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Sales of private firms and the role of CEO compensation

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ABSTRACT

We analyze the relation of private firms' CEO compensation with the probability of sale of a firm and its valuation at the time of the sale. Specifically, we study whether equity-based remuneration is consistent with compensating the CEO for effort related to selling the private firm, or with compensating for the illiquidity of the equity-based compensation for private firms. Using a sample of large private firms with public filings, we find that CEOs of IPO and acquired private firms have higher total and equity-based compensation than CEOs of firms that remain private. We also show that CEO compensation is positively related to the valuation premium of IPOs versus acquired firms.

1. Introduction

Recent literature provides evidence on how certain firm-specific, industry-wide, and market-wide factors are correlated with a private firm's choice between going public and getting acquired.[2] However, the question of how a private firm's CEO compensation relates to the decision to sell the firm is largely unexplored. In this paper, we analyze the relationship between CEO compensation and the probability of a private firm in a particular year: (i) remaining private, (ii) selling via an initial public offering (IPO), or (iii) selling to an acquirer. We also analyze whether the valuation of selling firms is related to CEO compensation, an analysis related to the “IPO valuation premium puzzle” whereby private firms are acquired instead of realizing a higher valuation via IPO (Poulsen and Stegemoller, 2008; Bayar and Chemmanur, 2011, 2012).

Ex ante, it is not obvious whether the relation between CEO compensation and the probability of a sale of a private firm is negative or positive. CEOs of firms remaining private are possibly paid more due to the illiquidity of the firm's shares (or because of

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[2] Prior literature analyzes the role of market and industry characteristics (Brau et al., 2003), firm-specific operating characteristics (Poulsen and Stegemoller, 2008), and, in a theoretical framework, industry as well as firm-specific operating characteristics (Bayar and Chemmanur, 2012) as the determinants of the decision of private firms to pursue an acquisition versus an IPO.

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CEO private benefits of control; see Helwege and Packer, 2009). Conversely, CEOs of firms being sold may be paid more because higher CEO compensation reflects payment for additional effort associated with selling the firm. In our research, we develop and analyze hypotheses linking CEO compensation with (i) the probability of a sale of a private firm and (ii) the valuation at the time of the sale.

Using a sample of 4727 private firm-years spanning 2003 to 2011 from Capital IQ, supplemented with hand-collected data on CEO ownership and CEO characteristics, we find that private firms that get acquired or pursue an IPO pay their CEOs more in terms of total, bonus, and equity-based compensation when compared to firms that remain private. These results are consistent with the view that the compensation of CEOs at acquired private firms reflects compensation structured to reward the CEOs for the effort associated with selling the firm, as well as serving to compensate the CEO for potentially adverse career outcomes, such as job loss following an acquisition. Consistent with the expectation that shares will be more liquid after an IPO, option and restricted stock compensation play important roles for firms that sell via an IPO but are generally insignificantly related with the likelihood of selling via an acquisition. Bonus compensation plays a more important role for acquisition firms or IPO firms.

Given the potential self-selection of private firms involved in selling, it is important to address endogeneity. We attempt to address endogeneity in our study using an instrumental variable approach and propensity score matching. With respect to instrumental variables, we argue that CEO education level, age, tenure, and the education of the local workforce (measured as the fraction of population of the headquarter state with graduate degrees) are appropriate instruments that affect CEO compensation but do not directly affect the probability of sale of the firm. The results of the instrumental variable approach are consistent with the motivation framework of CEO compensation. With respect to propensity score matching, after matching the selling firms with firms remaining private, the results continue to be consistent with the motivation framework of CEO compensation. Hence, after using instrumental variable and propensity matching approaches to address endogeneity, the results continue to corroborate our prior findings.

We also assess the impact of alternative modeling techniques on our conclusions using hazard and competing risk models. A hazard model analyzes the conditional probability of an event, such as sale of a firm, given that the event has not occurred up to the end of the sample period. Hence, a hazard model takes into account that private firms that do not sell out by the end of their available data in the sample retain the option to do so. Competing risk models allow researchers to analyze the probability of an outcome, such as a private firm being acquired, while taking into account the probability of a competing outcome, such as a private firm going public via an IPO. The results of hazard and competing risks models are consistent with our findings using logistic regressions and further corroborate our conclusions.

We further explore the association of CEO compensation with the quality of the outcome for the shareholders of the selling firm, i.e., the valuation at the time of the IPO/acquisition. Following the methodology in Bayar and Chemmanur (2012), we find that in our sample, the median premium acquired firms would have realized had they pursued an IPO instead is 108%, a result comparable to their finding of about a 75% IPO premium. Using a two-stage treatment regression approach to explain the premium, we find that the inclusion of CEO compensation characteristics in the second stage model implies that acquired private firms no longer sell at a discount relative to the private firms going public. Hence, the difference between how acquired and IPO firms compensate their CEOs helps explain part of the variation in the valuation premium of IPO firms relative to acquired firms documented in the prior literature (Poulsen and Stegemoller, 2008; Bayar and Chemmanur, 2012).

Our research contributes to the literature by analyzing the differences in CEO compensation among firms that remain private, are acquired, or pursue an IPO. Earlier research explores factors associated with private firms deciding to either sell or go through the IPO process. Brau et al. (2003) examine market and industry characteristics affecting the choice of going public versus being acquired by a public acquirer and find that takeovers of private targets by publicly traded firms are more likely in higher market-to-book and more leveraged industries. In a comparison of IPO and acquired private firms, Poulsen and Stegemoller (2008) examine firm-specific characteristics and find that IPOs are preferred when the firms have greater growth opportunities and face financial constraints. More recently, Bayar and Chemmanur (2012) provide a theoretical model of a private firm's exit decision and show that the private firm CEO must consider the trade-off between the loss of control from an acquisition and financial constraints associated with remaining private. The model predicts that firms with higher probability of success in the product market are more likely to go public. Our sample includes private firms that remain private which help us determine the characteristics associated with selling or going public. Our work also complements research examining CEO compensation of public target firms and takeover activity.[3] Cai and Vijh (2007) find that target CEOs with less liquid equity holdings accept a lower premium. We contribute to the existing literature by examining another covariate of the decision to sell a private firm—CEO compensation, a previously unstudied area.

The paper proceeds as follows: We develop hypotheses and discuss endogeneity in Section 2. In Section 3, we describe the data used in our study and provide univariate comparisons. In Section 4, we present empirical findings based on multivariate analysis and additional robustness tests. Section 5 concludes.

[3] One strand of the acquisition literature explores the relationship between CEO compensation and acquisition behavior of acquirers. Datta et al. (2001) analyze how equity compensation affects whether managers pursue an acquisition of another company. Minnick et al. (2011) analyze whether equity compensation is related to acquiring bank holding company's CEOs finding accretive deals.