		0.643	
Ex ante Gain x CEO related to VCs dummy x Old VC dummy			4.075
			5.149
Ex ante Gain x CEO related to VCs dummy x Young VC dummy			0.951*
			0.554
Ex ante Loss from Underpricing	-0.034*	-0.034*	-0.033*
	0.020	*0.020*	*0.020*
Board Independence		-0.346***	-0.337***
		0.109	*0.098*
Price Revision	0.930***	0.940***	0.910***
	0.127	*0.126*	*0.133*
Pre-IPO CEO Ownership	0.089	-0.011	-0.002
	0.113	*0.119*	*0.113*
Overhang	0.005	0.005	0.005
	0.006	*0.006*	*0.006*
Log (1 + Sales)	-0.010*	-0.010*	-0.010*
	0.006	*0.006*	*0.006*
Participation Ratio	-0.271**	-0.306**	-0.306***
	0.117	*0.125*	*0.119*
Specific Use of Proceeds	-0.200**	-0.215***	-0.206***
	0.078	*0.083*	*0.075*
Pre-IPO Leverage	-0.049*	-0.056*	-0.060*
	0.030	*0.031*	*0.031*
Hi-tech dummy	0.090*	0.086*	0.096*
	0.053	*0.051*	*0.055*
Bubble dummy	0.253***	0.259***	0.248***
	0.067	*0.065*	*0.063*
Underwriter Ranking	0.128**	0.138**	0.139**
	0.062	*0.063*	*0.062*

Table VIII—Continued

	(9)	(10)	(11)
Market Return	1.173**	0.938*	0.912*
	0.549	*0.545*	*0.545*
Adjusted R-squared	0.449	0.442	0.454
F-statistic	21.818	20.089	21.069
Prob(F-statistic)	0.000	0.000	0.000
Number of observations	435	435	435

Table IX. Pre-IPO CEO Stock Option Schemes

The table provides descriptive statistics for 304 IPOs with CEO stock options granted during the year prior to the IPO and the period before the year prior to the IPO. The table reports the mean, median and standard deviation for the following variables: the *Number of stock options held at the IPO date* (Panel A), the *Discount on the Stock Options* (Offer Price versus Exercise Price) as a percentage and in dollars (Panel B and Panel C, respectively), the *Net Gain on the Stock Options based on the Offer Price* (Panel D), the *Total Net Gain on the Stock Options (Value - Exercise Price)* (Panel E), and the *Firm Size at the IPO* (Panel F) as measured by the number of shares outstanding and the market capitalization (at the offer price).

	No. of IPOs	Mean	Median	Std-dev
Panel A - Number of Stock Options held at the IPO date				
Total Number of Stock Options (inc. IPO options)	304	432,556	250,000	618,881
Stock Options Granted More than 1 Year before IPO	90	293,958	196,018	306,072
Stock Options Granted During 1 Year before IPO	214	418,354	184,013	699,723
Panel B - Discount on the Stock Options (Offer Price versus Exercise Price) (%)				
Discount on the total Number of Stock Options (inc. IPO options)	304	692%	118%	1833%
Stock Options Granted More than 1 Year before IPO	90	1596%	400%	3162%
Stock Options Granted During 1 Year before IPO	214	1235%	279%	6282%
Panel C - Discount on the Stock Options (Offer Price - Exercise Price) (in USD)				
Discount on the total Number of Stock Options (inc. IPO options)	304	4,037,803	1,126,623	9,121,715
Stock Options Granted More than 1 Year before IPO	90	3,149,591	1,659,257	4,732,294
Stock Options Granted During 1 Year before IPO	214	4,412,819	1,116,113	10,255,594
Panel D - Net Gain on the Stock Options based on the Offer Price (Value - Offer Price) (Using the SEC method at the 10% Growth rate) (in USD)				
Net Gain on the total Number of Stock Options (inc. IPO options)	304	12,393,898	4,906,006	23,250,611
Stock Options Granted More than 1 Year before IPO	90	7,903,523	4,532,264	10,636,466
Stock Options Granted During 1 Year before IPO	214	12,818,847	3,843,383	26,466,606
Panel E - Total Net Gain on the Stock Options (Value - Exercise Price) (Using the SEC method at the 10% Growth rate) (in USD)				
Net Gain on the total Number of Stock Options (inc. IPO options)	304	16,431,701	6,056,491	32,178,042
Stock Options Granted More than 1 Year before IPO	90	11,053,114	6,582,875	15,261,061
Stock Options Granted During 1 Year before IPO	214	17,231,667	5,010,707	36,570,923
Panel F – Firm Size at IPO				
Number of Shares outstanding	304	21,858,556	15,678,332	23,024,405
Market Capitalization (in USD)	304	317,286,626	185,216,371	433,608,819

Table X. Corporate Governance and CEO Stock Options

The sample consists of 435 IPOs between 1997 and 2004. The dependent variable is *Underpricing* defined as the ratio of the difference between the stock price at the end of the first day of trading and the offer price over the offer price. The table controls for the differential effects on underpricing of board independence, the fraction of VC-related directors, and the power of the CEO, using the value of two categories of stock options: (1) those granted to the CEO at the IPO via *Log(1+Val. IPO Options)*, and (2) those granted to the CEO during the year prior to IPO via *Log(1+Val. Opt. Granted during 1 Y before IPO)*. The table also controls for the effect on underpricing of the value of stock options before the year of the IPO via *Log(1+Val. Opt. Granted More than 1 Y before IPO)*. All other variables are defined in Table II and Table V. All stock option values are calculated using the SEC method assuming a 10% growth rate. Heteroskedasticity-consistent standard errors are reported in italics beneath the coefficient estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level (for the two-sided test), respectively.

	(12)	(13)	(14)
Constant	0.303**	0.247**	0.495***
	0.135	*0.125*	*0.141*
Independent Board dummy	-0.027		
	0.061		
VC related Directors dummy		0.169***	
		0.066	
CEO Founder Chairman dummy			-0.045
			0.075
Log(1+Val. IPO options)	0.083	-0.050*	-0.038
	0.092	*0.027*	*0.043*
Log(1+Val. IPO options) x Independent Board dummy	-0.136*		
	0.081		
Log(1+Val. IPO options) x VC related Directors dummy		0.128*	
		0.076	
Log(1+Val. IPO options) x CEO Founder Chairman dummy			0.208*
			0.124
Log(1+Val. Opt. Granted during 1 Y before IPO)	0.036*	-0.046*	-0.019
	0.021	*0.028*	*0.028*
Log(1+Val. Opt. Granted during 1 Y before IPO) x Indep. Board dummy	-0.111**		
	0.049		
Log(1+Val. Opt. Granted during 1 Y before IPO) x VC-related directors dummy		0.041*	
		0.024	
Log(1+Val. Opt. Granted during 1 Y before IPO) x CEO Founder Chairman dummy			0.029
			0.078
Log(1+Val. Opt. Granted More than 1 Y before IPO)	-0.062*	-0.075**	-0.060*
	0.034	*0.035*	*0.034*
Board Independence			-0.374***
			0.113
Price Revision	0.901***	0.923***	0.942***
	0.131	*0.129*	*0.126*

Table X—Continued

	(12)	(13)	(14)
Pre-IPO CEO Ownership	-0.127*	-0.063	-0.161*
	0.076	*0.092*	*0.092*
Overhang	0.003	0.004	0.003
	0.005	*0.005*	*0.005*
Log (1 + Sales)	-0.010*	-0.010*	-0.010*
	0.005	*0.006*	*0.006*
Participation Ratio	-0.237*	-0.256**	-0.323**
	0.135	*0.128*	*0.142*
Specific Use of Proceeds	-0.227***	-0.215***	-0.245***
	0.082	*0.080*	*0.084*
Pre-IPO Leverage	-0.052*	-0.053*	-0.041*
	0.030	*0.030*	*0.024*
Hi-tech dummy	0.076*	0.089*	0.081*
	0.044	*0.052*	*0.048*
VC dummy	0.077		0.037
	0.049		*0.052*
Underwriter Ranking	0.109*	0.104*	0.101*
	0.061	*0.060*	*0.059*
Bubble dummy	0.278***	0.258***	0.263***
	0.064	*0.063*	*0.062*
Market Return	1.146**	1.247**	1.047*
	0.552	*0.545*	*0.524*
Adjusted R-squared	0.454	0.453	0.447
F-statistic	20.984	22.038	19.357
Prob(F-statistic)	0.000	0.000	0.000
Number of observations	435	435	435

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