CEO Compensation and the Sale of Private Firms

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Abstract

We compare the compensation of CEOs of private firms that go public or sell out via acquisition with CEO compensation of standalone firms that remain private. We find that CEOs of IPO and sellout firms have higher compensation than CEOs of firms that remain private. We also show that equity-based compensation is positively related to the likelihood of going public. Although both IPO and sellout firms have higher option-based compensation in the year prior to the event, it is more dominant in firms that go public. We also document a positive relation between CEO cash and equity-based compensation and the valuation of the firm at the time of the acquisition or IPO.

This version: April 28, 2013

1. Introduction

Both CEO compensation and the structure of CEO compensation play many important roles which, among others, include payment for CEO's effort and providing incentives to align CEO's interests with those of shareholders. While there is vast literature on compensation of public firms' CEOs, relatively little is known how private firms' CEOs are paid. We analyze CEO compensation at the time when the owners decide to sell the private firm. To the extent that the efforts and careers of CEOs are affected by the sale of the private firms, it is reasonable to expect that some incentives should be put in place prior to the decision to sell. We seek to answer the question of whether the compensation of private firms' CEO is structured efficiently and in a manner consistent with economic theory. Specifically, we explore how both the level and the structure of CEO compensation vary among private firms that go public, get acquired, or remain private. We further provide evidence on whether CEO compensation is related to the valuation of firms at the time they are either acquired or go public.

There are several reasons why compensation might be different for private firms that are selling out or go public. First, sale of the firm—whether to an acquirer or to the public in an IPO—is time consuming and requires additional effort by the CEO. For example, Bengtsson and Hand (2010) report that CEOs in private venture-capital backed firms must "put in significant effort to… facilitate the due-diligence process, and negotiate deal terms" (p. 6). Second, the sale of the firm leads to a change in control which directly affects the CEO of the selling firm. Therefore, incentives might be put in place to offset the risk to the CEO which stems from this change of control. As Poulsen and Stegemoller (2008) point out, for a CEO an acquisition might be less attractive than an IPO because the likelihood that the target firm CEO may lose control is higher than is the case in an IPO. Hence, incentives provided to CEOs of acquired firms are

likely to be different from incentives provided to CEOs of firms going public. Finally, after the IPO, firms have a liquid market for their shares, making it easier for the CEOs to sell their shares following lockup expiration (Aggarwal, Krigman, and Womack, 2002). Similarly, an acquisition allows CEO to cash out of its illiquid option and stock holdings, since the stock and options become vested upon a change in control, allowing the CEO to exercise his options and to sell the stock in the acquisition (Cai and Vijh, 2007). Therefore, in anticipation of the IPO or the acquisition, stock and option grants are a cost-effective way to compensate the CEO while simultaneously aligning his interests with the interests of the shareholders. Hence, first, if private firms' CEOs' compensation is set efficiently in anticipation of the outcomes, we expect that CEO compensation of IPO and sellout firms is characterized by higher equity-based component. Second, as a result of varying level of change in control, we propose that the structure of CEO compensation varies between sellout and IPO firms. Finally, we expect that higher equity-based compensation is associated with higher valuation at the time of the sale of the private firm.

We use a sample of 5,524 private firm-years spanning the 2002-2011 period. During this period, we identify 212 private firms that are successfully acquired and 886 private firms that go public over the period 2003-2011. Overall, our results show that private firms that become acquisition targets or pursue IPOs pay their CEOs differently than firms that remain private. Specifically, we find that, compared to firms that remain private, total CEO compensation for acquired and IPO firms is greater in the year immediately prior to the event. In addition, acquired and IPO firms also offer their CEOs more incentive compensation. Both IPO and acquired firms have higher bonus and restricted stock grants in the year prior to the takeover than firms that remain private. We also find that CEOs of IPO firms receive more option compensation in the year prior to listing. Our conclusions are not affected by the choice of an econometric model and

are robust to controlling for potential endogeneity issues. Our findings are also robust to controlling for other firm-specific characteristics that are related to the decision to get acquired, go public, or remain private. Specifically, we note that when compared to firms that remain private, acquired and IPO firms are larger, have more cash, and have higher capital expenditures. Furthermore, firms that go public have higher profitability, lower debt, and higher capital expenditures than those that are acquired. Consistent with other research, we find that firms with venture capital backing are more likely to sell, especially through IPOs (Giot and Schweinbacher, 2007). With respect to valuation of private firms at the time of the sale, we find that, on average, both cash and equity-based compensation are positively related to the valuation. This result is stronger for IPO firms. Overall, our findings are consistent with the hypothesis that the compensation of private firms' CEOs is efficient in that its structure reflects the expected effort related to selling the firm and aligns the interests of CEOs with interests of shareholders.

Our work complements the research on compensation in targets prior to takeovers of publicly traded firms (Cai and Vijh, 2005) by studying private firms. While little research has been done on private firm compensation, one recent study shows that the compensation of public and private firms does differ (Gao, Li, and Lemmon, 2012). Specifically, Gao et al. (2012) show that, compared to public firms' CEOs, CEOs of private firms are paid less, get less equity-based compensation, and the pay-performance link is weaker. In our study, we focus on a unique set of outcomes, sellout and IPO, and analyze whether the private firms' CEOs compensation is set efficiently in anticipation of these outcomes. Another strand of literature to which our research is related examines factors that affect the choice of accessing public markets. Brau, Francis, and Kohers (2003) examine market and industry characteristics affecting the mode of sellout and find that takeovers of private targets by publicly traded firms are more likely in higher market-to-

book and more leveraged industries. Our work is closely related to Poulsen and Stegemoller (2008) who examine the characteristics of private firms that access public equity markets either via acquisition by a public acquirer or through an IPO. They find that IPOs are preferred when the firm has greater growth opportunities, whereas acquisitions are preferred when managers are liquidating the firm and when the firm faces financial constraints. Since we consider firms that sell by any means, not just those that attempt to access public equity markets, our sample is more diverse than samples studied in prior literature. In addition, our sample includes private firms that remain private and builds on existing literature by examining another covariate of the decision to sell a private firm—CEO compensation, a topic which has not been previously studied.

The paper proceeds as follows: In Section 2 we describe the data used in our study and provide univariate comparisons. In Section 3 we present empirical findings based on multivariate analysis. Section 4 concludes.

2. Data and sample characteristics

Our data is from Capital IQ (CIQ), an affiliate of Standard and Poor's, which has CEO compensation data comparable in detail to that of ExecuComp (also an affiliate of Standard and Poor's).[1] We first identify a sample of private firms during the ten year period 2002 to 2011 that have accounting and compensation data available on CIQ.[2] This yields a sample of 5,524 private firm-years. Next, we categorize the private firms into three distinct samples: 1) firms that become acquisition targets, 2) firms that become publicly listed through IPOs, and 3) control

[1] See Gao, Lemmon, and Li (2012) for detailed review of the Capital IQ data and comparison with ExecuComp, as well as a comparison of private and public firm compensation.
[2] Because CIQ identifies firms as private (or public) based on their most recent status, we classify private firm-years as those that do not have a reported market capitalization in the year relevant for our analysis.

firms as firms that neither get acquired nor go public in a particular year. We first identify the sample of firms that get acquired or go public using CIQ's event data. We collect additional details about the IPO from SDC. We identify a sample of 212 acquired firms, 886 IPO firms, and 4,426 control firm-year observations. From this sample 1,517 firms have 1 year of data, 683 have 2 years of data, and 575 have 3 or more years of data, for an average of two years per firm.

The time series distribution of the sample of acquired, IPO, and control firms is shown in Table 1, Panel A. Additionally, we provide a break-out of firms that go public on NYSE/Amex/Nasdaq, and those that go public on the OTC market. Towards the end of 2007, coinciding with the beginning of the most recent crisis, the number of IPOs dramatically declines. Starting in 2010, the number of firms going public starts to slowly increase. This distribution follows the frequency of IPOs based on Jay Ritter's data during the same period.[3] Acquisitions also show a declining trend over the sample period. We note that the number of firms that remain private declines towards the end of the period as well. Table 1, Panel B reports the industry representation in the three subsamples. We use the 48 Fama-French industry group classification. The acquired firms are more likely to be in Business Services and Wholesale, and the IPO firms are more likely to be in Banking and Computer Software.[4]

With respect to the compensation structure of the CEO, we analyze total compensation as well as its components. Specifically, we collect information on salary, bonus, value of restricted stock grants ("RSGs") and of option grants.[5] We scale each of the components by the total compensation. Total compensation includes salary, bonus, value of option grant, RSG value, and

[3] http://bear.warrington.ufl.edu/ritter/IPOs2011Statistics70512.pdf

[4] Our conclusions are robust to excluding financial firms from our analyses.

[5] To measure the value of option compensation for these private firms, we calculate the Black-Scholes value of the option following Gao, Lemmon and Li (2012) who use the median volatility of public firms in the same two-digit industry, the 7-year Treasury as the risk-free rate, the exercise price as the grant date price, the dividend yield paid out to the exercise price, and the time to maturity of 7 years.

other compensation. We also calculate a cash compensation ratio as salary plus bonus. Similarly, we define equity-based compensation as the sum of the value of RSG and option grants.

Table 2 presents descriptive statistics for the compensation of acquired, IPO, and control samples. CEOs of control firms earn on average a total compensation of $1.8 million. The mean total compensation in acquired firms is $2.4 million and $1.5 million for IPO firms. The results indicate that CEOs of firms pursuing an IPO earn significantly less than CEOs of acquired firms as well as firms that remain independent. On average, the salary and bonus represent a greater portion of total compensation for acquired firms than for IPO firms, while options represent a greater proportion of IPO firm CEO compensation. We note a significantly higher proportion of equity-based compensation for acquired and IPO firms relative to the control sample. The results also indicate the equity-based compensation is higher in IPO firms relative to the acquired firms which suggests that firms pursuing an IPO provide stronger equity-based incentives to their CEOs.

Panel B of Table 2 presents descriptive characteristics of the three samples: acquired, IPO, and control (no outcome) firm-years. Consistent with the studies showing that VCs prefer to take firms public, 40% of the IPO sample is VC backed in contrast to 9% of the acquired firms and 11% of control firms. The average revenue of acquired firms ($592 million) is significantly greater than that of IPO firms ($457 million). In fact, the revenue of IPO firms is also smaller than the revenue of firms remaining private. Acquired and IPO firms have similar sizes, measured as total assets. However, firms remaining private are significantly larger than either sellout or IPO firms. IPO firms have the lowest leverage, highest cash holdings, and highest capital expenditures out of the three samples.

With respect to operating performance, we calculate ROA as the ratio of net income to total assets. The results in Table 2 show that IPO firms have the highest ROA, with a mean of -0.23 for IPOs and -0.97 for acquired firms. The large negative ROAs are a result of the fact that a non-trivial number of firms report large cumulative losses and as a result have negative equity. We therefore split our samples based on whether the total equity is positive or negative. A total of 73% of the private firms, 68% of the acquired sample, and 83% of the IPO firms have positive equity; the average ROA for these firms is a more reasonable -0.15, -0.14, and -0.09, respectively. Based on the results, it is clear that the denominator for the ROA is on average very small relative to the numerator for the firms with negative equity. We use an indicator variable to account for these negative equity firms in multivariate analysis. It is important to note that our sample includes the recent financial crisis which likely explains why, on average, the operating performance is negative.

Table 3 shows the valuations for target and IPO firms. Due to data availability, we are able to use only a subset of firms in our sample. Panel A shows that the average acquisition transaction value is $1.3 billion, as reported by SDC. Median is lower at $426 million. Following Poulsen and Stegemoller (2008), we calculate the valuation multiple for acquired firms as the acquisition transaction value divided by pre-acquisition total assets. The median valuation multiple for acquired firms is 1.3. Panel B shows results for the IPO firms. To be able to compare acquired and IPO firms' multiples, we calculate the implied value of the IPO firms as the product between the IPO price and *pre-IPO* number of shares outstanding. Using pre-IPO shares outstanding ignores the increase in firm value due to the new capital raised. The implied valuation of IPO firms is on average $758 million. The median valuation multiple for IPO firms, calculated as the implied value divided by pre-IPO total assets, is 2.3. In unreported results we

note that the median valuation multiples for the two samples are statistically different at the five percent level. The result that valuations of IPO firms are higher than valuations of acquired firms is consistent with Poulsen and Stegemoller (2008).

Overall, our sample has similar characteristics to the sample used by Gao et al. (2012), although we find a greater number of firms with negative equity. This is likely because we include the post-2007 crisis years in our sample, while Gao et al. (2012) do not. When we exclude 2007-2008 firms from our sample, ROA is similar to Gao et al. (2012). Further, Gao et al. (2012) exclude the year prior to the firm going public in their sample of firms while we do not.

3. Multivariate analyses

3.1 Outcomes for private firms

The univariate results suggests that compensation is significantly greater for CEOs of firms that get acquired than CEOs of firms that go public or CEOs of firms that remain private. However, acquired firms are also larger than IPO firms and differ in other ways, which makes a univariate analysis of the relation between the CEO compensation structure and exit outcomes difficult to interpret. Hence, we examine how differences in CEO compensation level and structure affect outcomes for firms in a multivariate setting.

We begin by estimating a logistic regression model with the dependent variable equal to one if the private firm becomes a takeover target or goes public and zero if it remains private in a particular year. In all models, we control for firm size since Pagano, Panetta, and Zingales (1998) report that IPOs are more likely to be larger firms with higher valuations. Conversely, both Palepu (1986) and Powell (1997) argue that transaction costs of acquisitions increase with firm

size so acquisition targets tend to be smaller firms. Following Poulsen and Stegemoller (2008) who show that firms with higher capital expenditures are significantly more likely to perform an IPO as are firms that receive venture capital backing, we control for both characteristics in our estimations. A number of empirical studies have examined whether the likelihood of becoming a target is decreasing or increasing in the profitability of a firm with differing results (Palepu, 1986; Dickerson, Gibson and Tsakalotos, 2002). Pagano (1995) suggests that companies may show temporarily high performance immediately before an IPO with the hope that investors will think the profitability is permanent. As discussed previously, we use ROA to control for a firm's performance. Highly leveraged companies face stronger borrowing constraints, which may motivate the need to go public or be acquired, hence, we control for the total debt to assets (Perevozchikov, 2010). Harford (2005), Hsieh, Lyandres, and Zhdanov (2011), and Kummer and Steger (2008) suggest that IPOs and acquisitions come in waves. We therefore control for the contemporaneous market conditions using the average industry market-to-book and the number of IPOs and takeovers in the industry. We define industry at the two-digit SIC code level. We also include an indicator variable which equals one if the firm has negative equity and zero otherwise. The independent variables are measured in the year preceding the outcome (Cavender et al., 1992). We include industry and year fixed effects in all regressions.

We estimate a logistic model where the dependent variable equals one if the firm is sold (goes public or is acquired) and zero if it remains private. In Table 4, Panel A regressions (1) through (3) present results for the full sample. The coefficient on total compensation in regression (1) indicates that CEOs of selling firms have higher compensation than those that remain private, even after controlling for other firm characteristics. The coefficient is significant at the one percent level. The positive and significant coefficient on equity-based compensation in

regression (2) shows that CEOs of selling firms receive higher equity-based compensation. Bonus and restricted stock is greater for these firms, while salary makes up a lower fraction of total compensation and is insignificant. Thus, incentive-based compensation is greater in firms that sell than those that remain private. Because the majority of the existing research focuses on IPOs to major US exchanges rather than the OTC market, regressions (4) through (6) report the same specifications but exclude OTC firms. Our conclusions are not affected. Overall, based on results in Table 4, we conclude that CEOs of sellout and IPO firms have a compensation structure that is different from the compensation structure of CEOs of firms that remain private. The results are consistent with the view that the CEO compensation is structured to compensate for the higher effort by the CEO due to the sale of the firm and to align CEO's interests with the interests of the shareholders. Specifically, CEOs of sell-out and IPO firms have higher equity-based compensation than CEOs of firms that remain private. [6]

With respect to the control variables, selling firms are larger and have more cash and have higher capital expenditures than firms that remain private. The negative coefficient on negative equity indicator suggests that firms with large cumulative losses are less likely to be sold. Not surprisingly, venture capital backing is significantly and positively related to the likelihood being sold in all regressions.

The logistic regression in Table 4 distinguishes between two results: sale of a firm versus remaining private. Since in our sample we observe three outcomes, we next estimate a multinomial logistic model to separate the forms of outcomes into firms that are acquired, go public, or remain private. The results are presented in Table 5 for the full sample. Acquired and

[6] In unreported results, we analyze a subset of firms that are most likely to eventually be sold as proxied by having VC backing, in order to address the concern that the control firms that remain private are fundamentally different. Our results, although slightly weaker, do not affect our conclusions.

IPO firms have higher total compensation relative to firms that stay private. The significance of the result is related to CEOs of both sellout and IPO firms having higher equity-based compensation (regressions (3) and (4)). The coefficients of equity-based compensation for the sellout and IPO firms are significant at the ten and five percent level, respectively. Interestingly, firms that are acquired have higher bonus and option compensation than those that stay private. IPO firms also have higher bonus and option compensation, but also have higher RSG grants in the year prior to going public. The results showing higher bonus pay for sellout and IPO firms is consistent with Bengtsson and Hand (2010) who find that CEOs are rewarded for their efforts in raising new equity capital for the firm. Overall, the importance of equity-based compensation for CEOs of acquired and IPO firms is robust to alternative modeling specification.

With respect to the control variables, size is again positively related to the likelihood of being acquired or going public. Firms with higher profitability, lower debt ratios, higher cash and capital expenditures, are more likely to go public than remain private. IPO firms are also less likely to have negative equity than those that stay private. Thus, firms that go public are healthier than firms that remain private, while acquired firms are more comparable to those firms that remain private. Consistent with other research, we find that firms backed by VCs are more likely to go public.

In Panel B of Table 5, we estimate the same multinomial logistic regression as in Panel A but exclude the firms going public on OTC markets. For the IPO vs. remaining private analysis, results related to CEO compensation variables are generally comparable to the prior results, yielding coefficients of greater magnitude and lower p-values. One exception is the coefficient of the RSG compensation which is no longer significant and has a negative sign. The results for the control variables indicate that firms going public on a major (i.e., non-OTC) exchange have

higher revenue, ROA, cash holdings, capital expenditures than firms going public on OTC exchange. Furthermore, the coefficient on negative equity indicator becomes insignificant, whereas it was significant and negative in Panel A. Coefficients of industry IPO and M&A activity also become significant which is consistent with Brau, Francis, and Kohers (2003) and Poulsen and Stegemoller (2008). Overall, when we exclude firms going public on OTC exchange from our sample, the conclusions regarding CEO compensation structure are not affected.

3.2 Outcomes for private firms: Robustness tests

The logistic and multinomial logistic regression analyses performed in Tables 4 and 5 do not take into account that private firms that neither sell out nor go public by the end of our sample, retain the option to later go public or be acquired. We address this issue by estimating a hazard model analyzing the determinants of whether a firm experiences one of the two outcomes or not. A hazard model assesses the conditional probability of an event, in our case the event is either an acquisition or an IPO, given that the event has not occurred up to the present time (i.e. the hazard rate). We estimate the hazard model on a panel dataset for all firms for which we are able to identify the necessary founding dates. The independent variables used in the hazard models are consistent with variables used in the logistic regressions.

Table 6 shows the results of the hazard rate model estimations for the subsample of firms for which we have the founding date, resulting in a subset of 1,275 firm-years for 725 unique firms. These results, in general, mirror the previously discussed results based on logistic analyses. Specifically, firms are more likely to get acquired or go public if their CEOs have higher equity-based compensation, particularly option and bonus compensation. Hence, the

hazard model results corroborate our earlier findings and indicate that our conclusions are robust to a choice of a modeling approach.

In additional robustness tests, we attempt to address the issue of endogeneity, which affects much of corporate finance research, by using an instrumental variable approach and propensity score matching.[7] We follow Li and Prabhala (2007) instrumental variable approach and use information on compensation of CEOs in public firms from CIQ to estimate the "predicted" equity-based and cash compensation for CEOs in our sample of private firms. Specifically, we calculate the average equity and cash compensation for all firms in a particular industry in CIQ. We then use the average equity and cash compensation of the industry peers in a particular year in lieu of the actual compensation of the CEO of the private firm in our sample. This instrumental variable is free of the potential firm-level endogeneity concern and captures industry effects on CEO compensation Table 7 reports the results of multinomial logistic regressions using the instrumental variables. We note that, similar to results in Table 5, cash compensation has consistently positive coefficient; however, none of the coefficients is statistically significant. Equity-based compensation enters with positive coefficient that is significant in three out of four regressions. In untabulated results, we note that the results are statistically stronger for specifications including only firms going public on major exchanges.

We also use propensity score matching to further examine the effect of potential endogeneity on our result. We identify one matched firm for each treatment (acquired or IPO) firm by estimating finding the closest match in terms of the propensity score which is based on ROA, size, VC backing, and industry. We allow for matching with replacement, i.e. a non-treatment (no outcome) firm may be matched to more than one treatment firm. Table 8,

[7] Endogeneity in our setup may arise due to the simultaneous determination of the outcome and compensation characteristics.

Panel A reports the differences in compensation structure for the matched firms that remain private with both the sellout and the IPO firms. In Panels B and C, we report the tests of matched firms versus either the acquired or the IPO firms, respectively. Overall, we find that, compared to CEOs of private firms remaining private, CEOs of firms undergoing a sale have significantly higher total, equity-based, bonus, and option compensation. These results corroborate our prior conclusions. We also find significantly lower cash, salary, and RSG compensation for CEOs of private firms undergoing a sale relative to CEOs of firms remaining private.

Overall, our prior conclusions are robust to alternative econometric modeling approach and also appear robust to endogeneity issues.

3.3 Valuation at the time of the sale

If the type and amount of compensation that CEOs receive before selling the firm is related to the effort involved with the process and to the alignment of CEOs' interests with those of the shareholders, then the compensation structure should also be related to the payoff received by the shareholders of the selling firm. We therefore analyze the valuations of selling firms and how such valuations are related to CEO compensation structure. The univariate results in Table 3 show that IPO firms have higher valuation multiples. In this section we analyze the result in multivariate setting and assess the relation between the CEO compensation structure and the valuations at the time of the IPO or the acquisition.

We estimate an OLS regression models with the dependent variable equal to the log of one plus the valuation multiple.[8] In order to make sure that our results are not driven by outliers, we also winsorize the valuation multiples at the 0.5% and 99.5%. We exclude IPO firms for

[8] In unreported results, we also calculate an exit valuation multiple that is scaled by the firm's revenue instead of by the firm's total assets. Our conclusions are not affected.

which the IPO price of the common shares is not available. In all regressions, we include an indicator equal to one if a firm undertakes an IPO and to zero if it gets acquired. Our regression models follow our prior specifications. In particular, we control for firm size by using log of revenue, operating performance, capital structure, cash holdings, capital expenditures, industry market conditions by using industry average market-to-book ratio and the number of IPOs and takeovers. We also include an indicator variable which equals one if the firm has negative equity and zero otherwise. As before, each of these variables is measured in the year immediately preceding the event year. All regressions include year and industry indicators and use heteroskedastic-consistent standard errors.

The first two regressions of Table 9 report the results for the pooled sample of acquired and IPO firms. In regression (1), the coefficient on the IPO sales indicator is positive and significant at the ten percent level. The size of the coefficient implies that IPO firms have multiples that are higher by about 8.4% compared to valuation of acquired private firms.[9] Higher valuation is also associated with higher cash and equity-based CEO compensation. Regression (2) indicates that the significance of the cash compensation is driven by both salary and bonus and the significance of equity-based compensation is driven by option compensation. The IPO indicator is no longer significant in regression (2), suggesting that the valuation differences between IPO and sellout firms are explained by the varying CEO compensation structure.

Because compensation may affect firms that sellout differently than firms that go public we analyze acquisition and IPO samples separately and report the results in columns (3) through (6). The coefficients on cash and equity-based compensation are each insignificant in the sample of acquired firms. In contrast, both cash and equity-based compensation is positively associated

[9] $e^{0.081} - 1 = 8.4\%$.

with valuation in the IPO sample, and is driven by salary and options. These coefficients are also different between the two sub-samples at the one percent level. In regressions (7) through (10), we re-estimate regressions (3) through (6) on samples excluding firms with negative equity. In this sub-sample the effect of the presence of negative equity firms becomes apparent as compensation becomes positive and significant in the acquisition sample. We continue to find that compensation has a stronger effect on valuation of IPO firms. With respect to control variables, firms with lower ROA, higher cash holdings and capital expenditures, and firms with negative equity have higher valuations. Exiting firms with VC backing, at a time of low IPO activity, in industries with high market-to-book ratios have significantly higher valuations.

In general, these results indicate that higher CEO salary and option compensation of IPO firms is associated with higher shareholder value at the time of the sale. Comparable results hold only for acquired firms with positive equity. Overall, we find that CEO compensation is not only related with the decision to sell and the mode of the sale, but is also related with the valuation of the selling firms.

4. Conclusion

At some point in the life of a private company, the owners may consider a sale of the firm. The choices available to the owners include taking the company public through an IPO or selling the company to an interested acquirer. Both the IPO and the acquisition process require additional time and effort on behalf of CEOs. Providing the CEOs with more equity and option compensation provides executives with additional incentives to pursue a sale of the firm.

We find higher equity-based compensation in the year prior to a private firm's sale as compared to firms that remain private, consistent with both the sellout and IPO firms offering CEOs compensation for higher effort due to the sale of the firm and aligning their interests with

those of the shareholders. While both IPO and acquired firms grant their CEOs more options than is the case for private firms, options grants are more prevalent at firms going public than they are at firms getting acquired. With respect to firm characteristics, we also find that firms that go public exhibit better performance. Consistent with other research, we find that firms with venture capital backing are more likely to sell, especially through IPOs. Finally, we note that sales valuations are positively related to CEO compensation structure for selling firms. Overall, our findings suggest that the board of directors structures the compensation of private firms CEOs efficiently—the compensation structure is designed to offset the additional efforts required and the costs to the CEO due to the ensuing change in control.

References

Aggarwal, R., L. Krigman, and K. Womack, 2002. Strategic IPO underpricing, information momentum, and lockup expiration selling. *Journal of Financial Economics* 66, 105-137.

Brau, J., B. Francis, and N. Kohers, 2003. The choice of IPO versus takeover: Empirical evidence. *Journal of Business* 76, 583-612.

Cai, J. and A. Vijh, 2005. Executive stock and option valuation in a two state-variable framework. *Journal of Derivatives* 12, 9–27.

Cai, J. and A. Vijh, 2007. Incentive effects of stock and option holdings of target and acquirer CEOs. *Journal of Finance*, 62(4), 1891-1933.

Cavalluzzo, K., and S. Sankaraguruswamy, 2000. Pay-to-accounting performance and ownership structure in privately-held small corporations, Georgetown University working paper.

Cavender, J., W. Rogers, L. Fisher, B. Gersh, J. Coggin, and W. Meyers, 1992. Effects of smoking on survival and morbidity in patients randomized to medical or surgical therapy in the coronary artery surgery study: 10 year follow up. *Journal of American College of Cardiology* 20, 287-294.

Cole, R. and H. Mehran, 2008. What do we know about executive compensation at privately held firms? DePaul University working paper.

Dickerson, A. P., H. D. Gibson, and E. Tsakalotos, 2002. Takeover risk and the market for corporate control: The experience of British firms in the 1970s and 1980s. *International Journal of Industrial Organization* 20, 1167-1195.

Gao, H., M. Lemmon. and K. Li, 2012. Is CEO pay in U.S. public firms efficient? New evidence from private firms. Working Paper.

Giot, P. and A. Schwienbacher, 2007. IPOs, trade sales and liquidations: Modeling venture capital exits using survival analysis, *Journal of Banking and Finance* 31(3), 679-702.

Harford, J., 2005. What drives merger waves? *Journal of Financial Economics* 77, 529-560.

Hsieh, J., E. Lyandres, and A. Zhdanov, 2011. A theory of merger-driven IPOs, *Journal of Financial and Quantitative Analysis* 46, 1367-1405.

Ke, B., K. Petroni, and A. Safieddine, Assem, 1999. Ownership concentration and sensitivity of executive pay to accounting performance measures: Evidence from publicly and privately-held insurance companies. *Journal of Accounting and Economics* 28, 2.

Kummer, C. and U. Steger, 2008. Why merger and acquisition (M&A) waves reoccur: the vicious circle from pressure to failure. *Strategic Management Review* 2, 44-63.

Li, K. and N.R. Prabhala, 2007. Self-Selection Models in Corporate Finance Chapter 2 in: Handbook of Corporate Finance: Empirical Corporate Finance, Handbooks in Finance Series, Elsevier/North Holland.

Officer, M., 2007. The price of corporate liquidity: acquisition discounts for unlisted targets. *Journal of Financial Economics* 83, 571–598

Palepu, K., 1986. Predicting takeover targets: A methodological and empirical analysis. *Journal of Accounting and Economics* 8, 3-36.

Pagano, M., 1993. The flotation of companies on the stock market: A coordination failure Model. *European Economic Review*, 37, 1101-1125.

Pagano, M., F. Panetta, and L. Zingales, 1998. Why do companies go public? An empirical analysis, *Journal of Finance* 53, 27-64.

Perevozchikov, V., 2010. Why companies go public in the Ukraine. Working Paper, National University, Kyev-Mohyla Academy.

Poulsen, A. and M. Stegemoller, 2008. Moving from private to public ownership: Selling out to public firms vs. initial public offerings. *Financial Management* 37, 81-101.

Powell, R., 1997. Modeling takeover likelihood. *Journal of Business Finance and Accounting* 24, 1009-30.

Table 1 - Distribution of Sample

Table 1 shows the breakout of the private firms in our sample for the 2003-2010 time frame. There are three groups - firms remaining private, firms that are acquired, and firms that go public. Additionally, within the IPO group, firms in our sample list their shares on non-OTC and OTC exchanges. Panel B shows the break down by industry using the Fama French 48 industry classification.

Panel A: Sample Over Time

	No		IPO		
Year	Outcome	Acquired	non-OTC	OTC	Total
2003	633	22	23	43	721
2004	544	40	56	82	722
2005	501	33	66	56	656
2006	458	38	58	48	602
2007	412	29	58	44	543
2008	503	14	17	32	566
2009	530	10	20	15	575
2010	484	13	69	43	609
2011	361	13	64	92	530
Total	4,426	212	431	455	5,524

Table 1, continued

Panel B: Industry Distribution

Industry	No Outcome	Acquired	IPO	Total
Agriculture	25	1	2	28
Food Products	97	5	8	110
Candy & Soda	40	4	3	47
Beer & Liquor	1	0	0	1
Recreation	25	3	2	30
Entertainment	74	5	8	87
Printing and Publishing	56	2	5	63
Consumer Goods	33	5	5	43
Apparel	44	2	4	50
Healthcare	91	3	22	116
Medical Equipment	62	7	27	96
Pharmaceutical Products	182	4	77	263
Chemicals	126	4	21	151
Rubber and Plastic Products	40	3	7	50
Textiles	5	1	0	6
Construction Materials	51	10	3	64
Construction	22	2	8	32
Steel Works Etc	31	3	5	39
Fabricated Products	11	0	2	13
Machinery	92	5	15	112
Electrical Equipment	41	0	9	50
Automobiles and Trucks	94	3	10	107
Aircraft	9	1	2	12
Defense	4	0	2	6
Precious Metals	5	0	2	7
Non-Metallic and Ind. Metal Mining	43	0	5	48
Coal	36	3	3	42
Petroleum and Natural Gas	232	12	47	291
Utilities	236	4	9	249
Communication	168	12	36	216
Personal Services	25	5	9	39
Business Services	235	21	48	304
Computers	20	0	9	29
Computer Software	333	10	92	435
Electronic Equipment	143	5	57	205
Measuring and Control Eq.	32	0	12	44
Business Supplies	40	2	3	45
Shipping Containers	1	0	0	1
Transportation	43	3	19	65
Wholesale	173	15	32	220
Retail	139	10	35	184
Restaurants, Hotels, Motels	139	5	18	162
Banking	668	9	120	797
Insurance	88	4	20	112
Real Estate	43	1	4	48
Trading	224	12	35	271
Other	104	6	24	134
Total	4,426	212	886	5,524

Table 2 - Compensation Univariates by Outcome

Table 2 shows the mean and median values of the compensation variables in our sample by one of three outcomes: no outcome, acquired, or IPO. All of the compensation variables are in millions. Total Compensation is the total CEO compensation, including salary, bonus, other cash pay, option and restricted stock grants. Cash Compensation is the total salary, bonus, and other cash compensation received by CEOs. Equity-based compensation is the sum of option and RSG compensation. Salary and Bonus are the salary and bonus of the CEO. Option Value is the reported value of the CEOs options according to capital IQ. RSG value is the value of the restricted stock grants for the CEO as reported by Capital IQ. Salary/Total, Bonus/Total, Option/Total and RSG/Total are the ratios of the various compensation components adjusted by total compensation. Panel B shows the firm-specific variables. Revenue is the total reported revenue, Total Assets is the total assets. Net Income is the reported net income and Total Cash is the total reported cash and equivalents. Leverage and Total Cash/Total Assets are the ratio of total debt (cash) to total assets. CapEx/Total Assets is the ratio of capital expenditures to total assets. ROA are the ratio of net income divided by total equity and total assets respectively. Test of Difference in Means reports the two-tailed tests of whether the means are significantly different between each of the three samples. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively.

Panel A: Compensation				Test of Difference in Means:		
	No Outcome	Acquired	IPO	No Outcome Vs. Acquired	No Outcome Vs. IPO	Acquired Vs. IPO
Total Compensation (million)	$1.76	$2.41	$1.48	*	*	***
Salary/Total	0.62	0.57	0.51	***	***	***
Bonus/Total	0.10	0.15	0.17	***	***	***
RSGs/Total	0.03	0.02	0.02	***	***	***
Options/Total	0.11	0.13	0.19	**	**	***
Cash Compensation Ratio	0.72	0.72	0.68		*	*
Equity-Based Compensation Ratio	0.14	0.16	0.20	*	***	***

Panel B: Firm Characteristics				Test of Difference in Means:		
	No Outcome	Acquired	IPO	No Outcome Vs. Acquired	No Outcome Vs. IPO	Acquired Vs. IPO
Venture backed	0.11	0.09	0.40	***	***	***
Revenue (million)	$703.89	$592.75	$457.46		***	***
Total Assets (million)	$2,159.78	$1,117.04	$874.90	***	***	
Leverage	0.80	0.85	0.39	***	***	***
Total Cash/Total Assets	0.12	0.13	0.17	***	***	
CapEx/Total Assets	0.055	0.057	0.065	***	***	***
ROA	-0.74	-0.97	-0.23	***	***	***
Positive Total Equity Firms						
ROA	-0.15	-0.14	-0.09	*	**	***
Obs	3,243	144	731			
Negative Total Equity Firms						
ROA	-2.36	-2.72	-0.87	*	***	***
Obs	1,183	68	155			

Table 3 - Valuation by Outcome

Panel A shows the mean and median values of the acquisition deal terms for the acquired firms in our sample. Transaction Value is the total consideration of the acquisition. Valuation multiple is the transaction value/total assets. Panel B shows the Implied value for IPO firms, calculated as the IPO price * shares outstanding before the IPO. Offer Price is the price of the IPO (from SDC). Valuation multiple is the implied value/total assets.

Panel A: Acquisition	Mean	Median	Obs
Transaction Value (million)	$1,280.04	$425.85	149
Valuation Multiple	2.48	1.30	149
Panel B: IPO	Mean	Median	Obs
Implied Value (million)	$758.14	$298.87	388
Offer Price	$14.13	$13.50	388
Valuation Multiple	4.37	2.28	388

Table 4 - Logistic Regression: Probability of Sale

Table 4 shows the logit estimation where the dependent variable is equal to one if there is an IPO or acquisition and zero otherwise. Columns 4-6 do not include OTC IPOs. We control for year and industry fixed effects. Tables 2 and 3 describe the independent variables. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively. We use a robust estimation and report p-values below the coefficients.

	Full Sample			Excluding OTC IPO		
	(1)	(2)	(3)	(4)	(5)	(6)
CEO Total Compensation	0.104***			0.109***		
	(0.00)			*(0.01)*		
Cash Compensation Ratio		0.165			0.250	
		(0.33)			*(0.25)*	
Equity-Based Comp. Ratio		0.491***			0.727***	
		(0.01)			*(0.00)*	
Salary/Total			-0.249			-0.213
			(0.16)			*(0.34)*
Bonus/Total			1.449***			1.634***
			(0.00)			*(0.00)*
RSG/Total			0.463			0.059
			(0.27)			*(0.90)*
Option/Total			0.586***			0.793***
			(0.00)			*(0.00)*
Log(Revenue)	0.122***	0.155***	0.107***	0.144***	0.174***	0.124***
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
ROA	0.035	0.028	0.029	0.030	0.024	0.026
	(0.15)	*(0.25)*	*(0.23)*	*(0.30)*	*(0.41)*	*(0.37)*
Leverage	-0.040	-0.039	-0.037	-0.025	-0.023	-0.021
	(0.26)	*(0.27)*	*(0.28)*	*(0.48)*	*(0.50)*	*(0.54)*
Total Cash/Total Assets	0.960***	0.996***	0.890***	1.120***	1.157***	1.070***
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
CapEx/Total Assets	1.105***	1.069***	0.977***	1.078***	1.023***	0.929***
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.01)*
Negative Equity Indicator	-0.250**	-0.249**	-0.227**	-0.238**	-0.233*	-0.205*
	(0.01)	*(0.01)*	*(0.02)*	*(0.05)*	*(0.05)*	*(0.09)*
VC Indicator	1.226***	1.227***	1.201***	1.130***	1.116***	1.082***
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Market-to-Book	-0.041	-0.038	-0.037	-0.054	-0.054	-0.058
	(0.29)	*(0.32)*	*(0.34)*	*(0.30)*	*(0.30)*	*(0.27)*
# IPOs	0.005*	0.005*	0.004	0.007*	0.007*	0.007*
	(0.09)	*(0.08)*	*(0.16)*	*(0.07)*	*(0.06)*	*(0.09)*
# M&As	0.002	0.002	0.002	0.001	0.001	0.001
	(0.55)	*(0.56)*	*(0.52)*	*(0.75)*	*(0.77)*	*(0.73)*
Constant	-4.721***	-3.680***	-3.457***	-5.489***	-4.448***	-4.192***
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Observations	5,524	5,524	5,524	5,069	5,069	5,069
Pseudo R-squared	0.146	0.146	0.157	0.134	0.135	0.148

Table 5 - Unordered Multinomial Logit: Probability of Sale

Table 5 shows unordered multinomial logit estimation where the dependent variable is IPO, acquisition, and no outcome. Panel A uses all firms in the sample. Panel B excludes the firms going public on OTC market. All regressions include year and industry fixed effects. All variables are defined in prior tables. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively. Robust estimation is used. p-values are reported below the coefficients.

Panel A: All Firms	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
	Acquisition Vs. No Outcome					IPO Vs. No Outcome				
CEO Total Compensation	0.126**					0.095**				
	(0.04)					*(0.01)*				
Cash Compensation Ratio		-0.123		0.206			-0.119		0.159	
		(0.60)		*(0.51)*			*(0.39)*		*(0.41)*	
Equity-Based Comp. Ratio			0.439*	0.592*				0.320**	0.433**	
			(0.09)	*(0.09)*				*(0.03)*	*(0.03)*	
Salary/Total					-0.047					-0.312
					(0.89)					*(0.12)*
Bonus/Total					1.331***					1.483***
					(0.00)					*(0.00)*
RSG/Total					0.449					0.793*
					(0.53)					*(0.10)*
Option/Total					0.636*					0.533***
					(0.08)					*(0.01)*
Log(Revenue)	0.068*	0.110***	0.105***	0.107***	0.071**	0.137***	0.169***	0.165***	0.168***	0.118***
	(0.06)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.02)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
ROA	-0.012	-0.020	-0.019	-0.020	-0.017	0.108**	0.100**	0.101**	0.099**	0.096**
	(0.67)	*(0.47)*	*(0.49)*	*(0.48)*	*(0.54)*	*(0.02)*	*(0.03)*	*(0.03)*	*(0.03)*	*(0.03)*
Leverage	-0.002	-0.004	-0.003	-0.003	-0.002	-0.167*	-0.164*	-0.160*	-0.160*	-0.152*
	(0.93)	*(0.90)*	*(0.92)*	*(0.91)*	*(0.94)*	*(0.05)*	*(0.05)*	*(0.06)*	*(0.06)*	*(0.07)*
Total Cash/Total Assets	0.430	0.463	0.455	0.452	0.418	1.057***	1.112***	1.097***	1.100***	0.969***
	(0.32)	*(0.29)*	*(0.30)*	*(0.30)*	*(0.34)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
CapEx/Total Assets	-0.038	-0.088	-0.082	-0.087	-0.208	1.497***	1.487***	1.468***	1.462***	1.368***
	(0.96)	*(0.90)*	*(0.91)*	*(0.90)*	*(0.77)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Negative Equity Indicator	0.111	0.113	0.119	0.117	0.145	-0.262**	-0.261**	-0.264**	-0.268**	-0.257**
	(0.53)	*(0.52)*	*(0.50)*	*(0.50)*	*(0.41)*	*(0.03)*	*(0.04)*	*(0.03)*	*(0.03)*	*(0.04)*
VC Indicator	-0.285	-0.260	-0.271	-0.275	-0.304	1.454***	1.470***	1.456***	1.455***	1.434***
	(0.28)	*(0.33)*	*(0.31)*	*(0.30)*	*(0.25)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Market-to-Book	-0.195**	-0.194**	-0.194**	-0.192**	-0.186**	-0.012	-0.011	-0.010	-0.009	-0.009
	(0.04)	*(0.04)*	*(0.04)*	*(0.04)*	*(0.05)*	*(0.77)*	*(0.80)*	*(0.81)*	*(0.82)*	*(0.83)*
# IPOs	0.003	0.003	0.003	0.003	0.002	0.005	0.005	0.005	0.005	0.004
	(0.67)	*(0.64)*	*(0.64)*	*(0.66)*	*(0.74)*	*(0.12)*	*(0.11)*	*(0.11)*	*(0.12)*	*(0.22)*
# M&As	-0.010	-0.010	-0.010	-0.010	-0.010	0.006	0.006	0.006	0.006	0.006*
	(0.16)	*(0.15)*	*(0.16)*	*(0.16)*	*(0.16)*	*(0.12)*	*(0.11)*	*(0.12)*	*(0.12)*	*(0.11)*
Constant	-4.972***	-3.426***	-3.526***	-3.717***	-3.644***	-5.428***	-4.250***	-4.336***	-4.492***	-4.215***
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Observations						5,524	5,524	5,524	5,524	5,524
Pseudo R-squared						0.164	0.162	0.163	0.163	0.173

Table 5, continued

Panel B: Excluding OTC IPOs	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
	Acquisition Vs. No Outcome					IPO Vs. No Outcome				
CEO Total Compensation	0.117**					0.106**				
	(0.05)					*(0.04)*				
Cash Compensation Ratio		-0.056		0.240			-0.253		0.296	
		(0.81)		*(0.45)*			*(0.19)*		*(0.30)*	
Equity-Based Comp. Ratio			0.357	0.535				0.566***	0.775***	
			(0.18)	*(0.13)*				*(0.00)*	*(0.00)*	
Salary/Total					-0.022					-0.306
					(0.94)					*(0.30)*
Bonus/Total					1.459***					1.689***
					(0.00)					*(0.00)*
RSG/Total					0.466					-0.258
					(0.52)					*(0.67)*
Option/Total					0.578					0.817***
					(0.11)					*(0.00)*
Log(Revenue)	0.071**	0.112***	0.107***	0.109***	0.071**	0.171***	0.202***	0.195***	0.202***	0.145***
	(0.05)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.02)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
ROA	-0.016	-0.024	-0.023	-0.023	-0.020	0.689***	0.675***	0.688***	0.680***	0.622***
	(0.57)	*(0.39)*	*(0.41)*	*(0.41)*	*(0.48)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Leverage	-0.003	-0.004	-0.003	-0.004	-0.002	-0.510***	-0.504***	-0.483**	-0.484**	-0.470**
	(0.92)	*(0.89)*	*(0.91)*	*(0.90)*	*(0.94)*	*(0.01)*	*(0.01)*	*(0.01)*	*(0.01)*	*(0.02)*
Total Cash/Total Assets	0.382	0.410	0.408	0.404	0.385	1.519***	1.576***	1.566***	1.575***	1.424***
	(0.38)	*(0.34)*	*(0.35)*	*(0.35)*	*(0.38)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
CapEx/Total Assets	-0.097	-0.154	-0.146	-0.151	-0.297	2.072***	2.051***	2.011***	1.994***	1.902***
	(0.89)	*(0.82)*	*(0.83)*	*(0.83)*	*(0.68)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Negative Equity Indicator	0.078	0.078	0.087	0.085	0.120	-0.036	-0.028	-0.040	-0.049	-0.050
	(0.66)	*(0.66)*	*(0.62)*	*(0.63)*	*(0.49)*	*(0.84)*	*(0.88)*	*(0.83)*	*(0.79)*	*(0.79)*
VC Indicator	-0.257	-0.236	-0.245	-0.252	-0.291	1.595***	1.607***	1.582***	1.577***	1.548***
	(0.33)	*(0.38)*	*(0.36)*	*(0.34)*	*(0.28)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Market-to-Book	-0.202**	-0.201**	-0.201**	-0.200**	-0.198**	0.007	0.009	0.009	0.008	0.000
	(0.04)	*(0.04)*	*(0.04)*	*(0.04)*	*(0.04)*	*(0.91)*	*(0.88)*	*(0.89)*	*(0.90)*	*(1.00)*
# IPOs	0.004	0.004	0.004	0.004	0.004	0.007	0.007*	0.007*	0.008*	0.007
	(0.58)	*(0.56)*	*(0.56)*	*(0.57)*	*(0.57)*	*(0.12)*	*(0.10)*	*(0.10)*	*(0.10)*	*(0.16)*
# M&As	-0.011	-0.011	-0.011	-0.011	-0.011	0.009*	0.009*	0.008*	0.009*	0.009*
	(0.13)	*(0.13)*	*(0.13)*	*(0.13)*	*(0.14)*	*(0.08)*	*(0.08)*	*(0.09)*	*(0.09)*	*(0.09)*
Constant	-4.860***	-3.481***	-3.519***	-3.738***	-3.675***	-7.243***	-5.803***	-5.984***	-6.279***	-5.874***
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Observations						5,069	5,069	5,069	5,069	5,069
Pseudo R-squared						0.189	0.188	0.190	0.190	0.200

Table 6 - Survival Analysis: Probability of Sale

Table 6 reports the results of hazard model estimating the probability of sale conditional on the sale not occuring prior to time T. All variables are defined in prior tables. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)
CEO Total Compensation	0.079		
	(0.13)		
Cash Compensation Ratio		0.521*	
		(0.08)	
Equity-Based Comp. Ratio		0.764**	
		(0.01)	
Salary/Total			0.209
			(0.50)
Bonus/Total			1.421***
			(0.00)
RSG/Total			0.041
			(0.95)
Option/Total			0.786***
			(0.01)
Log(Revenue)	0.080***	0.102***	0.075***
	(0.01)	*(0.00)*	*(0.01)*
ROA	-0.016	-0.023	-0.022
	(0.54)	*(0.40)*	*(0.40)*
Leverage	-0.013	-0.016	-0.014
	(0.67)	*(0.63)*	*(0.66)*
Total Cash/Total Assets	0.558**	0.565**	0.519*
	(0.05)	*(0.04)*	*(0.07)*
CapEx/Total Assets	1.089**	1.045*	0.935*
	(0.05)	*(0.06)*	*(0.09)*
Negative Equity Indicator	-0.346**	-0.337**	-0.302**
	(0.02)	*(0.02)*	*(0.04)*
VC Indicator	0.652***	0.637***	0.628***
	(0.00)	*(0.00)*	*(0.00)*
Market-to-Book	0.080	0.076	0.073
	(0.19)	*(0.22)*	*(0.23)*
# IPOs	-0.003	-0.002	-0.003
	(0.51)	*(0.59)*	*(0.48)*
# M&As	0.005	0.004	0.006
	(0.32)	*(0.38)*	*(0.27)*
Constant	-6.039***	-5.636***	-5.584***
	(0.00)	*(0.00)*	*(0.00)*
Observations	1,275	1,275	1,275

Table 7 - Unordered Multinomial Logistic Regression: Robustness Using Instrumental Variables

Table 7 shows unordered multinomial logit estimation where the dependent variable is IPO, acquisition, and no outcome. Regression (1) uses all firms in the sample. Regression (2) excludes the firms going public on OTC market. All regressions include year and industry fixed effects. All variables are defined in prior tables. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively. Robust estimation is used. p-values are reported below the coefficients.

	(1)	(2)	(1)	(2)
	Acquisition Vs. No Outcome		IPO Vs. No Outcome	
Instrumental Var: Cash Compensation Ratio	42.942	44.246	20.649	31.170
	(0.21)	*(0.20)*	*(0.23)*	*(0.18)*
Instrumental Var.: Equity-Based Comp. Ratio	51.231	52.743*	25.208*	40.209**
	(0.22)	*(0.10)*	*(0.10)*	*(0.05)*
Log(Revenue)	0.113***	0.113***	0.173***	0.215***
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*
ROA	-0.021	-0.025	0.098**	0.668***
	(0.45)	*(0.37)*	*(0.03)*	*(0.00)*
Leverage	-0.003	-0.004	-0.165*	-0.501**
	(0.91)	*(0.90)*	*(0.05)*	*(0.01)*
Total Cash/Total Assets	0.459	0.406	1.109***	1.589***
	(0.29)	*(0.35)*	*(0.00)*	*(0.00)*
CapEx/Total Assets	-0.087	-0.148	1.489***	2.086***
	(0.90)	*(0.83)*	*(0.00)*	*(0.00)*
Negative Equity Indicator	0.107	0.075	-0.263**	-0.040
	(0.54)	*(0.67)*	*(0.03)*	*(0.83)*
VC Indicator	-0.261	-0.236	1.473***	1.608***
	(0.32)	*(0.38)*	*(0.00)*	*(0.00)*
Market-to-Book	-0.195**	-0.202**	-0.009	0.011
	(0.04)	*(0.04)*	*(0.82)*	*(0.85)*
# IPOs	0.003	0.004	0.005	0.007
	(0.62)	*(0.54)*	*(0.12)*	*(0.11)*
# M&As	-0.011	-0.012*	0.007*	0.010**
	(0.14)	*(0.11)*	*(0.07)*	*(0.04)*
Constant	-42.346	-43.510	14.344	22.467
	(0.17)	*(0.16)*	*(0.35)*	*(0.29)*
OTC IPO	Included	Excluded	Included	Excluded
Observations			5,524	5,069
Pseudo R-squared			0.163	0.189

Table 8 - Propensity Score Matching: Robustness Tests

Table 8 shows the mean and median values of the compensation variables in our sample. All of the no outcome firms are matched using a propensity score matching where we allow replacement and a one to one match. When matching on propensity score, we use size, VC, ROA, and industry indicators. All variables are defined in prior tables. Test of differences reports the two-tailed tests of whether the means are significantly different between each of the relevant samples. ***, **, * denote significance at the 1%, 5% and 10% levels, respectively.

Panel A: No Outcome Matched Firms Vs. Sale Firms

	No Outcome (N = 1,098)	IPO and Acquired (N = 1,098)	Test of Difference in Means
Total Compensation (million)	$1.260	$1.950	*
Salary/Total	0.623	0.524	***
Bonus/Total	0.107	0.163	***
RSGs/Total	0.020	0.019	**
Options/Total	0.128	0.175	***
Cash Compensation Ratio	0.730	0.687	*
Equity-Based Compensation Ratio	0.147	0.195	***

Panel B: No Outcome Matched Firms Vs. Acquired Firms

	No Outcome Matched Firms (N = 212)	Acquired (N = 212)	Test of Difference in Means
Total Compensation (million)	$1.740	$2.414	*
Salary/Total	0.619	0.570	***
Bonus/Total	0.105	0.151	***
RSGs/Total	0.029	0.023	***
Options/Total	0.119	0.133	***
Cash Compensation Ratio	0.724	0.721	
Equity-Based Compensation Ratio	0.148	0.156	*

Panel C: No Outcome Matched Firms Vs. IPO Firms

	No Outcome Matched Firms (N = 886)	IPO (N = 886)	Test of Difference in Means
Total Compensation (million)	$1.190	$1.485	*
Salary/Total	0.629	0.513	***
Bonus/Total	0.110	0.165	***
RSGs/Total	0.014	0.019	***
Options/Total	0.126	0.186	**
Cash Compensation Ratio	0.739	0.678	*
Equity-Based Compensation Ratio	0.141	0.205	***

Table 9 - OLS Regression Analysis of the Sale Multiples

Table 9 shows the OLS estimation where the dependent variable is the log of one plus either the total consideration from the acquisition or the implied value of the firm at the IPO price each divided by total assets. Implied value of the firm at the IPO is estimated as the pre-IPO shares outstanding times the IPO price. Exit = IPO is an indicator variable that is one if the exit was an IPO and 0 if the exit was an acquisition. We control for year and industry fixed effects. The independent variables are desribed in prior tables. ***, **, * denote significance at the 1%, 5% and 10% level, respectively. Robust estimation is used. p-values are reported below the coefficients. [a,b,c] denote that coefficients for Acquisition and IPO samples are different at the 1%, 5% and 10% level, respectively (reported for tests of difference in coefficients in models (3) Vs. (5), (4) Vs. (6), (7) Vs. (9), and (8) Vs. (10)).

	Acquisition & IPO Sample		Acquisition Sample		IPO Sample		Acquisition Sample		IPO Sample	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Exit = IPO Indicator	0.081*	0.078								
	(0.10)	*(0.13)*								
Cash Compensation	0.288**		-0.332		0.516***[a]		0.382*		0.516***[c]	
	(0.03)		(0.22)		(0.00)		(0.10)		(0.00)	
Equity-Based Compensation	0.313**		-0.145		0.385**[a]		0.197*		0.430***[a]	
	(0.02)		(0.48)		(0.03)		(0.10)		(0.01)	
Salary/Total		0.280**		-0.139		0.407**[a]		0.084		0.470**[c]
		(0.05)		(0.54)		(0.03)		(0.74)		(0.02)
Bonus/Total		0.293*		-0.168		0.320[c]		0.472		0.328
		(0.08)		(0.53)		(0.15)		(0.14)		(0.16)
RSG/Total		0.060		-0.466		0.061		0.580		-0.062
		(0.82)		(0.31)		(0.86)		(0.28)		(0.87)
Option/Total		0.335**		-0.318		0.557***[a]		0.365**		0.570***[b]
		(0.01)		(0.15)		(0.00)		(0.03)		(0.00)
Log(Revenue)	-0.000	0.001	-0.018	-0.015	-0.022	-0.017	0.002	0.013	-0.025	-0.017
	(0.98)	*(0.96)*	(0.47)	(0.55)	(0.29)	(0.41)	(0.93)	(0.66)	(0.29)	(0.47)
ROA	-0.119***	-0.120***	-0.187***	-0.185***	-0.290***	-0.294***	0.092	0.149	0.087	0.071
	(0.00)	*(0.00)*	(0.01)	(0.01)	(0.00)	(0.00)	(0.80)	(0.68)	(0.58)	(0.65)
Leverage	-0.002	-0.005	0.423**	0.423**	-0.253**	-0.269**	0.608**	0.645***	-0.495***	-0.521***
	(0.98)	*(0.95)*	(0.02)	(0.03)	(0.02)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Total Cash/Total Assets	1.565***	1.553***	0.405	0.386	1.357***	1.322***	1.099*	1.167*	1.546***	1.514***
	(0.00)	*(0.00)*	(0.43)	(0.46)	(0.00)	(0.00)	(0.09)	(0.08)	(0.00)	(0.00)
CapEx/Total Assets	1.056***	1.052***	1.060**	1.065**	0.889***	0.904***	0.884*	1.018**	0.827***	0.859***
	(0.00)	*(0.00)*	(0.02)	(0.03)	(0.00)	(0.00)	(0.06)	(0.03)	(0.00)	(0.00)
Negative Equity Indicator	0.226***	0.230***	0.265*	0.267*	0.142	0.147				
	(0.00)	*(0.00)*	(0.06)	(0.06)	(0.19)	(0.17)				
VC Indicator	0.378***	0.382***	0.336**	0.338**	0.363***	0.371***	0.313*	0.284*	0.353***	0.368***
	(0.00)	*(0.00)*	(0.04)	(0.05)	(0.00)	(0.00)	(0.06)	(0.09)	(0.00)	(0.00)
Market-to-Book	0.113***	0.111***	0.188***	0.187***	0.104***	0.104***	0.179***	0.179***	0.133***	0.129***
	(0.00)	*(0.00)*	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)
# IPOs	-0.012***	-0.012***	-0.012***	-0.012***	-0.013***	-0.012***	-0.008*	-0.008*	-0.013***	-0.012***
	(0.00)	*(0.00)*	(0.01)	(0.01)	(0.00)	(0.00)	(0.07)	(0.08)	(0.00)	(0.00)
# M&As	0.002	0.002	-0.002	-0.002	0.002	0.002	-0.001	-0.002	0.000	0.000
	(0.34)	*(0.32)*	(0.69)	(0.73)	(0.50)	(0.45)	(0.87)	(0.71)	(0.91)	(0.88)
Constant	0.107	0.106	0.327	0.317	0.381	0.361	0.153	0.072	0.423	0.394
	(0.56)	*(0.57)*	(0.27)	(0.30)	(0.13)	(0.16)	(0.64)	(0.83)	(0.13)	(0.16)
Firms with Negative Equity	Included	Included	Included	Included	Included	Included	Excluded	Excluded	Excluded	Excluded
Observations	537	537	149	149	387	387	113	113	328	328
Adjusted R-squared	0.470	0.468	0.310	0.300	0.480	0.480	0.262	0.261	0.498	0.501