



## **Hands in the Cookie Jar? The Case of Management Buyouts<sup>1</sup>**

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**Abstract:** This paper investigates the effects of managerial ownership on shareholder wealth gains in management buyouts to study whether target managers expropriate public shareholder interests when they buy out a firm. We find that the transaction premiums are negatively associated with the buyout managers' stock holdings, but not with their option holdings. This evidence indicates that acquiring managers, using their corporate power associated with their stock holdings, pursue their own interests at the expense of public shareholders, and that their interest in the post-buyout firm dominates their interest associated with their options. We also find that the transaction premiums are not associated with the non-buyout managers' stock and option holdings.

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**M**ost academic studies on management buyouts (MBOs) have documented substantial wealth effects from buyouts for public shareholders. For instance, Kaplan (1989) reports an average premium of 45.9% for 76 MBO transactions during 1980-1986. Previous research focuses on the sources of wealth gains

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<sup>1</sup> Management buyouts are encompassed in leveraged buyouts (LBOs). In the literature, LBO and going-private are used interchangeably, as both refer to a transaction in which the publicly traded shares of a firm are bought out by a group of private investors and the firm is then converted to private ownership. Management buyouts occur when the private investor group consists of or includes incumbent managers. For a detailed review on management buyouts, see Amihud (1989) and Palepu (1990).

associated with buyouts that motivate incumbent managers to purchase their firms. Several seminal works contend that the alleviation of agency problems and the incentive alignments are the primary sources of wealth gains from management buyouts. Lehn and Poulsen (1989) present the evidence that a major source of stockholder gains in buyouts is the mitigation of agency problems associated with free cash flow. Kaplan (1989) finds that the value increases of target firms are mainly a result of reduced agency costs from improved managerial incentives, rather than wealth transfer from employees or superior managerial information. DeAngelo, DeAngelo, and Rice (1984) tests the hypothesis of gains-sharing between public shareholders and acquiring managers and argue that management buyouts can generate significant productive gains through improved incentives for corporate decision makers as well as through savings of registration and other public ownership expenses.

Contrary to the relative consensus on the sources of buyout wealth gains, the issue of “unfair” treatment of public shareholders in management buyouts is more controversial and less conclusive. The involvement of incumbent managers in buyouts raises a serious concern over conflicts of interest with shareholders and the potential appropriation of wealth by acquiring managers. Managerial fiduciary duty to shareholders requires target managers to seek the highest possible price from acquirers. However, self-interest may motivate those managers, as buyers of the firm that goes private, to take advantage of their corporate power to make an acquisition at the lowest possible price. The results from prior studies on this issue are mixed. For instance, Lowenstein (1985) suggests that managers exploit their position and informational advantage in management buyouts. In contrast, Kaplan (1989) presents indirect evidence that managers do not purchase a company for less than a fair price, and Travlos and Millon (1993) find a higher wealth effect for shareholders in management buyouts compared to third-party buyouts. Even after so many years of ups and downs in management buyouts, there is little definite and cogent evidence of whether incumbent managers force down the acquiring price when they are buying out their firm. After all, we wonder whether managers breach their fiduciary duty to pursue their own interests at the expense of shareholders. That is, do managers put their hands in the cookie jar?

Taking the conflicts of interest in management buyouts for granted, two papers study the mechanisms that would control the managerial appropriation of shareholder interests. Easterwood et al. (1994) examine competition in the market for corporate control and find that returns to pre-buyout shareholders are greater

when managerial acquirers bid against outside acquirers. Lee et al. (1992) investigate the role of independent directors in management buyouts and show that the boards dominated by independent members are associated with larger abnormal returns to shareholders. These results indicate that competition in the market for corporate control and independent boards of directors are two mechanisms that control managerial appropriation, if any, when managers buy out a firm. These studies prompt a question: Are there any other mechanisms that would mitigate the conflicts of interest in management buyouts? Specifically, do acquiring managers have other incentives that would be against the motivation of appropriation when negotiating the transaction price? Do managers who are not involved in buyouts provide a countervailing force that balances out the power of acquiring managers?

This paper addresses these questions by investigating how managers are involved in buyout transactions with respect to their ownership and analyzing how wealth gains received by shareholders in MBOs are affected by managerial stock and option holdings. We begin with identifying the managers who reinvest their common stock in a post-buyout firm as buyout managers. Not only do buyout managers, as buyers of the target shares that they have not owned yet, have an incentive to negotiate a purchasing price as low as possible, also they are able to do so by exerting their corporate power, which has been embodied by stock ownership, position, informational advantages, and so forth. If we use stock ownership to proxy for a manager's corporate power, then a negative relationship between the shareholder wealth gains from a buyout and the stock ownership of buyout managers, if any, would be convincing evidence that acquiring managers appropriate shareholder interests in management buyouts. On the other hand, the options held by target managers are usually exercised upon the consummation of a buyout, allowing the option owners to receive the excess of the transaction price over the exercise price of their option holdings. This treatment of options motivates the managers who own options to seek as high a transaction price as possible to maximize their cash proceeds from the option exercise. Thus, we expect that managerial option ownership would have a positive impact on shareholder wealth gains. If so, option ownership provides buyout managers with an incentive opposite to that of their stock ownership, therefore endogenously controlling the possible appropriation of shareholder interests by acquiring managers. Also, we differentiate the managers who are not involved in buyouts from the buyout managers. Non-buyout managers, like public shareholders, would yield their shares in target firms for considerations upon the consummation of buyouts. As sellers of target shares in buyout transactions, non-buyout managers are at the other side of the

table against buyout managers. Thus, we expect that non-buyout managers become a force controlling their colleagues' violation of fiduciary duty.

Our empirical analysis yields the following major findings. First, the stock ownership of buyout managers is negatively associated with the buyout premiums. This provides very strong evidence that buyout managers expropriate shareholder wealth when they purchase a firm. Second, the degree of option ownership held by the buyout managers is not associated with the buyout premiums. This indicates that buyout managers' motivation is dominated by their future interest in post-buyout firms. As far as the non-buyout managers are concerned, we find that both their stock and option ownerships have no significant effects on the buyout premiums. In brief, the evidence indicates the managerial hands in the cookie jar in the case of management buyouts.

The remaining sections of this article are organized as follows: Section 1 develops the hypotheses based on the observation of how target managers are involved in going-private transactions. Section 2 describes the MBO sample used in this study. Section 3 constructs the managerial stock and option dataset for the sample target firms. Section 4 presents the empirical results. Finally, Section 5 concludes the study. In addition, the appendix provides the detailed variable definitions.

## **1. Development of Hypotheses**

### **1.1 Managerial Involvement in a Going-Private Process**

By reading the proxy statement (DEFM 14A) and related SEC filings, we examine the process of going-private and focus on how target managers are involved as well as how their stock and option holdings are treated in the process. A going-private transaction proceeds as a general takeover does. Herzl and Shepro (1990) present the legal background of a takeover process. Boone and Mulherin (2007) provide a detailed empirical analysis of the private bidding process that evolves prior to the public announcement of a takeover bid. Going-private transactions end up with a group of private investors winning the bid. The private investors buy out the publicly traded shares of a target and then convert the firm into private ownership. Thus, a going-private process has its own features.

Generally, a going-private process begins with a suggestion by target managers that selling the firm is one of the possible strategic alternatives to maximize shareholder wealth. Occasionally, the process is triggered by an unsolicited proposal,

official or unofficial, from a potential acquirer. When the board of directors realizes that selling the firm is the best choice for shareholders under the circumstances, they would, with the help of their investment bank, invite a number of prospective acquirers to propose offers of merger, or instead, choose one single bidder to negotiate the transactions. The board usually forms a special committee solely in charge of the matters of screening and negotiation. After examining the offers submitted by the finalist(s), the special committee chooses a bidder that they think is the best fit in the interests of shareholders to negotiate the definitive agreement of merger. In the case of going-private, the winning bidder is a group of private investors. The definitive agreement of merger is subject to the approval of the board of directors and, in turn, by a vote in a special meeting of shareholders. The board usually issues a news release to the press immediately after they approve the definitive agreement of merger.<sup>2</sup> Once the shareholders approve the definitive agreement of merger, the consummation would be conducted shortly.

During the negotiation of a definitive agreement of merger, private investors incorporate a holding corporation and a vehicle corporation, usually referred to as “Parent” and “Merger Sub”, respectively, in DEFM 14A.<sup>3</sup> The Parent is wholly owned by the private investors, and the Merger Sub is a wholly-owned subsidiary of the Parent. Both are formed solely for the purpose of entering into the agreement and consummating the transaction contemplated by the merger agreement. The Merger Sub would be merged with and into the target company and, upon the consummation of the proposed merger, the Merger Sub would cease to exist and the target company would continue as the surviving corporation.

Target managers could be involved in a buyout in two ways. One way is that some managers of a target firm, as private investors alone or as partners of some private equity firms, bid to purchase their firm and, after winning the bid, contribute all their shares of the firm (usually), plus some cash (occasionally), into the Parent. More often than not, a firm’s CEO, CFO, chairman of the board, and/or other high-ranked managers launch the going-private process, alone or with other outside private investors, and they are the buyout leaders. If managers are involved in a transaction in this way, then the buyout is defined as a *manager-led buyout*.

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<sup>2</sup> In this study, the date on which the news is released that the board has approved the definitive agreement of merger is defined as the announcement date. In addition, the initial announcement date is the date on which the news concerning acquisition of a firm, if any, is publicized for the first time in the period of one year prior to the announcement date.

<sup>3</sup> There are other names used in DEFM 14A, such as “Buyer” to refer to a holding corporation, and “MergerCo” to refer to a vehicle corporation.

The other way is that some managers roll over their shares into the Merger Sub prior to the buyout consummation, according to an investment agreement with the Parent that is formed only by private equity firms. The investment agreement is negotiated while the definitive agreement of merger is being negotiated or after it has been reached. In this case, the private equity firms invite some of the incumbent managers to join in the buyout, and these managers are usually the buyout followers. If managers are involved in a buyout in this way, then this transaction is defined as a *manager-participating buyout*. Consistent with current literature and practice, the collection of these two categories of manager-involved transactions is labeled as management buyouts, which is the primary focus of this study.<sup>4</sup> In addition, a buyout is defined as a *private-equity buyout*, if it is carried out purely by private-equity firms and no target manager is involved in the transaction in either way.

We define a manager who involves herself in either a manager-led or a manager-participating buyout as a *buyout manager*. Once a manager is involved in a buyout transaction, no matter in either way, she would be excluded from the special committee to avoid conflicts of interest. A manager who has no equity stake in a post-buyout private company is termed a *non-buyout manager*. Usually, non-buyout managers leave a newly formed company after the consummation, but in a number of cases, some of them remain employed as non-equity employees of the privatized firm.<sup>5</sup>

## 1.2 Stock and Option Hypotheses

The combination of stock and option holdings is used as an incentive tool that aligns the interests of managers and shareholders in the day-to-day practice of corporate governance. In the setting of going-private, however, managerial stock and option holdings bring up different hypotheses because they are usually treated in different ways. For buyout managers, their stock holdings would be reinvested into the post-buyout companies, while their options, along with all other options, would be cancelled upon the consummation, whether vested or not, and the option holders are entitled to receive a cash payment equal to the excess of the transaction price over the exercise price multiplied by the number of their option shares. For

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<sup>4</sup> SDC also uses this definition to flag a MBO; however, their flagging is not accurate in some cases. We ascertain an MBO by examining the target firm's proxy statement.

<sup>5</sup> Occasionally, some of these reemployed managers are allowed to roll over a portion or all of their options into the new firm, according to an agreement with the Parent. These managers are still defined as non-buyout managers as long as they do not own the common stock of the post-buyout firm.

non-buyout managers, each share of their common stock, like the shares owned by outside shareholders, is converted into the right to receive the transaction consideration in cash, while their option holdings are exercised under the same terms as that of buyout managers.<sup>6</sup>

Based on the above observations, we develop the following hypotheses about managerial motivations and behaviors in management buyouts.

The treatments of stocks and options, as described above, trigger different reactions by buyout managers. As investors of a post-buyout firm, buyout managers aim at maximizing the expected capital gains from their investments. The lowest possible purchasing price would minimize their investment costs. In addition, a lower price would reduce the debt that they will incur and therefore minimize the risk of financial distress that the firm might suffer in the future. Thus, buyout managers have an incentive to pay as low a price as possible to acquire the shares that they have not yet owned. Moreover, buyout managers have their means to do so. Their common stock shares, positions, exclusive information, and other advantageous resources establish their corporate power in a firm, by which they are able to force down the price in pursuit of their future interests in the post-buyout firm. This analysis constitutes the *buyout-manager-as-stock-buyer hypothesis*. To test this hypothesis, we use the stock holdings of the buyout managers to proxy for their corporate power. The more stock that a manager owns, the more clout that she exerts in a firm's decision-making. This proxy is justified by the fact that the SEC includes as insiders the persons who hold in excess of ten percent of a firm's equity. Thus, the buyout-manager-as-stock-buyer hypothesis predicts that the relationship between the stock ownership of buyout managers and the shareholder wealth gains from a buyout will be negative.

In contrast, as beneficiaries of the options that are exercised pursuant to the deal terms, the buyout managers would like to have as high a price as possible because the amount of cash payments from the option exercise is positively related to the consummation price. Thus, the treatment of options would motivate those buyout managers owning options to seek a price maximizing their current cash

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<sup>6</sup> There are several exceptions. The options held by 23 buyout managers in 11 target firms are canceled without cash payment. These managers are usually the buyout leaders. We assign a value of zero to the option holdings of those managers. The options held by 75 buyout managers in 26 firms and by 86 non-buyout managers in 20 firms are rolled over into the new option plans of the post-buyout firms. The non-buyout managers in these cases, like buyout managers, continue to be employed in the new firms. Based on the principle that the value of the rolled-over options in the new firms' incentive plans would theoretically be equal to the value of these options at the consummation if they were exercised, we treat these options as if they were cashed out.

proceeds. Their strength, by which they influence the transaction price, might be their firm-specific human capital. This analysis raises the *buyout-manager-as-option-seller hypothesis*, which predicts that there is a positive relationship between the shareholder wealth gains and the buyout managers' option holdings, *ceteris paribus*. These two conflicting motivations reflect a dilemma in the mind of buyout managers. A higher price enhances the value of their option holdings, whereas a lower price improves their future interests in the acquisition of a target firm. Whether acquiring managers expropriate shareholder wealth depends on which motivation prevails during an MBO transaction.

As far as non-buyout managers are concerned, their interest in a transaction differs from those of buyout managers. In fact, their stock shares are treated the same way as public shares and their options are exercised with all other options. Thus, the interests of non-buyout managers are more consistent with that of outside shareholders. Based on this analysis, we put forth the *non-buyout-manager-as-outsider hypothesis* that non-buyout managers would struggle for a price as high as possible to maximize their cash proceeds from the surrendered common shares and exercised options.<sup>7</sup> This hypothesis predicts that the shareholder wealth gains are positively related to both stock and option ownership of the non-buyout managers.

## 2. The MBO Sample

The MBO transactions are extracted from the Security Data Corporation's (SDC) U.S. Mergers and Acquisitions database. We start with all completed deals that are announced between January 1, 1994 and December 31, 2006 and that are labeled as LBO or GP (going-private) by the SDC.<sup>8</sup> From these observations, we rule out those deals labeled bankruptcy, spinoff, splitoff, carveout, divestiture, division, or liquidation. We require that the targets be U.S. publicly traded firms listed on NYSE, NASDAQ, or Amex. Excluded are utilities firms (SIC codes 4900-4949) and financial firms (SIC codes 6000-6999), as is commonly done in the finance literature due to their greater degree of regulation. To avoid the effect of

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<sup>7</sup> This hypothesis is based on an assumption that non-buyout managers are not willing to sacrifice their own equity-based interests in exchange for additional personal benefits. Hartzell, Ofek, and Yermack (2004) discuss this issue in the setting of mergers and acquisitions. Kaplan (1989) does not find pecuniary side-payment in his MBO sample. In our sample, we do not find unusual side-payments to managers, which is consistent with the findings of Kaplan (1989).

<sup>8</sup> The SDC database also labels MBO transactions. We do not use this flag because we find that it is not accurate when double-checking with the proxy statements. We start our sample period with 1994 because this is the first year in which the files of the SEC by corporations are available in Edgar.



synergy or monopoly, we require that the targets become stand-alone private firms once the deals are completed. Thus, the deals with private operating acquirers—i.e., their SDC SIC codes do not fall in the range of 6000 to 6999—and the deals in which private equity firms plan to merge the target's assets with assets already or would-be under their management are excluded.<sup>9</sup> These screens yield a sample of 358 observations. Of these, 82 represent tender offer deals, whereas the remaining 276 represent merger deals.

**Table 1**

**Sample Distribution by Announcement Year over 1994-2006**

The sample comes from SDC and consists of 147 (142) completed U.S. management buyout transactions announced between 1994 and 2006. Both target size and transaction premium are measured based on the target stock price 63 trading days prior to the initial announcement date. The exact definitions of size and premium are presented in Appendix. The table also shows the distribution of the two categories of MBOs. M1 and M2 represent manager-led and manager-participating buyouts, respectively.

Year	# of Deal	% of sample	# of M1	# of M2	Size (million)		Premium (%)	
					mean	median	mean	median
<b>Panel A: By the Manager Definition of (dir &amp; exe)</b>								
1994	2	1.36	2	0	28.19	28.19	48.37	48.37
1995	1	0.68	1	0	30.58	30.58	20.59	20.59
1996	6	4.08	1	5	139.41	91.98	39.17	43.11
1997	10	6.80	5	5	208.37	78.09	54.91	22.63
1998	16	10.88	6	10	193.03	147.29	37.32	29.86
1999	21	14.29	6	15	239.07	135.59	37.83	38.22
2000	16	10.88	9	7	251.83	100.44	53.22	46.51
2001	9	6.12	8	1	27.15	17.83	71.36	53.85
2002	13	8.84	11	2	235.07	28.80	73.24	68.24
2003	20	13.61	12	8	43.75	25.42	94.77	51.73
2004	6	4.08	3	3	417.20	65.94	25.18	24.83
2005	9	6.12	0	9	298.53	262.12	131.28	18.85
2006	18	12.25	5	13	2147.17	596.17	24.97	24.24
Total	147	100.00	69	78	429.66	75.06	57.26	34.83
<b>Panel B: By the Manager Definition of (exe-only)</b>								
1994	2	1.41	2	0	28.19	28.19	48.37	48.37
1995	0	0	0	0	0	0	0	0
1996	6	4.23	1	5	139.41	91.98	39.17	43.11
1997	9	6.34	4	5	221.69	67.70	57.85	20.00
1998	16	11.27	6	10	193.03	147.29	37.32	29.86
1999	21	14.79	6	15	239.07	135.59	37.83	38.22
2000	15	10.56	8	7	268.38	151.83	52.98	46.16
2001	9	6.34	8	1	27.15	17.83	71.36	53.85
2002	13	9.16	11	2	235.07	28.80	73.24	68.24
2003	18	12.68	11	7	40.78	21.79	100.22	51.73
2004	6	4.23	3	3	417.20	65.94	25.18	24.83
2005	9	6.34	0	9	298.53	262.12	131.28	18.85
2006	18	12.68	5	13	2147.17	596.17	24.97	24.24
Total	142	100.00	65	77	442.93	76.82	57.88	34.96

<sup>9</sup> There are 159 deals in which acquirers are private operating firms and two deals in which private equity acquirers plan to merge the targets with other assets. The information about the target post-buyout arrangements is available from their proxy statements.

Our data gathering efforts focus on these 358 target firms. For each firm, we obtain the information regarding its managerial stock and option holdings at the time of buyout as well as the treatments of these holdings in the transaction. We also collect information about the chairmen, CEOs, and block shareholders. The source of this information comes from the SEC filings, such as DEFM 14A, S-4, 10-K, or other documents, if any, filed in connection with these transactions.

The tender offer deals are dropped because the information needed is not available in their SEC filings (except for five two-stage acquisitions).<sup>10</sup> Among the merger deals, 16 are deleted from the sample because the eight target firms that went private in 1994 and 1995 did not have SEC filings in Edgar and the other eight firms did not provide the information needed in their SEC filings. Additionally, for the sake of simplicity, we drop 28 firms with dual class common stocks.<sup>11</sup> Finally, two firms are excluded that do not meet the requirement that the targets have annual financial statement information from Compustat and daily stock return data—at least 163 trading days prior to initial announcements—from CRSP.<sup>12</sup> These criteria result in a going-private sample of 235 observations.

In this paper, we use two parallel definitions of a manager. We define managers to be all directors and executive officers listed in the table “Security Ownership of Certain Beneficial Owners and Management” in DEFM 14A; this definition is denoted by (dir & exe). Considering different missions and motivations between the non-employed directors and the executive officers, we also define only the executive officers listed in the table (including the directors who are employed as executive officers) as managers; this definition is denoted by (exe-only). In addition, a chairman of the board is included in the definition of (exe-only) due to her special position in a company. All analyses in the study are conducted on a two-parallel-definition basis. In the interpretation of the results, we present the value of (dir & exe) in the first place and then the value of (exe-only) in the following parentheses, unless there are further specific explanations. Based on these two definitions of managers, we screen out 147 (142) MBO transactions from

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<sup>10</sup> Proxy statement (DEFM 14A), which is the main source of the information, is available only for merger deals because merger deals require approval of shareholder meetings. Tender offer deals do not need shareholder’s approval. In two-stage acquisitions, acquirers complete a tender offer in the first stage and then make a merge, which, in the second stage, is subject to shareholders’ approval. See Sullivan *et al.* (1990) for two-stage acquisitions.

<sup>11</sup> This exclusion follows Wang and Xie (2008).

<sup>12</sup> We estimate beta over a 252-day period, ending at 64th trading day prior to the initial acquisition announcement. We require that there be at least 100 daily returns available from CRSP during this period.

the going-private sample, including 69 (65) manager-led buyouts and 78 (77) manager-participating buyouts, which comprise the MBO sample.

Table 1 presents the distribution of the MBO sample by announcement year in two panels representing the two definitions of managers. The number of MBO transactions reflects an increasing trend in the 1990s until it hits the highest level of 21 (21) in 1999. After that, it drops off in two years and then rebounds to the second highest level of 20 (18) in 2003. By 2006, the third highest level of MBO transactions occurs with 18 (18) deals completed. Generally, the trend in MBO transactions is consistent with the trend of overall takeover activities documented in the literature. In addition, the yearly distribution of the two MBO categories—the manager-led and –participating buyouts—are reported as well.

Table 1 also displays the mean and median of the target sizes and the transaction premiums. Size and premium are calculated based on the stock information one quarter (63 trading days) prior to the initial announcements. Because the targets are involved in MBOs, it is not surprising that the mean size of the sample, \$429.66 (\$442.93) million, is much smaller than that of the M&A sample reported in Moeller, Schlingemann, and Stulz (2004). The mean premium, 57.26% (57.88%), is higher than what Kaplan (1989) has documented in his MBO sample, which is 45.9%.

### **3. Managerial Stock and Option Holdings**

The results of this study are based on the data concerning the target managers: the roles (buyout or non-buyout manager) that they play in the buyouts and their stock and option holdings in the targets. These data are gleaned mainly from DEFM 14A, supplemented by the information gathered from the related SEC filings, such as S-4 and 10-K. This section describes how this unique dataset is built up.

#### **3.1 Identification of buyout and non-buyout manager teams**

The table “Security Ownership of Certain Beneficial Owners and Management” in DEFM 14A reports the amount of a company’s outstanding common stock beneficially owned by (1) each of the company’s directors, (2) the CEO and the other most highly compensated current executive officers, and (3) each person known to beneficially own more than 5% of such stock as of a specific

date.<sup>13</sup> These listed directors and executive officers are the subjects of our study and they are managers of a target firm in either the definition of (dir & exe) or the definition of (exe-only).

Each manager is identified as a buyout or a non-buyout manager in light of the definition presented in Section 1. In DEFM 14A, we go to such sections as “Interests of Directors and Executive Officers in the Merger,” “Introduction,” “Summary Term Sheet,” and “Parties to the Merger” to determine the role that a manager played in a transaction.<sup>14</sup> Based on this identification, we distinguish a buyout manager team and a non-buyout manager team for each target firm. The *buyout manager team* consists of all buyout managers who are involved in either a manager-led or a manager-participating buyout, whereas the *non-buyout manager team* is composed of all non-buyout managers.<sup>15</sup>

### 3.2 Stock and option holdings of a manager team

For each manager of a firm, we ascertain two items of information from the table of “Security Ownership of Certain Beneficial Owners and Management”. One is the amount of the shares beneficially owned by the manager, termed beneficial ownership in DEFM 14A.<sup>16</sup> This item is directly displayed in the table of security ownership. The other is the amount of equity-based options, warrants, and other rights held by the manager that are exercisable as of a specific date or that will become exercisable within 60 days after that date.<sup>17</sup> This item, termed *option holdings* because options account for an absolute majority of the amount of these rights, is reported and illustrated in a footnote to the owner’s beneficial ownership because an owner’s option holdings are included in her beneficial ownership pursuant to Rule 13d-3, Securities Exchange Act of 1934.<sup>18</sup> Eventually, we obtain

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<sup>13</sup> This date is the latest date until which the information released in DEFM 14A is effective. If this date is later than the announcement date, we compare the data with the data from the latest Form 10-K prior to the announcement, which also has the table of “Security Ownership of Certain Beneficial Owners and Management.” If the data change a lot, we use the data from Form 10-K. If the DEFM 14A does not have the table of security ownership, which happens in a few cases, we also resort to the latest Form 10-K.

<sup>14</sup> In some cases, DEFM 14A points out that some managers are still negotiating their investment agreement and it is likely that they will reinvest their stock in the new company. Because the status of these managers is uncertain at the time of DEFM 14A, we classify them as non-buyout managers.

<sup>15</sup> In one target firm, all its directors and executives are involved in the buyouts, and in 35 firms, all their executive officers are buyout managers. This means that in one firm by the definition of (dir & exe) and in 35 firms by the definition of (exe-only), the non-buyout manager team has no member.

<sup>16</sup> See Rule 13d-3, Securities Exchange Act of 1934 for determination of beneficial ownership in detail.

<sup>17</sup> See footnote 13.

<sup>18</sup> The target firms in the sample have a variety of equity-based incentive plans, such as stock option, restricted stock unit, restricted stock award, performance unit, and deferred stock unit plans. Stock option plans account

a manager's *stock holdings* by subtracting her option holdings from her beneficial ownership.<sup>19</sup> The information on stock and option holdings of all target managers is combined with their identity in the transaction (buyout or non-buyout manager) and their title (director or executive) to generate the managerial stock and option dataset.

Based on this dataset, we develop two variables to describe a manager team's ownership: *Stock Percentage (Stock%)*, defined as a manager team's total stock holdings over its firm's common shares outstanding, and *Option Percentage (Option%)*, defined as a manager team's total option holdings over its firm's outstanding stock. To determine the effects of managerial ownership on shareholder wealth gains in MBOs, we examine the relationship of these two variables of a manager team with the transaction premium and with the cumulative abnormal return upon the buyout announcement.

### 3.3 Summary of the managerial stock and option holdings

Using the managerial ownership dataset, we are able to calculate the values of the ownership variables of a manager team (either buyout or non-buyout). For each manager team, we explore two definitions of (dir & exe) and (exe-only) in our analysis. The sample summary statistics of the two ownership variables, as well as the number of members of a manager team, are presented on a two-type and two-definition basis in Table 2.<sup>20</sup>

In the MBO sample, there are 147 (142) buyout manager teams, the average size of which is 3.45 (3.07) members. There is (are) one (35) firm(s) in which all managers are involved in the buyouts. In the remaining 146 (107) firms, on average, 6.66 (3.25) managers are excluded from the transactions.

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for an absolutely majority. For simplicity, we use options or option holdings to represent those equity-based incentive plans due to their common characteristics and their similar treatment in transactions.

<sup>19</sup> If two managers beneficially own the same shares, we split the shares between them. Additionally, we make some minor adjustments to avoid double ownership in this dataset.

<sup>20</sup> If a manager owns neither common shares nor options and she is neither CEO nor chairman of the board of directors, we remove her from the dataset. In the calculation of summary statistics, we rule out the firms whose manager teams have no member. As a result, there are 147 (142) buyout manager teams and 146 (107) non-buyout manager teams in the sample, respectively.

**Table 2****Summary Statistics for Buyout and Non-Buyout Manager Teams**

This table reports the summary statistics of stock percentage, option percentage, and option proportion of buyout manager and non-buyout manager teams. The sample consists of 147 (142) completed U.S. MBO transactions (listed in SDC) announced between 1994 and 2006. Each director or executive officer in a target is identified as buyout or non-buyout manager. Those managers constitute two manager teams: buyout and non-buyout manager teams under two definitions of (dir & exe) and (exe-only). If a firm manager team has no member, this firm is ruled out in the calculation of the statistics. As a result, there are 147 (142) buyout manager teams and 146 (107) non-buyout manager teams in the sample, respectively. The definitions of the three ownership variables are presented in Appendix. The summary statistics of the number of managers in a manager team are reported in the table as well.

	Obs.	Mean	Std Dev	Min	Median	Max
<u>Panel A: By the Manager Definition of (dir &amp; exe)</u>						
<u>Buyout Manager Team (dir &amp; exe)</u>						
Number of Managers	147	3.45	2.58	1.00	3.00	12.00
Stock%	147	24.82	22.66	0.00	19.36	80.24
Option%	147	2.68	3.25	0.00	1.53	17.00
<u>Non-Buyout Manager Team (dir &amp; exe)</u>						
Number of Managers	146	6.66	3.01	1.00	6.00	15.00
Stock%	146	6.54	13.18	0.00	0.93	65.11
Option%	146	2.04	2.19	0.00	1.38	13.24
<u>Panel B: By the Manager Definition of (exe-only)</u>						
<u>Buyout Manager Team (exe-only)</u>						
Number of Managers	142	3.07	2.31	1.00	2.00	12.00
Stock%	142	22.23	22.01	0.00	16.40	80.24
Option%	142	2.71	3.25	0.00	1.57	17.00
<u>Non-Buyout Manager Team (exe-only)</u>						
Number of Managers	107	3.25	2.00	1.00	3.00	9.00
Stock%	107	4.17	10.71	0.00	0.18	55.60
Option%	107	1.53	1.56	0.00	1.14	9.27

## 4. Empirical Analysis

### 4.1 Variables in the analysis

To test the hypotheses, OLS regressions are used to examine how managerial stock and option ownership influence wealth gains received by public shareholders when some incumbent managers buy out a firm. The definitions of the variables used in the regression analyses are presented in Appendix: Variable Definitions.

Two variables are used to measure the wealth gains from buyouts. One definition involves a percentage jump of the final transaction price from the 63 days prior to the initial announcement—*PREM*. Bradley (1980) argues that two calendar months are sufficient to capture any significant price effects of leakage, and DeAngelo, DeAngelo, and Rice (1984) and Kaplan (1989) also apply this operational method to calculate a premium. Bargeron *et al.* (2008), however,

capture a significant effect of the run-up estimated over the interval (-63, -6) on a variety of proxies for shareholder wealth gains in the corporate takeovers. Schwert (2000) and Boone and Mulherin (2007, 2009) employ windows that begin from 63 days prior to the initial announcement, along with others, to capture the wealth effect of a takeover event. To be prudent, we calculate PREM based on a -63 day stock price.

The other measure involves an 11-day cumulative abnormal return around the announcement date—*CAR11*. Cumulative abnormal return is used to capture the effects of events on shareholder wealth in many studies. *CAR11* is estimated using the standard event study method developed by Brown and Warner (1985). The 11-day window is chosen because Barger *et al.* (2008) suggest that a 3-day window understates cumulative abnormal returns in going-private transactions because the targets are smaller and tend to be traded in less efficient markets. These two variables—PREM and *CAR11*—are used as dependent variables in separate regressions.

The managerial ownership is characterized by two variables: *Stock%* and *Option%*. They are the main independent variables in the regressions being estimated to test the hypotheses. For the buyout manager teams, if the buyout-manager-as-stock-buyer hypothesis holds, then we expect the coefficient of *Stock%* to be negative. If the buyout-manager-as-option-seller hypothesis holds, then we expect the coefficients of *Option%* to be positive. With respect to the non-buyout management teams, if the non-buyout-manager-as-outsider hypothesis is true, then the coefficients of both *Stock%* and *Option%* are expected to be positive.

We include a number of target-specific and deal-specific characteristics in the regressions to control for their effects on buyout wealth gains. *Size*, *Tobin's Q*, and *Leverage* are the three most often used control variables in the literature. There is evidence, *e.g.*, Officer (2003), that target shareholders gain less when their firm size is larger. Lang, Stulz, and Walkling (1989) argue that, when a target *Tobin's Q* is low, there is more room for the acquirer to create value, hence making it possible for bidders to offer a higher price. Financial leverage is also likely to influence the wealth effects of buyouts. The literature on going-private points out that an important source of wealth gains in LBOs is the tax deductibility of interest expenses on corporate debt. Stulz (1988) argues that leverage facilitates more concentrated ownership of a target firm and hence forces acquirers to offer a greater premium. In contrast, Barger *et al.* (2007) contend that the shareholders

of a target with higher leverage might benefit less because the target has fewer alternatives to recapitalize and thus has weaker bargaining power.

*Free Cash Flow* is accounted for as Lehn and Poulsen (1989) find supporting evidence that a major source of shareholder gains is the mitigation of agency problems associated with free cash flow.<sup>21</sup> *Sales Growth Rate* is included for two reasons. First, sales growth rate, a proxy for opportunities of profitable reinvestments of cash flow, is a control variable to test the free cash flow hypothesis in Lehn and Poulsen (1989). Second, a target firm might ask for a higher offer price if it has more growth opportunities, which could be represented by its sales growth rate. Market  $\beta$  coefficient is counted in to capture the target market risk. *BHAR252*, the one-year buy and hold abnormal return adjusted by the market model, is encompassed as a proxy for the target past managerial performance.

While we are collecting data on the managers, we also gather information on block shareholders, CEOs and chairmen, and the whereabouts of CEOs after the consummation. Block shareholders and their holdings reinforce the bargaining power of public shareholders in takeovers.<sup>22</sup> The separation of two positions, CEO and chairman of the board of directors, is an important feature of corporate governance of a firm. In addition, it is argued that a CEO might pursue a position in the post-transaction firm at the expense of shareholder interests.<sup>23</sup> Thus, we develop variables, *Block Holdings*, *CEO/Chairman*, and *CEO Remaining*, to control for these effects, respectively. *Block Holdings* is the percentage of a target outstanding stock owned by block shareholders; *CEO/Chairman* equals one if a CEO is also a chairman or zero otherwise; and *CEO Remaining* is a dummy as well, equal to one if a CEO continues into the privatized firm.

Four additional dummy variables for the deal characteristics, *Competed* (if there is competition from other bidder(s)), *Tender Offer* (if the deal is a two-stage acquisition), *Hostile* (if the acquirer is hostile), and *Announcement* (if there is an initial announcement ahead of the definitive agreement announcement in the past

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<sup>21</sup> We follow Lehn and Poulsen (1989) to calculate Free Cash Flow. Free cash flow is expressed as a percentage of the book value of assets, instead of the book value of equity. A robustness test shows that the results of these two measures are similar.

<sup>22</sup> Block shareholders are those who beneficially own more than five percent of a target outstanding common stock and who do not belong to the acquirers. The information on block shareholders and their share holdings is available in the table of "Security Ownership of Certain Beneficial Owners and Management" in DEFM 14A or 10-K. See Barclay and Holderness (1991) for the analysis of block shareholders.

<sup>23</sup> Hartzell, Ofek, and Yermack (2004) examine these issues concerning CEO in M&A transactions.



year), are included as well. The data for these four variables are extracted from the SDC, supplemented by a double check of LexisNexis and the related SEC filings, if necessary. In addition, we use year dummies to control for year effects.<sup>24</sup>

### Table 3

#### Summary Statistics of the Dependent and Control Variables

The sample includes 147 (142) completed U.S. MBO transactions (listed in SDC) announced between 1994 and 2006. Size and PREM are measured based on a target stock price 63 trading days prior to the initial announcement date. CAR11,  $\beta$ , and BHAR252 are estimated using CRSP dataset, and the data concerning Tobin's Q, Leverage, Free Cash Flow, and Sales Growth Rate are from Compustat. The information about Block Holdings, CEO/Chairman, and CEO Remaining are collected from SEC filings. The SDC provides information for Competed, Tender Offer, Hostile, and Announcement. The information is double-checked by examining the related SEC filings and the news stories in LexisNexis, if necessary. The exact definitions of those variables are presented in Appendix.

	Mean	Std Dev	Q1	Median	Q3
<b>Panel A: By the Manager Definition of (dir &amp; exe); Obs.=147</b>					
PREM	0.573	1.189	0.176	0.348	0.600
CAR11	0.243	0.262	0.084	0.192	0.328
Size (mm)	429.656	1643.160	24.428	75.061	290.400
Tobin's Q	1.375	0.743	0.854	1.192	1.647
Leverage	0.250	0.252	0.044	0.236	0.381
Free Cash Flow	0.076	0.140	0.045	0.083	0.133
Sales Growth Rate	0.136	0.381	-0.010	0.072	0.196
$\beta$	0.517	0.528	0.159	0.417	0.810
BHAR252	-0.115	0.438	-0.413	-0.165	0.103
Block Holdings	0.164	0.149	0.035	0.130	0.266
CEO/Chairman (dummy)	0.551	0.499	0	1	1
CEO Remaining (dummy)	0.878	0.329	1	1	1
Competed (dummy)	0.122	0.329	0	0	0
Tender Offer (dummy)	0.020	0.142	0	0	0
Hostile (dummy)	0.020	0.142	0	0	0
Announcement (dummy)	0.932	0.253	1	1	1
<b>Panel B: By the Manager Definition of (exe-only); Obs.=142</b>					
PREM	0.579	1.209	0.168	0.350	0.600
CAR11	0.242	0.262	0.084	0.191	0.328
Size (mm)	442.927	1670.470	24.428	76.823	305.560
Tobin's Q	1.394	0.749	0.905	1.212	1.664
Leverage	0.255	0.254	0.048	0.240	0.389
Free Cash Flow	0.077	0.142	0.045	0.087	0.135
Sales Growth Rate	0.139	0.387	-0.010	0.073	0.197
$\beta$	0.524	0.533	0.159	0.428	0.810
BHAR252	-0.120	0.442	-0.422	-0.176	0.101
Block Holdings	0.165	0.150	0.041	0.132	0.265
CEO/Chairman (dummy)	0.563	0.498	0	1	1
CEO Remaining (dummy)	0.894	0.308	1	1	1
Competed (dummy)	0.113	0.317	0	0	0
Tender Offer (dummy)	0.021	0.144	0	0	0
Hostile (dummy)	0.014	0.118	0	0	0
Announcement (dummy)	0.937	0.245	1	1	1

<sup>24</sup> The results related to the control variables are similar to that in prior studies. Since these control variables are not the main concerns in this study, we do not report and discuss these results to save space. For interested readers, the results are available upon request.

The statistics of these target- and deal-specific control variables, along with the two dependent variables, are summarized in Table 3.

#### 4.2 Results for the buyout manager teams

We begin the OLS regression analysis with the buyout manager teams to determine whether their stock and option holdings affect the transaction premiums (PREM) or the market response to the announcements (CAR11). We first put Stock% or Option% in a regression model that contains the control variables shown above, and then we include both the same model. The results are presented in Table 4.

**Table 4**

**Regression Analysis of the Buyout Manager Teams**

The OLS regression is used on the MBO sample to examine the effects of the stock and option holdings of the buyout manager teams on shareholder wealth gains. The control variables and the year dummies are included in the regressions, but the estimates of their coefficients are not reported because of space constraints. The definitions of the concerned variables are presented in Appendix. *p*-value is presented in parenthesis beneath the coefficient estimate. \*, \*\*, and \*\*\* stand for the statistical significance at the 10%, 5%, and 1% levels, respectively

	PREM			CAR11		
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A: Buyout Manager Teams (dir &amp; exe)</b>						
Stock%	-1.176** (0.03)		-0.800** (0.03)	-0.055 (0.63)		-0.093 (0.51)
Option%		-3.922 (0.27)	-1.922 (0.44)		-1.176 (0.12)	-0.673 (0.27)
Intercept	1.020 (0.22)	0.630 (0.44)	0.700 (0.41)	0.247 (0.16)	0.218 (0.21)	0.267 (0.15)
Controls	yes	yes	yes	yes	yes	yes
Year Dummies	yes	yes	yes	yes	yes	yes
Obs.	147	147	147	147	147	147
Adjusted R <sup>2</sup>	0.050	0.020	0.062	0.098	0.115	0.092
<b>Panel B: Buyout Manager Teams (exe-only)</b>						
Stock%	-1.226** (0.03)		-0.907** (0.03)	-0.009 (0.94)		-0.102 (0.77)
Option%		-4.082 (0.27)	-4.883 (0.46)		-1.183 (0.12)	-0.586 (0.31)
Intercept	1.041 (0.22)	0.614 (0.47)	0.825 (0.34)	0.218 (0.23)	0.205 (0.25)	0.235 (0.21)
Controls	yes	yes	yes	yes	yes	yes
Year Dummies	yes	yes	yes	yes	yes	yes
Obs.	142	142	142	142	142	142
Adjusted R <sup>2</sup>	0.054	0.023	0.061	0.069	0.088	0.063

It is noted that in the regressions with PREM as dependent variable (Model 1, 2, and 3 in both Panel A and B), the coefficient estimates of Stock% are negative,

significantly at the traditional level, while the coefficient estimates of Option% are not significant. The results, supporting the buyout-manager-as-stock-buyer hypothesis but not the buyout-manager-as-option-seller hypothesis, indicate that buyout managers seek to take advantage of their power to force down the transaction price and that their interest in the future wealth increase from the privatization of the firm dominates their interest in the exercise of the options.

Also, it is observed that the two ownership variables have no effect on CAR11 in Table 4. The cumulative abnormal return captures the impact of an event on the market. One explanation of this result is that the stock market is not able to integrate the information related to buyout managers' ownership into the market response to buyout announcements. The other explanation is that the stock market has already incorporated the ownership information into the stock price during buyout negotiations, as it usually takes a lengthy process to reach a definitive merger agreement. Boone and Mulherin (2009) document that, for takeovers by private investors, a typical interval between the private initiation of the takeover and the initial announcement is 221 calendar days, and an average interval between the initial announcement and the definitive agreement announcement is 54 calendar days.<sup>25</sup> Because this protracted private takeover process entails a revelation of information, they maintain that a longer window beginning 63 days prior to the initial announcement appears to provide a more accurate estimate of the integration of information by the market. Our results are consistent with their argument. Generally, PREM is a better proxy than is CAR11 to capture the wealth gains received by shareholders in completed going-private transactions.

### 4.3 Results for the non-buyout manager teams

To complete our understanding of management, we investigate the effect of non-buyout managers' ownership on shareholder wealth gains. In the MBO sample of 147 (142) observations, 146 (107) firms that have a non-buyout manager team are censored out. Thus, we use Heckman Correction to control the censoring bias.<sup>26</sup> In the Heckman Correction, the lambda is estimated from the probit regression of a dummy variable—one for a target firm that has non-buyout managers; zero otherwise—against all control variables other than the year dummies on the MBO sample. The results of the OLS regressions with the Heckman Correction are

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<sup>25</sup> These two numbers are recalculated based on Table 8, Boone and Mulherin (2009).

<sup>26</sup> Heckman (1976, 1979) develops a number of related statistical methods to correct for sample censoring bias and sample selection bias in econometrics. See Bris, Welch, and Zhu (2006) and Boone and Mulherin (2009) for the application of Heckman Correction in financial analyses.

presented in Table 5. Surprisingly, none of the ownership variables have an economically expected and statistically significant effect on PREM or CAR11 for the non-buyout manager teams. These results indicate that neither the stock holdings nor the option holdings of the non-buyout managers have an impact on the transaction price, which is inconsistent with our non-buyout-manager-as-outsider hypothesis. An explanation of these results is that managers might be excluded from a buyout investor group because they lack the firm-specific human capital and that these managers have little negotiating power in buyout transactions.

**Table 5**

**Regression Analysis of the Non-Buyout Manager Teams**

The OLS regression is used on the MBO sample to examine the effects of the stock and option holdings of the non-buyout manager teams on shareholder wealth gains. Since there is one firm whose non-buyout manager team has no member, Heckman Correction is used to control the censoring bias. The lambda in Heckman Correction is estimated from a probit regression of a dummy variable—one for a target firm that has a non-buyout manager team; zero otherwise—against all control variables other than the year dummies on the MBO sample. The OLS regression with Heckman Correction is estimated on the censored sample with 146 observations. The definitions of the concerned variables are presented in Appendix. The year dummies are included in the regressions to control the time trend effect. *p*-value is presented in parenthesis beneath the coefficient estimate. \*, \*\*, and \*\*\* stand for the statistical significance at the 10%, 5%, and 1% levels, respectively.

	PREM			CAR11		
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A: Buyout Manager Teams (dir &amp; exe)</b>						
Stock%	-0.656 (0.47)		-0.756 (0.47)	-0.119 (0.53)		-0.259 (0.24)
Option%		-4.215 (0.40)	-2.148 (0.44)		-1.570 (0.14)	-0.906 (0.34)
lambda	-1.535 (0.50)	-1.810 (0.42)	-1.580 (0.49)	0.244 (0.61)	0.164 (0.73)	0.180 (0.71)
Intercept	0.946 (0.28)	0.914 (0.29)	1.003 (0.29)	0.265 (0.16)	0.294* (0.10)	0.346* (0.08)
Controls	yes	yes	yes	yes	yes	yes
Year	yes	yes	yes	yes	yes	yes
Obs.	146	146	146	146	146	146
Adjusted	0.010	0.011	0.001	0.092	0.106	0.096
<b>Panel B: Buyout Manager Teams (exe-only)</b>						
Stock%	-0.356 (0.80)		-0.486 (0.77)	0.185 (0.49)		0.078 (0.80)
Option%		-0.888 (0.91)	-0.941 (0.84)		-2.855 (0.16)	-1.785 (0.26)
lambda	0.620 (0.62)	0.604 (0.64)	0.599 (0.63)	0.168 (0.47)	0.055 (0.82)	0.151 (0.52)
Intercept	0.517 (0.62)	0.425 (0.66)	0.544 (0.61)	0.199 (0.32)	0.276 (0.13)	0.221 (0.28)
Controls	yes	yes	yes	yes	yes	yes
Year	yes	yes	yes	yes	yes	yes
Obs.	107	107	107	107	107	107
Adjusted	-0.038	-0.038	-0.051	0.099	0.132	0.093

**Table 6****Regression Analysis of the Buyout Manager Teams with Heckman Correction**

The OLS regression is used on the MBO sample to examine the effects of the stock and option holdings of the buyout manager teams on the shareholder wealth gains. Since the MBO sample, with 147 (142) observations, is censored from the going-private sample, Heckman Correction is used to control the censoring bias. The lambda in Heckman Correction is estimated from a probit regression of a dummy variable—one for the MBOs; zero for the private-equity buyouts—against all control variables other than the year dummies on the going-private sample. The OLS regression with Heckman Correction is estimated on the MBO sample with 147 (142) observations. The control variables and the year dummies are included in the regressions, but the estimates of their coefficients are not reported because of space constraints. The definitions of the concerned variables are presented in Appendix. *p*-value is presented in parenthesis beneath the coefficient estimate. \*, \*\*, and \*\*\* stand for the statistical significance at the 10%, 5%, and 1% levels, respectively.

	PREM			CAR11		
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A: Buyout Manager Teams (dir &amp; exe)</b>						
Stock%	-1.174** (0.03)		-0.893** (0.03)	-0.052 (0.65)		-0.088 (0.53)
Option%		-3.973 (0.27)	-2.014 (0.45)		-1.197 (0.11)	-0.702 (0.28)
lambda	-0.058 (0.96)	-0.293 (0.80)	-0.210 (0.85)	-0.093 (0.70)	-0.122 (0.61)	-0.085 (0.73)
Intercept	1.093 (0.50)	1.001 (0.55)	0.960 (0.55)	0.365 (0.30)	0.371 (0.28)	0.372 (0.29)
Controls	yes	yes	yes	yes	yes	yes
Year	yes	yes	yes	yes	yes	yes
Obs.	147	147	147	147	147	147
Adjusted	0.041	0.012	0.054	0.091	0.109	0.085
<b>Panel B: Buyout Manager Teams (exe-only)</b>						
Stock%	-1.200** (0.03)		-0.926** (0.03)	0.013 (0.91)		-0.015 (0.87)
Option%		-4.119 (0.26)	-2.225 (0.43)		-1.200 (0.12)	-0.782 (0.29)
lambda	-0.441 (0.76)	-0.591 (0.68)	-0.642 (0.65)	-0.270 (0.38)	-0.281 (0.36)	-0.258 (0.41)
Intercept	1.671 (0.45)	1.462 (0.52)	1.735 (0.43)	0.605 (0.20)	0.608 (0.20)	0.600 (0.21)
Controls	yes	yes	yes	yes	yes	yes
Year	yes	yes	yes	yes	yes	yes
Obs.	142	142	142	142	142	142
Adjusted	0.047	0.016	0.054	0.068	0.087	0.061

**4.4 Robustness****4.4.1 Control of censoring bias in the analysis of the buyout manager teams**

Because the MBO transactions are censored from the going-private sample which includes the private-equity buyouts as well, there might be censoring bias

when we examine the effects of managerial ownership on shareholder wealth gains using the MBO sample. We replicate the OLS regressions in Table 4 with the Heckman Correction to see whether our results are sensitive to censoring. In the Heckman Correction, the lambda is calculated from a probit regression of a dummy variable—one for MBOs; zero for private-equity buyouts—against all control variables other than the year dummies on the going-private sample. The results of this robustness are presented in Table 6. We do not find significant censoring bias between these two samples, and the results in Table 6 are similar to those in Table 4.

#### **4.4.2 Control of selection bias from the formation of managerial ownership**

Sample selection bias may arise if there are certain unobservable factors that jointly affect the formation of managerial ownership and the wealth gains of a deal. For instance, managers tend to own a smaller fraction of stock in larger and/or riskier firms, and they usually have more option holdings if their firm has had good performance in the past. Prior literature has documented that these factors have an impact on the wealth effects of corporate control changes. To leave no stone unturned, we use a unique method to control for unobservable factors that might bias our estimation of the effects of buyout managers' ownership on premiums. If there were an unobservable variable that relates to both managerial ownership and premiums, then, presumably, the relation would also hold in the private-equity buyouts. We include the private-equity buyouts in the sample as a control group and introduce a dummy variable, denoted by MBO, to indicate a management buyout transaction. Then we put the MBO dummy and the interaction terms of MBO with the ownership variables in the separate regressions that follow the specifications in Table 4. Because there is no buyout manager in the private-equity buyouts, the coefficient of the MBO dummy would capture the effect of unobservable variables that might jointly affect the buyout managers' ownership and the buyout premiums, and the coefficients of the interactions of MBO dummy with ownership variables would isolate the effects of the buyout managers' ownership on the buyout wealth gains. Table 7 presents this robustness analysis of the buyout manager teams, and the results are consistent with that in Table 4.

**Table 7****Regression Analysis of the Buyout Manager Teams with Selection Bias Controlled**

The sample consists of 235 completed US going-private transactions (listed in SDC) announced between 1994 and 2006. The OLS regression is used to examine the effects of the stock and option holdings of the buyout manager teams on the shareholder wealth gains. The dummy variable, MBO, is defined as one if a transaction is a management buyout, or zero if a transaction is a private-equity buyout. The interactions of the ownership variables with MBO dummy replace Stock% and Option%, respectively, in the specifications in Table 4, and MBO dummy is accordingly added in to control the selection bias. The control variables and the year dummies are included in the regressions, but the estimates of their coefficients are not reported because of space constraints. The definitions of the concerned variables are presented in Appendix. *p*-value is presented in parenthesis beneath the coefficient estimate. \*, \*\*, and \*\*\* stand for the statistical significance at the 10%, 5%, and 1% levels, respectively.

	PREM			CAR11		
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A: Buyout Manager Teams (dir &amp; exe)</b>						
MBO*Stock%	-1.039*** ( $<0.01$ )		-0.817*** (0.01)	-0.082 (0.39)		-0.107 (0.38)
MBO*Option%		-2.700 (0.31)	-1.916 (0.52)		-0.758 (0.24)	-0.665 (0.39)
MBO	0.327* (0.09)	0.197 (0.31)	-0.005 (0.98)	0.018 (0.71)	0.021 (0.66)	0.045 (0.47)
Intercept	0.909** (0.04)	0.672 (0.13)	0.889** (0.04)	0.344*** ( $<0.01$ )	0.315*** ( $<0.01$ )	0.345*** ( $<0.01$ )
Controls	yes	yes	yes	yes	yes	yes
Year Dummies	yes	yes	yes	yes	yes	yes
Obs.	235	235	235	235	235	235
Adjusted R <sup>2</sup>	0.076	0.049	0.094	0.158	0.160	0.156
<b>Panel B: Buyout Manager Teams (exe-only)</b>						
MBO*Stock%	-1.073*** (0.01)		-0.842*** (0.01)	-0.023 (0.82)		-0.067 (0.78)
MBO*Option%		-2.770 (0.30)	-1.875 (0.37)		-0.745 (0.26)	-0.653 (0.35)
MBO	0.353* (0.07)	0.233 (0.23)	0.051 (0.83)	-0.000 (0.99)	0.014 (0.76)	0.025 (0.68)
Intercept	0.911** (0.04)	0.673 (0.13)	0.908** (0.04)	0.335*** ( $<0.01$ )	0.317*** ( $<0.01$ )	0.335*** ( $<0.01$ )
Controls	yes	yes	yes	yes	yes	yes
Year Dummies	yes	yes	yes	yes	yes	yes
Obs.	235	235	235	235	235	235
Adjusted R <sup>2</sup>	0.078	0.050	0.090	0.155	0.160	0.153

## 5. Conclusion

This paper investigates how managers of a target firm are involved in a management buyout to clarify whether they are loyal to the fiduciary duty to their shareholders. We identify managers of a target as buyout managers and non-buyout

managers and then examine the effects of their stock and option holdings on the shareholder wealth gains from the buyout.

We find that the stock ownership of the buyout managers is negatively associated with a buyout premium, although their option ownership is not. This evidence supports the argument that acquiring managers exploit their corporate power to pursue their own interest at the expense of shareholders when they buyout a firm. It also indicates that acquiring managers put the priority on the value increase in the post-buyout firm. We do not find any effects of the non-buyout managers' ownership on the shareholder wealth gains in our management buyout sample. This evidence suggests that, once a manager is ruled out from the participation in a buyout transaction, probably because of his lack of the firm-specific human capital, she would have no significant impact on the negotiation of transaction price.

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**Appendix: Variable Definitions**

Variables	Definition
<u>Panel A: Dependent Variables</u>	
PREM	Percentage increase of the final transaction price over the target stock price 63 trading days prior to the initial announcement date.
CAR11	11-day cumulative abnormal return calculated around the announcement date based on the market model. The market model parameters are estimated using the return data for the period (-315, -64).
<u>Panel B: Main Independent Variables</u>	
Stock%	A manager team's stock holdings (beneficiary ownership – option holdings) divided by the firm's shares outstanding.
Option%	A manager team's option holdings divided by the firm's shares outstanding.
<u>Panel C: Control Variables</u>	
Size	Product of the number of shares outstanding and the stock price 63 trading days prior to the initial announcement date.
Tobin's Q	Market value of assets over book value of assets: (data6 – data60 + size)/ data6.
Leverage	Book value of debts over book value of total assets: (data34 + data 9)/ data6.
Free Cash Flow	(operating income – tax – interest expense – preferred dividends – common dividends)/book value of assets: (data13 – data16 + data35 – lag(data35) – data15 – data19 – data21)/data6.
Sales Growth Rate	Three-year compounded annual growth in sales (data12).
$\beta$	Estimated based on the market model, using CRSP value-weighted index, over a 252-day period 63 trading days prior to the initial acquisition announcement. It is required that there are at least 100 daily returns available from CRSP during this period.
BHAR252	Buy and hold abnormal return adjusted by CRSP value-weighted index over a 252-day period 63 trading days prior to the initial acquisition announcement.
Block Holdings	Beneficial ownership by persons, other than directors, executive officers, and acquirers, who beneficially own more than five percent of the outstanding common stock, expressed as a percentage of the outstanding common stock.
CEO/Chairman	Dummy variable: 1 if CEO is also chairman of the board of directors, 0 otherwise.
CEO Remaining	Dummy variable: 1 if CEO remains as an executive official in post-buyout firm or gets a position in board, 0 otherwise.
Competed	Dummy variable: 1 if a deal has competing bidders, 0 otherwise.
Tender Offer	Dummy variable: 1 for tender offer, 0 otherwise.
Hostile	Dummy variable: 1 if a bid is hostile, 0 otherwise.
Announcement	Dummy variable: 1 if the initial announcement date and the definitive agreement announcement date are the same, 0 otherwise.