Acquisition Stock Performance: Do Ownership and Outside Directors Matter?

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ABSTRACT

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In this study, we examine how corporate internal control mechanisms, including the percentage ownership by executive officers and directors and the proportion of outside directors on the board of directors, affect the market's perception of corporate acquisition decisions. The evidence suggests that in the period around acquisition announcements, the use of insider ownership and outside directors disciplines managers to make decisions that the market perceives as better reflecting the interests of shareholders. The combination of stock ownership and outside director monitoring is perceived as providing a better control system for top management than the sole use of either of these two external governance mechanisms. Compared to firms with low insider ownership interest, acquirers with high ratios of officer and director ownership pay less for targets that have higher growth opportunities. With regard to the longer post-acquisition period, ex post market performance is consistent with outside directors (but not insider ownership) acting in shareholders interests.

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I would like to dedicate my work to my family.

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1. INTRODUCTION

Agency cost is an important issue in corporate finance since managers have incentives to pursue their own interests at the expense of shareholders while shareholders and the market attempt to control the behavior of managers in order to maximize firm value. Corporate investment decisions are the most important determinants of shareholder wealth. Compared with most other investment decisions, mergers and acquisitions (M&As) are major, observable, and discretionary long-term investments that have a significant impact on firm value. Thus, M&As are appropriate corporate events for investigating the presence and control of agency problems. Shleifer and Vishny (1988) argue that "making acquisition is often just the quickest and easiest way for managers to expand the scope of their control by directing the firm's cash flow into new ventures". The literature on the effect of M&As on the wealth of the shareholders of acquiring firms, however, is mixed.[1] Corporate governance mechanisms are used to align the interests of managers and shareholders. U.S. corporations experienced dramatic changes in corporate governance in the 1990s. Strengthened internal corporate governance mechanisms replaced leverage and hostile takeovers, which were used in the 1980's to discipline and monitor managerial performance (Bengt and Kaplan, 2001).

Various internal corporate governance mechanisms have been identified to control the agency problem. Jensen and Ruback (1983) discuss how managerial compensation

[1] Jensen and Ruback (1983) show that the abnormal returns for bidding firms are negative or insignificant. Bradley, Desai and Kim (1988) and Roll (1986) report similar results. Loughran and Vijh (1997) report significantly negative abnormal returns for acquiring firms, while Franks, Harris and Titman (1991) find no evidence that bidders perform poorly post-acquisition.

influences the stock price reaction to an acquisition announcement. Shleifer and Vishny (1988, p. 19) suggest that compensating managers and boards of directors with stocks "should have the effect of reducing the non-value-maximizing behavior of (acquiring) firms". Datta, Iskandar-Datta and Raman (2001) document a strong positive relation between the decision to acquire and the equity-based compensation (EBC) of the managers of acquiring firms, and stock performance around and following acquisition announcements. Richard and Rosen (2001) investigate bank mergers from 1986-1995 and find that the form of compensation affects the value of a merger decision, since CEOs with more equity-based compensation are less likely to make value-destroying acquisitions.

The monitoring of managers by outside directors is regarded as important in protecting the interests of shareholders. Hermalin and Weisbach (1988) find that boards are more likely to add outside directors after poor firm performances. Rosenstein and Wyatt (1990) report a positive stock price reaction at the announcement of the addition of outside directors. Bacon (1985) finds that outside directors tend to be more objective in evaluating the costs and benefits of an acquisition than managers proposing the takeover. Byrd and Hickman (1992) examine 128 tender offer bids from 1980 through 1987 and find that bidding firms with a majority of independent outside directors have significantly higher announcement-date abnormal returns than other bidders. Bryd and Hickman (1992) find that bidding firms with independent boards earn higher announcement abnormal returns than do firms without independent boards. Brickley, Coles and Terry (1994) conclude that the proportion of outside board members is related positively with abnormal returns at the announcement of poison pill adoptions. Cotter, Shivdasani and

Zenner (1997) document significant shareholders' gains for target firms with independent boards.

Board size and firm leadership structure also are regarded as components of an internal corporate governance system. Smaller board size is positively related with firm value (Jensen, 1993; Yermack, 1996). Furthermore, the internal control system cannot work efficiently when the CEO also is the chairman of the board (Fama and Jensen, 1983; Goyal and Park, 2002).

While past research finds that outside directors and equity-based compensation have important monitoring roles in the acquisition decisions of firms, no study appears to exist that investigates the combination of ownership structure and board monitoring as internal governance mechanisms to monitor the decisions of firms involved in corporate M&As. Thus, the primary purpose of this thesis is to examine how the ownership of officers and directors and the ratio of outside members of the board influence the wealth of the acquiring firms' shareholders. Specific questions to be answered include: Are the announcement stock price responses for bidding firms explained by the magnitude of outside board directors, by the ownership ratio of management and directors, or by both of these potential determinants? Are firms with better internal governance systems less likely to overpay for targets and to make better choices when choosing targets? Because directors are subject to their own agency problems (Lorsch and MacIver, 1989), the ownership percentage of all executive officers and directors is used as one of our internal corporate governance mechanisms. The proportion of outside board directors (i.e., those who are not and have not been employees of the firm and have no affiliation with the

firm), which measures board independence, is used as our second internal corporate governance mechanism.

Our empirical findings indicate that the shareholders of bidding firms experience significant and negative wealth loss, which is consistent with the findings of previous studies. Furthermore, when the sample is categorized by ownership and outside director ratios, we find that both types of internal corporate governance mechanisms monitor managerial behavior during the acquisition process. The response of the stock price around the acquisition announcement is significantly higher for bidding firms with higher ratios of ownership by executive officers and directors or with higher outside director ratios. This evidence implies that mangers are better disciplined to make the appropriate decisions in firms with stronger internal control systems, and that the market recognizes the value of such systems.

Another important result of this study is the finding that firms with higher ratios of ownership by officers and directors in the acquirer pay less for targets that have higher growth opportunities (as proxied by Market-to-Book ratios). This result suggests that share holdings provide incentives for corporate executives to undertake risky investments and to create shareholder wealth in acquisitions.

The combined use of higher insider ownership percentages and higher ratios of outside directors is found to provide the best discipline for the managers of acquiring firms. Shareholders gain from acquisition if the officers and directors own over 5% of the shares of the acquirer and have an independent board in which over 60% of the directors are deemed to be outsiders. Shareholders of acquirers experience the largest losses if their officers and directors own less than 5% of the shares of the acquirer and the acquirer does

not have an independent board. Collectively, our findings provide evidence that supports the proposition that strengthened internal corporate governance creates shareholder value from acquisitions. Both shareholdings by officers and directors and strong representation of outside directors improve the market performance of acquirers.

The rest of the thesis is structured as follows. The sample selection process, data sources and sample characteristics are described in section two. Some initial empirical findings are presented and analyzed in section three. Acquisition abnormal returns differentiated by the ratio of manager/director ownership to total ownership and/or the ratio of outside-to-total director representation are calculated and examined in section four to examine the immediate impact of acquisitions and its determinants. The performance of acquiring firms over the 36-month period following an acquisition is studied in section five. Section six concludes the thesis.

2. SAMPLE AND DATA COLLECTION

Acquisitions consummated during the period from January 1, 1990, to December 31, 1999 are studied herein. The initial sample includes 100,039 transactions from the on-line Mergers and Corporate Transactions database that is available from Securities Data Company (SDC). The initial sample is reduced to 1,938 transactions by eliminating all transactions that are not completed M&As between publicly traded U.S. acquirers and targets, and by excluding financial firms with primary SIC codes of 6000-6099. After further eliminating all firms that are not included on both the Center for Research in Securities Prices (CRSP) database and the Standard and Poor's COMPUSTAT Research tape (COMPUSTAT), the sample is reduced to 1,202 M&As.

The corporate governance data on board structure and ownership are obtained from firm proxy statements, which are available through Mergent online and LexisNexis. All acquiring firms that have missing or incomplete proxy statement data are eliminated. As a result, the final sample contains 749 acquisitions by 560 different acquiring firms.

Some descriptive statistics for our sample of 749 completed acquisitions during the studied period are reported in table 1. As shown in panel A of table 1, the number of acquisitions has increased since 1995. The number of acquisitions over the period from 1995 to 1999 accounts for nearly 80% of our final sample of M&As. The average value of an acquisition increases from $355.5 million in 1990 to $ 2,277.0 million in 1999. The evidence in panel B of table 1 is consistent with the evidence reported in previous studies that finds that the use of stock as a method of payment was primarily used during the 1990s.[2] About 90 percent of all concluded M&A transactions involve stock compensation, and about 50 percent are entirely financed by stock. Panel C of table 1 suggests that about 40 percent of the concluded M&A transactions involve merger partners from the same industry (when measured at the 2-digit SIC code level), and about 60 percent of these completed transactions are conglomerate acquisitions. The first two rows of panel D in table 1 show that acquiring firms are, on average, approximately 7.8 times larger than their targets. The acquisition premium (see last row of panel D) is the difference between the highest price paid per share for the target during the four weeks prior to the announcement date as a percentage of the target share price, as given by the PREM4MK variable in the SDC database. The mean (median) takeover premium paid by acquirers for the targets is 45.86 (40.10) percent.

[2] For example, Gregor, Mitchell and Stafford (2001).

As an important internal control mechanism, the board has nominal power to hire/fire executive officers and to review any major corporate projects. Researchers criticize the traditional classification scheme of "insiders" (management directors) and "outsiders" (nonmanagement directors) because the elected "outside" directors may have a financial interest in the continuity of the firm, as is the case for lawyers or advisers for the firm (Shleifer and Vishny, 1988; Byrd and Hickman, 1992). Our classification of directors is based on the procedure developed by Baysinger and Butler (1985) but uses only two categories. We classify directors as "outside directors" if they are not and have not been employees of that firm and have no affiliation with the firm, otherwise we classify them as "inside directors".[3] Boards in which the outside directors hold at least 60 percent of the seats are defined as "independent boards".[4] Such boards supposedly will approve fewer unprofitable acquisitions than other boards and influence the acquisition process by monitoring managerial choice of target and the premium paid to the target. If the market recognizes the value of independent boards, we expect a positive relation between the proportion of outside directors and the stock market response to the acquisition announcement.

The governance mechanism characteristics of acquiring firms are presented in table 2. We focus on two main internal governance mechanisms: common shares held by all executive officers and directors, and the proportion of outside directors on the board. More concentrated shareholdings by groups of executive officers and directors provide a

[3] "No affiliation" refers to having no financial interest in the firm or not having any family relationship with the firms' management team. Our definition of "outside directors" is similar to the term "independent outside directors", as defined by Baysinger and Butler (1985).

[4] Some studies of independent board directors require an independent board to have outside directors of no less than 50%. Our choice of 60% corresponds to the SEC requirement that at least 60% of board seats should be outsiders.

greater incentive to monitor and reward top management efficiency, and the greater use of outside directors can result in more effective internal monitoring. The first row in table 2 shows that the average ownership of all executive officers and directors is 13.36%, which is higher than that found by Denis, Denis and Sarin (1997). Our numbers reflect an increased fraction of shares held by officers and directors over time. The average (median) proportion of outside directors of the sample firms is 65% (66%), which exceeds the values reported by Baysinger and Butler (1985) and Byrd and Hickman (1992). Once again, our higher values are consistent with the general upward trend in the proportion of outside directors since 1990.

We also find that board size decreased over the 1990s, which corresponds with the finding that "keeping boards small can help improve their performance" (Jensen, 1993). The average board size of our sample is nine, while Byrd and Hickman (1992) document an average size of 12 for their sample. For 500 out of the 749 firms in our sample, the chairman of the board also holds the position of CEO. This is consistent with general practice in the U.S. where the duties of CEO and chairman are combined.

Previous studies show that several other mechanisms that provide control from outside the firm, such as use of debt financing, labor market for managers, and the threat of takeover, can be used to reduce agency costs. Some researchers believe that firms optimally use one control system.[5] For our sample, debt monitoring is measured by two proxies: the ratio of book value of long-term debt to invested capital, as measured by LTD/CAP, and the ratio of book value of total debt to invested capital, as measured by TTD/CAP. Both variables are obtained from the COMPUSTAT database. The mean

[5]Agrawal and Knoeber (1996) examine the relation between firm performance and the use of seven mechanisms to control agency problems in a simultaneous systems framework. They find that firms optimally use each mechanism, except for outside directors.

values of LTD/CAP and TTD/CAP are 30.54% and 39.11%, respectively, for the whole sample. The greater use of debt means improved monitoring by lenders. Outside market control is discipline imposed by the market, and is measured by the fraction of firms acquired over the preceding five years within a firm's two-digit SIC industry. The average outside market control is 0.249, which reflects high takeover monitoring, since one out of four firms were acquired over the preceding five years.

Agrawal and Knoeber (1996) argue that firms optimally choose the existing substitute corporate control mechanisms. So we doubt that the firms with weak internal control systems (low ownership by officers and directors, and low outside director ratios) use external mechanisms to control agency problems. To test this possibility, we investigate the four sub-samples separately. Based on panel B of table 2, we find no significant differences in the long-term debt ratios, total debt ratios, market takeover pressures, board sizes, and board leaderships among the four groups.

3. SOME INITIAL EMPIRICAL FINDINGS

In this section and all subsequent sections, we refer to estimates or differences as being marginally significant, significant or highly significant if they are significant at the 10%, 5% and 1% levels, respectively.

3.1 Ownership, Outside Directors and Target Growth Opportunities

Agency problems may arise whenever differing incentives cause managers to take actions that benefit themselves but harm shareholders. For example, managers may choose a lower level of risk than preferred by shareholders to minimize their undiversifiable employment risk (Amihud and Lev, 1981; Saunders, Strock and Travlos,

1990). The internal corporate control mechanisms can influence managerial behavior and reduce agency costs. Managerial stock ownership by transforming managers into shareholders may increase the incentives for managers to undertake high-risk investments. Outside board directors may reduce the underinvestment problem by monitoring managers' investment decisions and ensuring positive NPV projects are undertaken (Bacon, 1985; Wright, Ferris, Sarin and Awasthi, 1996; Weir, Laing and Mcknight, 2002). Thus, we expect a positive relation between the proportion of ownership by executive officers and directors (or the presence of an independent board) in acquiring firms and the growth prospects (proxied by market-to-book ratio) of targets. Thus, the two null hypotheses to be tested next are:

H1a: Higher shareholdings of executive officers and directors are positively related with the risk undertaken by acquiring firm managers and are positively related with the market-to-book ratios of the target firms.

H1b: The ratio of outsiders on the board of the acquirer is negatively related with the risks undertaken by the managers of the acquiring firms and is positively related with the growth options in the target firms.

The target book-to-market ratios categorized by ownership and outside director ratios, respectively, are reported in panels A and B of table 3. The market-to-book ratio is measured as the book value of total assets minus the book value of equity plus the market value of equity divided by the book value of total assets on the day prior to the acquisition announcement date. Based on panel A of table 3, firms whose executive officers and directors have higher ownership interests acquire targets with higher growth opportunities. The average book-to-market ratio for targets for the high ownership group is 2.91 whereas the corresponding average for the low ownership group is 2.39. The

mean and median differences in the target book-to-market ratios for low and high ownership groups are statistically significant at the 5 percent and one percent levels, respectively. These results imply that the level of ownership of management and directors is a key determinant of which target is acquired. These results support the Smith and Stulz (1985) argument that the increased convexity of the relationship between managers' wealth and firm performance disciplines mangers to act in the shareholders' interests and reduces the likelihood of forgoing valuable risky projects. Executive officers and directors with higher ownership rates have the incentive to undertake risky but profitable projects to enhance firm value in order to increase their own wealth.

The mean and median target book-to-market ratios for the low and high outside director groups are reported in panel B of table 3. Although outside directors are expected to monitor managers by pressuring them to take specific actions or by calling for the dismissal of managers whenever the company appears to be performing below its potential, the difference in target growth opportunities between the group of firms with high outside director ratios and those with low outside director ratios is not statistically significant.

3.2 Ownership, Outside Directors and Acquisition Premiums Paid to Targets

An important decision facing acquiring firms is the choice of acquisition premium. Jensen (1983) indicates that, bidding firms will set the initial bid to reflect expected bargaining by the board and the likelihood of competing bids, if bid revisions are costly. Thus, if managers are disciplined to maximize firm value, they may pay lower acquisition premiums to targets than managers that are not well disciplined. Shleifer and Vishny (1988) find evidence that managers are likely to overpay for acquisition targets, since

they are driven by a number of personal objectives such as increased size of the firm and entrenchment power. According to Roll (1986), managers of bidding firms are infected by hubris and thus overpay for targets. Morck, Shleifer, and Vishny (1988) find evidence of systematic overpayment for targets when bidding firm managers pursue their own personal objectives. If internal control mechanisms effectively discipline acquiring firm managers to behave as shareholder wealth maximisers, we would expect acquiring firms whose officers and directors have high ownership levels to be less likely to overpay for targets than firms whose officers and directors have low ownership levels. We also would expect that firms with independent boards are less likely to overpay for targets than their counterparts without independent boards. Thus, the hypotheses to be tested next are:

H2a: The acquisition premium paid to targets is lower for firms with higher levels of shareholdings of executive officers and directors than firms with lower levels of shareholdings of executive officers and directors.

H2b: The acquisition premium paid to targets is lower for firms with higher ratios of outside board directors than firms with lower ratios of outside directors.

Based on panel A of table 4, the mean (median) acquisition premium paid by firms with high ownership by officers and directors is 41.87% (33.85%), and is 50.50% (42.81%) for firms with low ownership by officers and directors. The difference between the mean (median) premiums paid by the two groups is 8.7% (8.96%), which is statistically significant at the 5 (1) percent level. At the average target capitalization of $ 1094.79 million, this 8.7% difference represents $92.3 million. This suggests that the managers of firms with high ownership by officers and directors paid about 100 million dollars less in premiums for each of their targets. This finding is consistent with the Jensen and Meckling(1976) argument that equity ownership by executive officers and

nonmanagement board members creates an incentive for them to oppose unprofitable activities in order to protect their financial stake in the firm. Based on panel B of table 4, the mean (median) acquisition premiums paid by acquirers with independent boards is 41.87% (33.85%), which is 3.86% (1.55%) lower than the mean (median) premiums paid by acquirers with dependent boards. While they carry the expected sign, the differences between the means for the two groups are not statistically significant.

We also estimate a simple regression to examine the relation between ownership/outside board director ratios and acquisition premiums after controlling for the size of the acquirer. The estimates for these regressions with t-statistics in the parentheses are as follows:

$$\text{Acquisition Premium}(\%) = 34.27 - 0.76\ (\text{Firm size}) - 36.75\ (\text{Ownership}) \quad (1)$$
$$(-0.66) \qquad (-2.78^{***})$$

$$\text{Acquisition Premium}(\%) = 1.07 - 1.67\ (\text{Firm size}) - 13.48\ (\text{Outside Director Ratio}) \quad (2)$$
$$(-1.53) \qquad (-1.31)$$

$$\text{Acquisition Premium}(\%) = 30.09 - 0.60\ (\text{Firm size}) - 34.73\ (\text{Ownership}) \quad (3)$$
$$(-0.51) \qquad (-2.59^{***})$$
$$- 11.22\ (\text{Outside Director Ratio})$$
$$(-0.41)$$

where *firm size* is the control variable, which is defined as the natural logarithm of the book value of total assets of the acquirer, *ownership* is the percentage of common shares held by all executive officers and directors, and *outside director ratio* is the ratio of the number of independent board directors (non-employment directors) divided by the total number of members on the board of the acquirer. We find that ownership is negatively and significantly related with the acquisition premium, and that the coefficient of the *outside director ratio* is negative but insignificant. These regression results reinforce our

univariate findings that the acquisition premium paid to a target is negatively related with the ownership level of officers and directors of the acquirer.

Overall, these results suggest that the managers of acquirers with lower levels of ownership by their officers and directors tend to overpay for low-growth targets. Also, they support the proposition that equity ownership efficiently aligns shareholder interests with managerial interests and provides an effective internal control mechanism for disciplining any value-destroying behaviors of managers. These results also provide evidence for Porter's (1992) belief that "Outside owners should be encouraged to hold a large stake and to take a more active and constructive role in companies. Ownership should be expanded into directors, managers, employees, and even customers and suppliers".

Our results also indicate a lack of evidence for a linkage between the outside director ratio and the premiums paid to targets and target growth opportunities, which is in contrast to the existing literature. Much of the past research finds that having an outside-dominated board improves corporate decision-making during the acquisition process. For example, Bacon (1985) suggests that "outside directors are particularly adept at monitoring acquisition" because they may have special information about the target's industry or the target firm itself, which may be relevant to the acquisition. Byrd and Hickman (1992) find that the premium difference is statistically significant at the 1% level between firms with and without an independent board. The firms with (without) independent boards offered an average premium of 35.5% (48.6%). Cotter, Shivdasani and Zenner (1997) suggest that acquisition premiums received by target firms increased by 10% with the presence of an independent board and with increased ownership by

outside directors in target firms. The divergence inherent in these results suggests that additional study is necessary before drawing robust inferences about the efficiency of monitoring by outside board directors.

4. ACQUISITION ABNORMAL RETURNS DIFFERENTIATED BY RATIOS OF MANAGER/DIRECTOR OWNERSHIP AND OUTSIDE DIRECTOR REPRESENTATION

Considerable evidence indicates that an acquisition has mixed effects for the shareholders of acquiring firms. Some research documents insignificant average excess returns for bidding firms (Jensen and Ruback, 1983; Kennedy and Limmack, 1996), while other research reports significant losses for the shareholders of acquirers (Bradley, Desai and Kim, 1988; Roll, 1986). Sudarsanam (2003) provides an extensive review of the literature for mergers in several countries and concludes that acquisitions are on average value destroying for the shareholders of the acquirer.

Some researchers argue that cognitive biases may cause managers to undertake risky acquisitions, to overestimate their benefits and to underestimate the risks of such acquisitions, and, thus to overpay for what they buy (Roll, 1986; Hayward and Hambrick, 1997; Barberis and Thaler, 2002). Other researchers argue that managers overpay for targets because they may derive personal benefits from the acquisitions (Morck, Shleifer and Vishny, 1988; Bliss and Rosen, 2001). Thus, if internal control systems can perfectly monitor and control managerial investment decisions, value-destroying acquisitions will not be allowed or will at least be reduced.

As found in previous studies, management ownership of shares may be the most effective deterrent to value-destroying investment decisions (Lewellen, Loderer and Rosenfeld, 1985; You, Caves, Henry and Smith, 1986), and outside directors can be used to efficiently monitor

managers to act in the best interests of shareholders when making investment decisions (Byrd and Hickman, 1992; Brickley, Coles and Terry, 1994). Therefore, we expect a positive relation between market price responses to acquisition announcements and the shareholdings of officers and directors and the ratio of outside board directors of acquiring firms. The specific hypotheses to be tested are:

H3a: The abnormal return for the acquisition announcement is higher for firms with higher ratios of ownership by officers and director.

H3b: The abnormal return for the acquisition announcement is higher for firms with higher ratios of outside directors.

4.1 Calculation of Cumulative Abnormal Returns

In a capital market that is efficient with respect to public information, stock prices quickly adjust following an acquisition announcement by incorporating any previous unexpected changes. Various event windows are used to account for information leakage and the effect of acquisition announcements; namely: three days centered on the acquisition announcement date (i.e., from one day before to one day after the announcement or [-1, 1]), and eleven days centered on the acquisition announcement date (i.e., from five days prior to the announcement date to five days after the announcement date or [-5, 5]).

Market and risk-adjusted abnormal returns are examined. The ARs of the acquirer are estimated over the period [-220, +60] using the dummy variable approach:[6]

$$R_{it} = \alpha_i + \beta_i R_{mt} + \beta_i R_{mt} D_1 + \sum_{\tau=\tau_1}^{\tau_2} \gamma_{i\tau} D_{i\tau} + \varepsilon_{it}$$

[6]Previous studies discussing this topic include: Binder (1985), Dufour (1980), and Imre (1988).

where R_{it} is the return for firm i for day t, R_{mt} is the return for the CRSP NYSE/AMEX/NASDAQ value-weighted market index for day t, α_i, β_i and $\gamma_{i\tau}$ are parameters to be estimated, $D_{\tau t}$ is a set of dummy variables (one for each τ) which take on the value of 1 for τ and are zero otherwise, $\Delta\beta_i$ is the change in beta due to the acquisition announcement for firm i, and D_1 is a dummy variable that takes the value of 1 for the announcement day and the days thereafter. $\hat{\gamma}_{i\tau}$ is the abnormal return for firm i for day τ, and $\tau_1 = -10$ and $\tau_2 = +10$.[7]

The announcement date for each acquisition is the first date reported on the SDC Mergers and Acquisition database, which is verified using the Dow Jones News Retrieval service. The estimated $\hat{\gamma}_{i\tau}$ is the abnormal return (or AR) for security i for observation τ. Cumulative abnormal returns (or CAR_i) over different event windows for individual firms are given by $\sum_{t=t_1}^{t_2} AR_{it}$, where t_1 and t_2 are the beginning and ending dates of the event window. In the absence of abnormal performance, the expected AR and CAR are expected to be equal to zero.

4.2. Univariate Test Results

Tables 5 and 6 report the market response to acquisition announcements for three day [-1,1] and eleven day [-5,5] windows. The cumulative abnormal returns (CAR) for the full sample and for subsamples differentiated by ownership and outside director ratios are reported in panels A and B, respectively. The subsamples differentiated by ownership

[7] $\tau_1 = -20$ and $\tau_2 = +20$ also are used as a test of robustness. These results are presented in section 4.4 of the thesis.

also are further subdivided into two groups by outside director ratio. The results for this further partitioning are presented in panel C of tables 5 and 6.

The average cumulative abnormal returns for the entire sample for the three-day [-1, 1] and eleven -day [-5, 5] event windows are a highly significant -1.132% and -1.680%, respectively. This result is consistent with the results of previous studies that find that shareholders of acquiring firms earn negative abnormal returns from mergers and acquisitions.[8]

4.2.1. Executive Officers, Director Ownership and Abnormal Returns for Acquirers

Based on panel A of table 5, the stock market reaction to the acquisition announcement for acquirers with high ownership ratios by executive officers and directors is significantly different from that for acquirers with low ownership ratios by executive officers and directors. The mean (median) CAR for the low ownership group is -1.755% (-1.330%), which is significant at the 1% level. In contrast, the mean (median) CAR for the high ownership group is an insignificant -0.591% (-0.323%). The three-day mean (median) CAR difference between these two groups is -1.164% (-1.107%), which is significant at the 5% (1%) level.

The CAR comparisons for the longer event window [-5, 5] allow for possible information leakage or partial anticipation of the event or a more delayed reaction to the announcements. Based on panel A of table 6, the mean (median) CAR for the low ownership group over this longer event window is a highly significant -2.262% (-2.628%), whereas that for the high ownership group is an insignificant -0.860% (-0.809%). The mean (median) CAR difference between these two ownership groups is

[8] Previous studies include: Bradley, Desai, and Kim (1983), Jensen and Ruback (1983), Malatesta (1983), and Datta, Datta, and Raman (2001).

-1.402% (-1.707%), which is highly significant at 1% (1%) level.

Hermalin and Weisback (1991) argue that the relationship between managerial ownership and firm performance is nonlinear. McConnell and Servaes (1990) find evidence of managerial entrenchment at higher managerial ownership levels. Given these possibilities, we partition the sample into four categories based on the ownership intensity of officers and directors; namely: (0, 1%], (1%, 5%], (5%, 10%], and over 10%. The mean (median) CAR of the four categories is -1.938% (-1.490%), -0.168% (-1.217%), -0.488% (-0.281%), and -0.634% (-0.478%), respectively. For categories 1, 2 and 3, we find that the relationship between CAR and ownership level is increasing, and that the positive linear relationship is reversed for the highest ownership category. This result is consistent with the finding by Denis, Denis and Sarin (1997) that extremely high ownership by insiders has a negative influence on internal monitoring efforts.[9]

To this point, the results indicate that the shareholder wealth of acquirers is positively related to the percentage of ownership held by officers and directors when the ratio is between 0% and 10% for acquisitions. However, the relationship becomes negative when the percentage of ownership held by officers and directors exceeds 10%.

4.2.2 Percentage of Outside Directors and Abnormal Returns to Acquirers

Based on panel B of table 5, the three-day CARs of acquirers with a high percentage of outside directors are much higher than those acquirers with a low percentage of outside directors. The mean (median) CAR for the low outside director ratio group is a highly significant -2.521% (-2.946%), whereas that for the high outside director ratio group is an insignificant -0.189% (-0.141%). The mean (median) CAR difference between the groups

[9] They find that firm performance (proxied by Tobin's Q) is negatively related with the ownership of officers and directors if such an ownership exceeds five percent.

is a highly significant -2.332% (-2.805%). Similarly, for the eleven-day [-5,5] event window, the mean (median) CAR difference between the high and low outside director groups is a highly significant -2.195% (-2.705%).

Cotter, Shivdasani and Zenner (1997) find that the presence of independent boards enhances the wealth of target shareholders from tender offers. Stuart and Wyatt (1990) report positive share price reactions to outside board director appointments. Consistent with their findings, our results provide evidence for the effectiveness of outside director monitoring.

4.2.3. The Combination or Substitute Use of Ownership and Outside Directors

In panel C of table 5, the stock price responses to acquisition announcements (as measured by their CARs) are classified into groups based on ownership and board composition. In the high ownership group, the mean (median) CAR is 0.281% (1.197%) for acquirers with independent boards, and is -1.369% (-1.698%) for firms with non-independent boards. The difference in the mean (median) CARs for these two sub-samples is significant at the 5% (1%) level. For the low ownership group, the mean (median) CAR is -0.534% (-0.392%) for acquirers with independent boards, and is -5.202% (-4.639%) for acquirers with non-independent boards. The differences in the CARs for these two sub-samples are highly significant at the 1% level. These results indicate that changes in shareholder wealth due to acquisition announcements are more favorable for acquirers with outside director-dominated boards. In turn, this implies that outside directors more effectively discipline the value-destroying behaviors of managers than non-outside directors.

The market responses to the acquisition announcements are the most positive for acquirers using two governance mechanisms (manager and director ownership and outside directors), and are most negative for acquirers not using either of these two internal governance mechanisms. The mean CARs is an insignificant 0.281% for firms with high insider ownership and independent boards, and is a highly significant -5.202% for firms with low insider ownership and non-independent boards. The difference between the means of these two groups is a highly significant -5.484% (t-statistic of 6.25). Our finding is counter to the conclusion of Agrawal and Knoeber (1996) who find that firms optimally use only one governance mechanism, and that the percentage of directors that are outsiders is negatively related with firm performance. A possible explanation for these differences is the use of a different proxy for firm performance. While they use Tobin's Q, we use the abnormal returns associated with the acquisition announcements.

Most of our sample firms (62.6%) use at least one internal control mechanism. Of the sample firms, 189 firms use both mechanisms, 212 firms use only ownership, 257 firms use only independent boards, and 91 firms use neither governance mechanism. The mean CAR is a significant -1.369% for acquirers with high ownership percentages and nonindependent boards, and is an insignificant -0.534% for acquirers with low ownership percentages and independent boards. The difference in their means of -0.835% is insignificant (t-statistic of 1.20).

To exclude the possibility that the firms that use neither of the two governance mechanisms studied herein use other mechanisms, we investigate the ratio of long-term debt to invested capital, the ratio of total debt to invested capital, and market takeover pressure, where the latter metric is measured by the fraction of firms acquired over the

preceding five years within a firm's two-digit SIC industry for the four groups of firms. No significant differences are found using outside market control or debt monitoring between the three groups of firms with at least one internal control mechanism and the group of firms with no internal control mechanisms.[10]

4.3 Multivariate Test Results

4.3.1 Regression Model Specification

To examine how the two internal control mechanisms influence stock price responses to acquisition announcements, we use a series of cross-sectional regression models to examine the determinants of short-term acquisition abnormal returns in this section.

The dependent variable, *shareholder wealth effects* (as measured by either the three- or eleven-day CARs) is regressed against *ownership*, *outside directors ratio*, *board size*, *board leadership structure*, and a set of control variables. The control variables include those factors that are suggested in past studies as having an influence on acquisition abnormal returns. The first control variable is *firm-size*, which is defined as the natural logarithm of the total assets of the acquirer on the day prior to the acquisition. This variable is included because larger firms tend to have lower managerial ownership and higher outside board ratios (Cotter, Shivdasani and Zennef, 1997). Bajaj and Vijh (1995) also suggest that the stock market has a larger reaction to smaller firms because the information is limited for those firms prior to the announcements. The second control variable is *MB,* which is the acquirers' market-to-book ratio, as measured by the book value of total assets minus the book value of equity plus the market value of equity divided by the book value of total assets on the day prior to the acquisition announcement

[10] We do not report the comparison results for the sake of parsimony.

date. *MB* is a standard proxy for growth opportunities. Smith and Watts (1992) suggest that firms with higher growth opportunities have better monitoring of managerial investment decisions. The third control variable is *method of payment*, which is a binary variable that takes the value of 1 if the acquisition was financed with 100% cash, and is 0 otherwise. Method of payment is an important determinant of acquisition wealth effects (Loughran and Vijh, 1997; Vermaelen, 1998). The fourth control variable is *acquisition type*, which has been found to be another important factor in determining acquisition stock performance. It is a binary variable that takes the value of 1 if the acquisition is a conglomerate acquisition, which is determined by a match of the first two digits of the SIC codes, and is 0 otherwise. It is often claimed that conglomerate mergers are less likely to succeed because managers of acquiring firms are not familiar with the target industry (Jensen and Ruback, 1983; Shleifer and Vishny, 1988; Agrawal and Mandelker, 1992). The fifth control variables are *year dummies*, which are qualitative variables that capture the effect of the acquisition year. The sixth control variable is *relative deal*, which refers to the ratio of target to acquirer market capitalization on the day prior to the announcement date. This variable controls for the larger effect of the ownership of officers and directors on the performance of larger acquisitions (Datta et al., 2001).

The seventh and eighth control variables are added to control for the influence of substitute governance mechanisms on the performance of the acquirer. The seventh control variable is *market control*, which is measured by the fraction of firms acquired over the preceding five years within the acquiring firm's two-digit SIC industry. The eighth control variable is *debt monitor*, which refers to the acquiring firms' use of debt,

as measured by the ratio of book value of long-term debt to invested capital (Agrawal and Knoeber, 1996).

Our main independent variables are *ownership* and *outside director ratio*. *Ownership* is the percentage of common shares held by all executive officers and directors. *Outside director ratio* is the ratio of the number of independent outside directors divided by the total number of members on the board.

Other governance variables include board size and board leadership. *Board size* is the total number of board directors. *Leadership* is a binary variable that takes the value of 1 if the chairman of the board is also the CEO of the company and is 0 otherwise. The general model to be estimated is as follows:

$$CAR = f(ownership, outside\ director\ ratio, board\ size, leadership, firm\ size, payment, acquisition\ type, year\ dummy, relative\ size, market\ control, debt\ monitor)$$

Our univariate test results show that firms with internal governance control mechanisms should have better monitoring of managerial self-interest when making investment decisions. Acquiring firms with higher ownership percentages for officers and directors experience higher acquisition abnormal returns than firms with low percentages, and acquiring firms with high outside director ratios experience higher acquisition abnormal returns than their counterparts with low ratios. We also find that the alternative governance mechanisms are not substitutes but are complements. Specifically, the market response is the most positive for acquiring firms with both high management ownership and outsider-dominated boards and most negative for acquiring firms with low management ownership percentages and low outside director ratios. Therefore, we expect a positive link between the cumulative abnormal returns around acquisitions and each of

the internal control mechanisms. We also expect that the positive relationships between each mechanism and the three-day cumulative abnormal returns will not disappear but will be strengthened in a regression including both internal control governance mechanisms.

4.3.2. Multivariate Analysis of Acquisition Abnormal Returns

The regression results are reported in table 7. To test whether collinearity influences our results, we examine the correlations among the independent variables as reported in panel A of table 7. We find that the correlation coefficients generally are very small, with only a few exceptions. These are the correlations of -0.38, 0.24 and 0.34 between *payment* and *ownership*, between *payment* and *outside director ratio*, and between payment and board size. The correlation between ownership and outside board ratio is -0.27. The estimated results are similar to those reported when we exclude the variable *payment*. Model 1 excludes *ownership*, and model 2 excludes *outside director ratios*, with little impact on the results. The variance inflation factors also are inspected, and we find that multicollinearity seems not to inflate the standard errors of the estimates.

The results from the estimation of model 1 show that the coefficient for *ownership* is positive and significant. The *ownership* point estimate of 0.0362 (t-statistic of 2.16) suggests that shareholder wealth increases approximately 0.036 percent when common shares held by officers and directors increases by 1 percent. Similarly, the estimation of model 2 indicates that the coefficient for the *outside board director ratio* is positive and highly significant. The point estimate of 0.0656 (t-statistic of 3.72) suggests that shareholder wealth increases approximately by 0.0656 percent when the *outside director ratio* increases by 1 percent. These results support the hypothesis that internal governance

mechanisms are of material use in protecting shareholders' interests during the acquisition process.

For model 3, the three-day abnormal returns are regressed against *ownership*, *outside director ratio* and all the control variables. As expected, the coefficients of *ownership* and *outside director ratio* are still positive and highly significant. The estimate of *ownership* is 0.0492 (t-statistic of 2.92) and the estimate of *outside director ratio* is0.0751 (t-statistic of 4.02). All of the results for the other variables remain similar to those discussed previously. The regression results reported here are consistent with the univariate results reported in part 4.2.3 of the thesis where the combined use of ownership and outside directors was found to help firms align managerial interests with that of shareholders by monitoring managerial behavior when the latter make investment decisions.

We control for the effect of board size and managerial entrenchment on the board (board leadership) in model 4. The significant negative coefficient of leadership (-0.0131 with a t-statistic of -2.32) indicates that board monitoring is significantly lessened when the CEO also holds the position of the chairman of the board. This does not mean that internal control mechanisms fail, since the estimated coefficients of ownership and outside director ratio are virtually the same as those reported for model 3.

Models 5 and 6 are designed to assess the effect of external control mechanisms, such as market takeover pressure and the use of debt. The positive but insignificant coefficient for market control provides no compelling evidence that higher market takeover pressure forces managers to act in the shareholders' interests. Similarly, the negative but insignificant debt monitor coefficient provides no compelling evidence that markets

realize the high risk of using high leverage. The estimated coefficient for the variable payment is highly significant across all models. This result is consistent with previous research findings that acquisitions financed with cash significantly outperform transactions financed with stocks.

To account for the possibility that information leakage may occur prior to the acquisition and/or the market may need time to fully account for the information in the announcements, we now use eleven-day cumulative abnormal returns as the dependent variable in each of the previous six models. The estimated results are very similar with a few exceptions. The estimated coefficients for *payment* and *leadership* are no longer significant, and that for the acquiring firms' growth opportunities (proxied by *Market-to-Book ratio*) is now significant.

The control variables, *acquisition mode* and *year dummies*, have the expected negative signs but are insignificant, which provides non-compelling evidence that markets react more negatively to conglomerate mergers and that acquisition deals concluded in the latter part of the 1990s experienced higher losses. The estimated coefficient of *firm size* is not significant and negative in most situations, which does not provide compelling evidence for the asymmetric information proposition. Only one estimated coefficient changes sign but it is not significant. Specifically, the estimated coefficients for *relative deal* are negative (positive) when the dependent variable is eleven-(three-)day *cumulative abnormal returns*.

Earlier univariate analyses of the CARs indicate that at very high ownership levels (officers and directors own over 10% of the firm's shares), the incentive provided by ownership for managers to maximize firm value diminishes. To examine the robustness

of this earlier observation, we re-estimate the multivariate regression function after segmenting officers and directors' ownership into four categories. Panel D of table 7 presents the estimated results, which are consistent with our univariate findings. Thus, these results suggest that very high percentages of ownership by officers and directors (>10%) reduces the internal control effectiveness provided by ownership itself. Thus, while the practice of granting ownership to officers and directors via executive stock compensation plans to align their interest with that of shareholders', the "runaway" rate of management compensation experienced more recently probably had the opposite effect.

The primary result from panels B and C of table 7 is the positive and significant coefficients on the *ownership* and *outside director ratio* variables. This indicates that officer and director ownership and independent boards serve the interests of shareholders during acquisitions. These findings support the Shleifer and Vishny (1988) proposition that mangers should be granted ownership in order to encourage them to serve shareholders. These findings also support the Stuart and Wyatt (1990) conclusion that outside directors are selected in the interests of shareholders. Additionally, our findings suggest that the combination of direct pay for performance and monitoring by the board may be the answer to the question is there an optimal governance structure for corporations. Thus, firms can adjust their board compositions and the ownership levels of officers and directors to improve the performance of their external acquisition decisions.

4.4. Robustness Check

4.4.1. Benchmark.

To check the robustness of our results, we first use the CRSP equal-weighted market index to re-calculate the cumulative abnormal returns around acquisitions. The univariate

and multivariate results, which are presented in tables 8 and 9, respectively, are very similar with those reported earlier using the value-weighted index. Firms with weak internal control mechanisms experience much higher shareholder wealth loss that their counterparts with more effective internal governance structures. To illustrate, the average three-day CARs of low ownership firms is -1.535% while that of high ownership firms is -0.292%. Their difference is significant (t-statistic of 2.37). The average three-day CARs of low outside director ratio firms is -2.363% while that of high outside director ratio firms is -0.154%. The difference is highly significant (t-statistic of 4.52). Furthermore, the shareholders of firms with these two control mechanisms gain from the acquisition (significant CARs of 1.240%) while the shareholders of firms without these two control mechanisms lose most (significant CARs of -3.970%).

4.4.2. Estimation Window

To check if the estimated alpha, beta, and gamma(s) are driven by the choice of the estimation window [-10, 10], we also use the estimation window [-20, 20]. Based on the summary of these results presented in tables 10 and 11, we find that our primary result of a positive relationship between using internal control mechanisms and shareholder wealth effects around acquisition announcement dates is robust to the choice of the estimation window.

4.4.3. Board Composition

To test whether our results are sensitive to a different criteria for determining what constitutes an outside director dominated board, we re-examine the market response to acquisition announcements using the definition of Brickley, Coles and Terry (1994) and Cotter et al (1997) that an "independent board" is a board in which at least 50% of the

seats are occupied by outsiders. Based on panel A, B, C of table 12, the three-day shareholder wealth effects for acquiring firms are robust to the different definitions of "independent boards". We still document significant negative market responses to acquisition announcements for acquirers with weak internal control systems. The eleven-day share price changes for acquirers, however, are sensitivity to how this criterion is defined. The average eleven-day CARs of acquirers with low outside director ratios is -2.904% while that of acquirers with high outside director ratios is -1.384%. Their difference is insignificant (t-statistic of -1.53). After classifying the sample based on ownership and outside director ratio, in the high ownership group, we document a mean CAR of 0.344% for acquirers with independent boards, and of -2.242% for firms with non-independent boards. The difference in the mean CARs for these two sub-samples is insignificant (t-statistic of 1.49). For the low ownership group, we document a mean CAR of -2.361% for acquirers with independent boards, and of -4.852% for acquirers with non-independent boards. The differences in the CARs for these two sub-samples are marginally significant at the 10% level (t-statistic of 1.680). The unreported multivariate results are basically unchanged from those presented earlier.[11]

Overall, our conclusions are robust to the choice of market benchmark, estimation window, but show sensitivity to the board composition definition. Shareholders of acquiring firms are better protected by corporate internal control systems (such as ownership and outside board directors), which help to monitor manager behavior and discipline managers to act in the shareholders' interest for external acquisition decisions. Because most previous studies of monitoring of acquisitions by outside directors focused on two- or three-day cumulative abnormal returns, our results for eleven-day cumulative

[11] The regression results are not reported herein but are available from the author of this thesis.

abnormal returns suggests that the criterion of defining an outsider-dominated board as one where outsiders hold 50% of the seats may not be high enough to ensure that the board acts "independently".

5. LONGER-RUN POST-ACQUISITION PERFORMANCE OF ACQUIRING FIRMS

Research results for post-acquisition performance are controversial. In their classic study, Jensen and Ruback (1983) show that bidders systematically underperform in the post-merger period. Asquith(1983) and Agrawal, Jeffrey and Mandelker (1992) find that mergers are followed by significant abnormal returns of -10 percent over the five year period subsequent to the effective date. Bradley and Jarrell (1988) find no evidence of significant abnormal returns over a three-year period after the acquisition. Franks, Harris and Titman (1991) argue that previous findings of poor performance after takeovers are likely to be due to incorrect adjustments for risk. Datta, Iskandar-Datta and Raman (2001) examine the role of executive compensation in long-run firm performance in the post-acquisition period and find that performance varies across different firms. Firms with high equity-based compensation for executives outperform matched firms, while firms with low equity-based compensation underperform the matched firms. Their study suggests that previous conclusions that acquisitions destroy the value of bidders in the long run need to be re-considered.

In this thesis we previously documented a significant positive relationship between the percentage ownership of officers and directors (outside director ratio) and the wealth effects over the announcement dates for the shareholders of acquiring firms. In this

section, we investigate whether a systematic link exists between internal governance mechanisms and the long-term stock price performance of acquirers following acquisitions. The aim is to examine the effectiveness of internal governance systems in protecting the interests of shareholders over the longer period. If ownership better aligns managerial interests with those of shareholders, and if outside directors serve to look after shareholders' interests, then we would expect a positive relation between the post-acquisition performance of acquirers and each of the internal control mechanisms. The specific hypotheses tested are:

H4a: The long-run post-acquisition performance of acquiring firms is higher for firms with higher percentages of ownership by officers and directors.

H4b: The long-run post-acquisition performance of acquiring firms is higher for firms with higher outside director ratios.

5.1 Measurement of Longer-run Post-acquisition Performance Using Buy-and-Hold Abnormal Returns and Jensen Alphas

To compute long-term stock performance, we include only the first acquisition by a firm during the studied period in order to maintain the independence of the observations. As a result, the sub-sample of firms for the long-term performance examination is reduced to 496 acquisitions; that is, one acquisition for each firm over the sample period. We measure the long-term abnormal performance associated with acquisitions using two related approaches. The first is Buy-and-Hold Abnormal Returns (BHAR). In this approach, the long-term abnormal return (AR) for firm i for month t is given by $AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt}$, where R_{it} is the monthly return inclusive of dividends for security i in time t, R_{mt} is the monthly return for the CRSP NYSE/AMEX/NASDAQ value-

weighted market index, and α_i and β_i are market model parameters that are estimated by regressing monthly R_{it} on the R_{mt} over the 60-month estimation period from month 60 to month 1 prior to the acquisition month. Three-year BHAR are calculated for each acquiring firm as: $\prod_{t=1}^{36} (1 + AR_{it}) - 1$. Since, as discussed in Kothari and Warner (1997),[12] the long-horizon abnormal security returns around firm-specific events may be severely misspecified, the second approach uses Jensen's alpha. To implement the second approach, the 496 firms are first divided into groups categorized by ownership or outside director ratio. Then for each sub-sample, the alpha and beta for each acquiring firm in this sub-sample is estimated using the equation $r_{it} - r_{ft} = \alpha_i + \beta_i(r_{Mt} - r_{ft}) + \varepsilon_{it}$, where r_{it} is the return for acquiring firm i for month t within the 36 month [1, 36] post-acquisition period, r_{Mt} is the return for CRSP NYSE/AMEX/NASDAQ value-weighted market index for month t within the 36 month [1, 36] post-acquisition period, r_{ft} is the risk-free return (as proxied by the three-month treasury bill rate) for month t within the 36 month [1, 36] post-acquisition period, α_i and β_i are parameters to be estimated, and ε_i is the error term with the usual properties. For each sub-sample, we then calculate the mean alpha and mean beta, and test if the mean (median) alpha is significantly different between groups using a t-(Wilcoxon-)test.

5.2 Ownership, Outside Director Ratios, and Post-acquisition Performance of Acquiring Firms

Table 13 reports the post-acquisition performance of acquiring firms, as measured by the three-year or 36-month [1, 36] buy-and-hold abnormal returns (BHARs) and Jensen

[12] Other studies include Brown and Warner (1980), Barber and Lyon (1997), and Lyon et al (1999).

alphas for various sub-samples grouped by ownership and outside director ratios.[13] As shown in panel A of table 13, the mean (median) BHARs for the overall sample is a significantly negative value of -26.264% (-40.305%).[14] The average BHARs for the low ownership sub-sample is -20.706% while that for the high ownership sub-sample is -30.031%. The difference in the BHARs between these two groups is significant. The average Jensen alpha for the low and high ownership groups are 0.67% and -0.16%, respectively, whose difference is significant at the 1% level (t-statistic of 4.44). The difference in the average betas for the low and high ownership samples (0.61 and 1.83, respectively) also is significant at the 1% level. This result indicates that the managers of acquiring firms earn excess returns for their shareholders while bearing less systematic risk than the managers in the high ownership group. Thus, the ownership intensity of executive officers and directors does not serve to protect shareholders' interests of acquiring firms over the longer run. This inference differs from that derived earlier based on the announcement day CARs, where firms in the low ownership group significantly underperformed in terms of the market's immediate assessment of the merits of the acquisition decision.

The three-year post-acquisition performances of acquiring firms categorized by outside director ratios, which are reported in panel B of table 13, provide evidence that firms with low outside director ratios underperform their counterpart firms with high outside director ratios over the longer run. A marginally significant difference exists in the median BHARs of -33.03% and -44.16% for the high and low groups, respectively. Furthermore, we find that firms with independent boards bear lower systematic risks

[13] The data of buy-and-hold returns have been winsorized at 5 (95) percent.
[14] Many papers find significant negative post-merger performance for bidding firms. Examples include Ruback (1988), Agrawal, Jaffe and Mandelker (1992), and Loughran and Vijh (1997).

(mean beta of 0.82) while earning higher abnormal returns (average alpha of 0.45%) unlike their counterparts with dependent boards who bear higher systematic risks (mean beta of 1.47) while earning less abnormal returns (mean alpha of 0.11%) over the three-year period following the acquisition announcement dates. The differences between their mean and median alphas are marginally significant.

When we further divide each sub-sample of high and of low ownership percentage acquirers into two groups by outside director ratio, we find no difference for whether or not firms have outside directors monitoring for the high ownership sub-samples. The mean (median) BHAR is -28.94% (-41.26%) for firms with low ownership percentages and low outside director ratios, and is -17.37% (-25.05%) for firms with low ownership percentages and high outside director ratios. The difference in their means (medians) is marginally significant -11.634% (-16.209%). However, based on the Jensen alphas, no significant differences are identified for whether or not firms have outside directors monitoring for both high and low ownership sub-samples.

As discussed earlier, inferences based on longer-term BHARs (and possibly, even alphas in this context) may be fragile. The literature suggests that nonparametric and bootstrap tests and the calculation of abnormal returns using benchmarks consisting of portfolios of control firms may reduce any problems of misspecification in longer-term event studies.[15] Whether or not this applies to the results reported herein is pure conjecture and is left for future study.

In general, our longer-term analysis of post-acquisition performance indicates that shareholders of acquiring firms benefit from independent boards over the longer run. This

[15] Examples include Brown and Warner (1980), Barber and Lyon (1997), and Ikenberry, Lakonishok and Vermaelen (1995).

inference is consistent with the contention of Baysinger and Butler (1985) that independent outside directors play an important role in guiding the firm. Our longer-run results also show that the shareholdings of executive officers and directors fail to align the interests of managers and shareholders over the longer run. This finding differs from our analysis of short-term stock performance of acquiring firms for merger announcements, but is consistent with the "management entrenchment" proposition.

6. CONCLUSION

Since 1990, improved internal control systems have acted as substitutes for market control and the use of leverage. These improved internal control systems have played a large role in addressing corporate agency problems. As the most important corporate investment decision, external acquisitions may result in serious conflicts of interest between the managers and shareholders of acquiring firms. Thus, they provide an excellent forum for evaluating which governance structures tilt corporate decision-making toward shareholder wealth maximization.

Using a sample of 749 acquisitions made by U.S. firms during the period from January 1, 1990, to December 31, 1999, we document a strong positive relation between the main internal governance mechanisms, ownership by officers and directors and outsider-dominated boards, and the stock market response around acquisition announcements. This link between internal corporate control mechanisms and stock market responses is robust to the choice of event study window, choice of market benchmark, and choice of estimation window.[16]

[16] Our findings are inconsistent with the conclusion by Byrd and Hickman (1992) that there is a nonlinear relation between the outside director ratio and bidders' abnormal returns around acquisition

We document that less negative returns to shareholders are associated with higher percentages of ownership by officers and directors or higher ratios of outside board directors. We find that acquirers with both high proportions of ownership by officers and directors and high ratios of outside board directors have positive market price responses, while acquirers with low percentages of ownership by officers and directors and insider-dominated boards have mostly negative market price responses. Furthermore, we find that firms with higher insider ownership percentages acquire targets with higher growth opportunities while paying significantly lower premiums. These results are consistent with the hypothesis that internal control systems monitor managerial decision-making on behalf of shareholders during the acquisition process, and support the proposition that the different internal governance mechanisms complement each other. On the other hand, we find evidence that the positive relationship between the fraction of insider ownership and the shareholder wealth effects around acquisition announcements is no longer linear when this fraction is extremely high (over 10%). This is consistent with the management entrenchment hypothesis that extremely high ownership has a negative influence on internal monitoring systems (Denis, Denis, and Sarin, 1997). Our results exhibit slight sensitivity to the method of defining outsider-dominated boards. The differences in the eleven-day cumulative abnormal returns for acquiring firms with and without outsider-dominated boards become insignificant when we define an outsider-dominated board as a board that has at least 50% rather than 60% outsiders. [17] This result suggests that caution should be exercised when assessing studies that evaluate the efficiency of "outsider-dominated board" monitoring.

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announcements. They find that the relationship between outside director ratios and abnormal returns for bidders becomes negative when the outside directors hold over 60% of the board's seats.

[17] The results for the three-day cumulative abnormal returns remain the same as those reported previously.

The longer-term post-acquisition performances of bidders also are examined. In the three-year post-acquisition period, high ownership firms underperform low ownership firms, and firms with high outside director ratios outperform those with low outside director ratios. These results are robust to the metric used to measure the longer-term performance of acquiring firms.

In general, this paper contributes to our understanding of the importance of internal governance mechanisms. In the period immediately around acquisition announcements, the reported evidence suggests that the use of insider ownership and outside directors disciplines manages to make decisions that better reflect the interests of shareholders. The reported evidence also suggests that the combination of stock ownership and outside director monitoring provides a better control system for top management than the sole use of only one of them. This is somewhat consistent with the proposition that there is an optimal governance structure and firms deviating from it experience lower performance. In the longer post-acquisition period, the reported evidence suggests that outside directors act in the interests of shareholders. The shareholdings by officers and directors seem to have an opposite effect on the long-term stock performances of acquirers.

Another contribution of this paper is to provide further insight into the wealth effects of acquisitions. The reported results suggest that the market reaction will vary across firms according to their choice of internal control systems. Thus, an undifferentiated focus on an average market response to acquisition announcements will most likely mask this variation.

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Table 1
Distribution and Descriptive Statistics of Sample of Corporate Acquisitions for the Period 1990-1999

The sample consists of 749 completed acquisitions during the period January 1, 1990, to December 31, 1999. The firms are listed both in the Securities Data Company's on-line Mergers and Corporate Transactions database and have data on common shares held by executives officers and directors and independent board directors from the most recent company proxy statement prior to the acquisition announcement date in Mergent Online or Lexis-Nexis. Companies also must be listed in the COMPUSTAT company financial database. Deal value is measured in US dollars (millions). Cash refers to acquisitions financed with 100 percent cash. Equity refers to acquisitions paid for by equity securities. Mixed refers to the financing mode of acquisition paid by cash as well as equity and/or other sources. Market capitalization is measured on the day prior to acquisition announcement date using CRSP data. Acquisition premium is the difference between the highest price paid per share and the target share price four weeks prior to the announcement date as a percentage of the target share price four weeks prior to the announcement date. This premium is the PREM4MK variable in the SDC database.

Panel A: Distribution of the number of acquisitions and average deal value by year

Year	Number of Acquisitions	% of Sample	Avg. Deal Value ($ Million)
1990	27	3.60%	355.46
1991	22	2.94%	151.35
1992	26	3.47%	216.91
1993	34	4.54%	947.68
1994	56	7.48%	350.99
1995	78	10.41%	512.65
1996	99	13.22%	904.15
1997	115	15.35%	890.30
1998	147	19.63%	2200.04
1999	145	19.36%	2277.82
	749	100.00%	1161.41

Panel B: Distribution by method of payment for the sample of acquisitions

Mode of Payment	Number of Acquisitions	% of Sample
Cash	81	10.81
Equity	369	49.27
Mixed	299	39.92
Total	749	100

Panel C: Distribution of industry for acquisitions

Target's industry	Number of Acquisitions	% of Sample
Own industry	309	41.25
Other industry	430	58.75
Total	749	100

Panel D: Descriptive statistics

Deal Characteristics	Observations	Mean	Median
Acquirer market capitalization ($ million)	749	8,557.21	1,616.76
Target market capitalization ($ million)	741	1,094.79	179.90
Acquisition premium (%)	569	45.86	40.10

Table 2
Governance Mechanism Characteristics of Acquiring Firms

The sample consists of 749 completed acquisitions during the period January 1, 1990, to December 31, 1999. The firms are listed both in the Securities Data Company's on-line Mergers and Corporate Transactions database and have data on common shares held by executive officers and directors and independent board directors in the most recent company proxy statement prior to acquisition announcement date in Mergent Online or Lexis-Nexis. Companies also must be listed in the COMPUSTAT company financial database. Ownership is the percentage of common shares held by all executive officers and directors, which is obtained from the most recent proxy statement prior to the acquisition. Outside director ratio is the ratio of the number of independent board directors (non-employment directors) divided by the total number of members on the board. Board size is the total number of board directors. Leadership is the number of firms whose chairman of the board is the CEO of the company to the number of firms in the sample. Debt monitor refers to the acquiring firms' use of debt. *LTD/CAP* is the ratio of book value of long-term debt to invested capital, measured by the LTDCAP variable in COMPUSTAT database. *TTD/CAP* is the ratio of book value of total debt to invested capital, measured by the TTDCAP variable in COMPUSTAT database. Outside market control is the corporate market discipline, measured by the fraction of firms acquired over the preceding five years within a firm's two-digit SIC industry. Low ownership refers to acquiring firms whose common shares held by all executives and officers are at or lower than 5 %, otherwise the firms are classified as high ownership firms. Low outside director ratio refers to acquiring firms whose board includes independent board directors (non-employment directors) at or lower than 60%, otherwise the firms are classified as high outside director ratio firms. For each firm, the ownership data and outside board director ratios are obtained from the most recent proxy statement prior to the acquisition announcement.

Panel A: Descriptive statistics on governance mechanisms

Governance Mechanism		**Mean**	**Median**
Ownership		13.36%	6%
Outside director ratio		65%	66%
Board size		9.34	9
Leadership		0.67	
Debt monitor	LTD/CAP	30.54%	27.46%
	TTD/CAP	39.11%	34.41%
Outside market control		0.249	0.241
Observations		749	

Panel B: Governance mechanism characteristics categorized by ownership and outside director ratios

		Low Ownership and		**High Ownership and**	
Governance Mechanism		**Low Outside Director Ratio**	**High Outside Director Ratio**	**Low Outside Director Ratio**	**High Outside Director Ratio**
Board size		9.29	10.6	7.63	9.49
Leadership		0.55	0.77	0.68	0.56
Debt monitoring	LTD/CAP	28.73% (27.37%)	32.90% (26.40%)	29.48% (30.32%)	29.71% (26.31%)
	TTD/CAP	38.77% (36.11%)	41.73% (31.56%)	35.65% (36.99%)	39.43% (36.73%)
Outside market control		0.254 (0.256)	0.253 (0.245)	0.241 (0.234)	0.251 (0.234)
Observations		91	257	212	189

Table 3
Target Market-to-Book Ratios Categorized by Ownership and Outside Director Ratios

The sample consists of 749 completed acquisitions during the period January 1, 1990, to December 31, 1999. Target Market-to-Book ratio is measured as the book value of total assets minus the book value of equity plus the market value of equity divided by the book value of total assets on the day prior to the acquisition announcement date. Low ownership refers to acquiring firms whose common shares held by all executives and officers are at or are lower than 5 %, otherwise the firms are classified as high ownership firms. Low outside director ratio refers to acquiring firms whose board includes independent board directors (non-employment directors) at or lower than 60%, otherwise the firms are classified as high outside director ratio firms. The t-statistic is from the t-test of the difference between means. The z-test is from the Wilcoxon rank sum test of the difference between medians. ***, ** and * indicate significance at the 1, 5 and 10 percent levels, respectively.

Panel A: Target market-to-book ratio categorized by ownership

Statistic	Full Sample	Low Ownership	High Ownership	t/z Statistic for Difference
Mean	2.665	2.387	2.909	1.919**
Median	1.815	1.294	2.044	2.655***
Observations	723	339	384	

Panel B: Target market-to-book ratio categorized by outside director ratio

Statistic	Full Sample	Low Outside Director Ratio	High Outside Director Ratio	t/z Statistic for Difference
Mean	2.665	2.239	2.679	1.146
Median	1.815	1.399	1.621	1.007
Observations	723	294	429	

Table 4
Acquisition Premiums Categorized by Ownership and Outside Director Ratios

The sample consists of 749 completed acquisitions during the period January 1, 1990, to December 31, 1999. Acquisition premium is the difference between the highest price paid per share and the target share price four weeks prior to the announcement date as a percentage of the target share price four weeks prior to the announcement date, as measured by the PREM4WK variable in the SDC database. Low ownership refers to acquiring firms whose common shares held by all executives and officers are at or lower than 5 %, otherwise the firms are classified as high ownership firms. Low outside director ratio refers to acquiring firms whose board includes independent board directors (non-employment directors) at or lower than 60%, otherwise the firms are classified as high outside director ratio firms. The t-statistic is from the t-test of the difference between means. The z-test is from the Wilcoxon rank sum test of the difference between medians. ***, ** and * indicate significance at the 1, 5 and 10 percent levels, respectively.

Panel A: Acquisition premium (%) categorized by ownership

Statistic	Full Sample	Low Ownership	High Ownership	t/z Statistic for Difference
Mean	45.86	50.50	41.87	2.201**
Median	40.10	42.81	33.85	3.483***
Observations	567	263	304	

Panel B: Acquisition premium (%) categorized by outside director ratio

Statistic	Full Sample	Low Outside Director Ratio	High Outside Director Ratio	t/z Statistic for Difference
Mean	45.86	44.19	40.33	0.987
Median	40.10	36.39	34.84	0.521
Observations	567	230	337	

Table 5
Three-Day [-1, 1] Cumulative Abnormal Returns to Acquiring Firms Around Corporate Acquisition Announcements

The sample consists of 749 completed acquisitions during the period January 1, 1990, to December 31, 1999. The cumulative abnormal return on stock *i*, CAR_i, is calculated as $\sum_{t=t_1}^{t_2} AR_{it}$. AR_{it} is the abnormal return to firm *i* at time *t*, which is estimated from the market- and risk-adjusted model, $R_{it} = \alpha_i + \beta_i R_{mt} + \beta_i R_{mt} D_1 + \sum_{\tau=\tau_1}^{\tau_2} \gamma_{it} D_{i\tau} + \varepsilon_{it}$, where R_{it} is the daily return inclusive of dividends for security *i* in time *t*, and R_{mt} is the daily return to the CRSP NYSE/AMEX/NASDAQ value-weighted market index. t_1 and t_2 are the beginning and ending dates, respectively, of the event window. α_i, β_i and $\gamma_{i\tau}$ are parameters to be estimated, $\Delta\beta_i$ is the change in beta due to the acquisition announcement for firm *i*, *D1* is a dummy variable that take the value of 1 for the announcement day and the days thereafter and the value of zero otherwise. $D_{i\tau}$ is a set of dummy variables (one or each τ) which take on the value of 1 for τ and zero otherwise. $\overline{\gamma_{i\tau}}$ is the abnormal return for firm *i* (AR_i) for day $\tau = [-10, 10]$. Low ownership refers to acquiring firms whose common shares held by all executives and officers are at or lower than 5 %, otherwise the firms are classified as high ownership firms. Low outside director ratio refers to acquiring firms whose board includes independent board directors (non-employment directors) at or lower than 60%, otherwise the firms are classified as high outside director ratio firms. For each firm, the ownership data and outside board director ratios are obtained from the most recent proxy statements prior to the acquisition announcement. The mean and median CARs for full sample and each sub-sample are reported with t-statistics for significance in the parentheses. In panels C and D, means (medians) are reported. In the last column, the t-statistic is from the t-test of the difference between means. The z-test is from the Wilcoxon rank sum test of the difference between medians. ***, ** and * indicate significance at the 1, 5 and 10 percent levels, respectively.

Panel A: *[-1, 1] CARs* categorized by ownership

Statistic	Full Sample	Low Ownership	High Ownership	t/z Statistic for Difference
Mean (%)	-1.132***	-1.755***	-0.591	-2.24**
Median (%)	-0.873***	-1.330***	-0.323	-2.57***
Observations	749	348	401	

Panel B: *[-1, 1] CARs* categorized by outside director ratio

Statistic	Full Sample	Low Outside Director Ratio	High Outside Director Ratio	t/z Statistic for Difference
Mean (%)	-1.132***	-2.521***	-0.189	-4.12***
Median (%)	-0.873***	-2.946***	-0.141	-4.72***
Observations	749	304	445	

Panel C: *[-1, 1] CARs* categorized by ownership and outside director ratio

Ownership	High Outside Director Ratio	Low Outside Director Ratio	t/z Statistic for Difference
High ownership (%)	0.281	-1.369**	-2.09**
	1.197	- 1.698***	-3.31***
	(observations: 189)	(observations: 212)	
Low ownership (%)	-0.534	-5.202***	-5.91***
	-0.392	-4.639***	-5.78***
	(observations: 257)	(observations: 91)	

Table 6
Eleven-Day [-5, 5] Cumulative Abnormal Returns to Acquiring Firms Around Corporate Acquisition Announcements

The sample consists of 749 completed acquisitions during the period January 1, 1990, to December 31, 1999. The cumulative abnormal return on stock *i*, CAR_i, is calculated as in table 5. Low ownership refers to acquiring firms whose common shares that are held by all executives and officers are at or lower than 5 %, otherwise the firms are classified as high ownership firms. Low outside director ratio refers to acquiring firms whose board includes independent board directors (non-employment directors) at or lower than 60%, otherwise the firms are classified as high outside director ratio firms. For each firm, the ownership data and outside board director ratios are obtained from the most recent proxy statement prior to the acquisition announcement. The mean and median *CARs* for the full sample and each sub-sample are reported with t-statistics for significance in the parentheses. In panels C and D, means (medians) are reported. In the last column, the t-statistic is from the t-test of the difference between means. The z-test is from the Wilcoxon rank sum test of differences between medians. ***, ** and * indicate significance at the 1, 5 and 10 percent levels, respectively.

Panel A: **[-5, 5]** *CARs* categorized by ownership

Statistic	**Full Sample**	**Low Ownership**	**High Ownership**	**t/z Statistic for Difference**
Mean (%)	-1.680***	-2.262***	-0.860	-2.67***
Median (%)	-1.639***	-2.628***	-0.809	-3.12***
Observations	749	348	401	

Panel B: **[-5, 5]** *CARs* categorized by outside director ratio

Statistic	**Full Sample**	**Low Outside Director Ratio**	**High Outside Director Ratio**	**t/z Statistic for Difference**
Mean (%)	-1.680***	-2.987***	-0.792*	-2.85***
Median (%)	-1.639***	-3.204***	-0.499*	-3.59***
Observations	749	304	445	

Panel C: **[-5, 5]** *CARs* categorized by ownership and outside director ratio

Ownership	**High Outside Director Ratio**	**Low Outside Director Ratio**	**t/z Statistic for Difference**
High ownership (%)	0.088	-1.705**	-1.96**
	0.092	- 1.714**	-2.18**
	(observations: 189)	(observations: 212)	
Low ownership (%)	-1.440**	-5.975***	-4.21***
	-1.551**	-4.793***	-4.22***
	(observations: 257)	(observations: 91)	

Table 7
Multivariate Regressions Explaining the Eleven-Day [-5, 5] and Three-day [-1, 1] Cumulative Abnormal Returns to Acquiring Firms Around Corporate Acquisition Announcements

The sample consists of 749 completed acquisitions during the period January 1, 1990, to December 31, 1999. The cumulative abnormal return on stock *i*, CAR_i, is calculated as in table 5. The dependent variable is the eleven-day [-5, 5] announcement period CAR. *Firm size* refers to the natural logarithm of the total assets of the acquirer. *MB* is the acquirers' market-to-book ratio, measured as the book value of total assets minus the book value of equity plus the market value of equity divided by the book value of total assets on the day prior to the acquisition announcement date. *Payment* is a binary variable that takes the value of 1 if the acquisition was financed with 100% cash, and is 0 otherwise. *Acquisition mode* is a binary variable that takes the value of 1 if the acquisition is a conglomerate acquisition that has been matched using the first two SIC codes and is 0 otherwise. Year dummies are qualitative variables capturing the year of acquisition. *Relative deal* refers to ratio of target to acquirer market capitalization at the day prior to the announcement date. *Ownership* is the percentage of common shares held by all executive officers and directors, which is obtained from the most recent proxy statement prior to the acquisition. *Outside director ratio* is the ratio of the number of independent board directors (non-employment directors) divided by the total number of members on the board. *Board size* is the total number of board directors. *Leadership* is a binary variable that takes the value of 1 if the chairman of the board is also the CEO of the company and is 0 otherwise. *Market control* is the corporate market discipline, measured by the fraction of firms acquired over the preceding five years within a firm's two-digit SIC industry. *Debt monitor* refers to the acquiring firm's use of debt, measured by the ratio of book value of long-term debt to invested capital, using data obtained from COMPUSTAT. Panel A reports the correlation matrix of the independent variables. In Panels B and C, the estimated coefficients of each independent variable for *CAR [-5, 5]* and *CAR [-1, 1]* are reported with the t-statistics in parentheses. ***, ** and * indicate significance at the 1, 5 and 10 percent levels, respectively.

Panel A: Correlation matrix of independent variables

	Owner-ship	Outside Director Ratio	Board Size	Leader-ship	Firm Size	MB	Payment	Acquisition Mode	Year Dummy	Relative Deal	Market Control	Debt Monitor
Ownership	1.00											
Outside director ratio	-0.27	1.00										
Board size	-0.15	0.21	1.00									
Leadership	-0.09	0.08	0.06	1.00								
Firm size	0.00	-0.06	-0.03	0.02	1.00							
MB	0.06	0.01	-0.06	-0.04	0.06	1.00						
Payment	-0.38	0.24	0.34	0.16	-0.01	0.10	1.00					
Acquisition mode	0.07	-0.01	0.00	-0.07	-0.03	-0.04	-0.20	1.00				
Year dummy	0.09	-0.04	-0.05	-0.03	-0.02	0.01	-0.15	-0.01	1.00			
Relative deal	-0.05	0.05	0.03	-0.05	-0.05	-0.06	0.02	-0.03	-0.02	1.00		
Market control	0.07	-0.02	0.03	0.01	0.06	0.26	0.13	-0.04	0.06	-0.03	1.00	
Debt monitor	-0.03	0.00	0.06	-0.09	0.07	-0.09	-0.01	-0.03	0.01	-0.03	-0.06	1.00

Table 7. Continued.

Panel B: Multivariate analysis of three-day *CAR [-1,1]* around announcement dates						
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Intercept	-0.0223	-0.0730	-0.0500	-0.5380	-0.0487	-0.0593
	(-0.67)	(-0.23)	(-1.49)	(-1.54)	(-1.45)	(-1.46)
Firm size	0.0004	-0.0022	-0.0007	-0.0008	-0.0009	0.0002
	(0.29)	(-1.51)	(-0.44)	(-0.42)	(-0.62)	(0.11)
MB	7E-4	6E-4	6E-4	7E-4	7E-4	5E-4
	(1.29)	(1.05)	(1.05)	(1.21)	(1.06)	(0.77)
Payment	0.0227	0.0212	0.0217	0.0229	0.0218	0.0235
	(3.03***)	(2.85***)	(2.98***)	(3.10***)	(2.94***)	(2.75***)
Acquisition mode	-0.0032	-0.0023	-0.0020	-0.0023	-0.0024	-0.0035
	(-0.60)	(-0.43)	(-0.38)	(-0.42)	(-0.45)	(-0.57)
Year dummies	-0.0011	-0.0007	-0.0011	-0.0010	-0.0014	-0.0012
	(-0.96)	(-0.67)	(-0.96)	(-0.89)	(-1.27)	(-0.93)
Relative deal	0.0056	0.0055	0.0053	0.0054	0.0050	0.0054
	(1.60)	(1.58)	(1.53)	(1.57)	(1.44)	(1.52)
Ownership	0.0362		0.0492	0.0500	0.0469	0.0637
	(2.16**)		(2.92***)	(2.97***)	(2.77***)	(3.12***)
Outside director ratio		0.0656	0.0751	0.0746	0.0538	0.0618
		(3.72***)	(4.02***)	(4.12***)	(4.23***)	(2.96***)
Board size				-0.0004		
				(-0.42)		
Leadership				-0.0131		
				(-2.32**)		
Market control					0.0302	
					(1.40)	
Debt monitor						-2E-4
						(-0.15)
Adjusted R-square	1.69	2.89	3.87	4.34	3.99	3.63
F-statistic	2.84	4.18	4.76	4.39	4.46	3.33
p-value	0.00	0.00	0.00	0.00	0.00	0.05
Observations	749	749	749	749	749	564

Table 7. Continued.

Panel C: Multivariate analysis of **eleven**-day *CAR [-5,5]* around announcement dates						
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Intercept	0.0086	0.0351	-0.0140	-0.0353	-0.0121	-0.0011
	(0.19)	(0.84)	(-0.30)	(-0.73)	(-0.26)	(-0.02)
Firm size	-0.0009	-0.0035	-0.0018	-0.0006	-0.0022	-0.0024
	(-0.41)	(-1.76)	(-0.84)	(-0.31)	(-1.02)	(-0.96)
MB	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	(2.23**)	(2.13**)	(2.14**)	(2.37***)	(2.15**)	(1.84*)
Payment	0.0153	0.0139	0.0145	0.0155	0.0145	0.0163
	(1.49)	(1.35)	(1.42)	(1.51)	(1.42)	(1.36)
Acquisition mode	-0.0029	-0.0022	-0.0019	-0.0026	-0.0024	-0.0014
	(-0.39)	(-0.30)	(-0.26)	(-0.36)	(-0.33)	(-0.16)
Year dummies	-0.0020	-0.0016	-0.0020	-0.0024	-0.0025	-0.0017
	(-1.32)	(-1.08)	(-1.33)	(-1.53)	(-1.62)	(-0.94)
Relative deal	-0.0063	-0.0063	-0.0065	-0.0062	-0.0070	-0.0066
	(-1.32)	(-1.32)	(-1.37)	(-1.31)	(-1.46)	(-1.31)
Ownership	0.0460		0.0566	0.0562	0.0533	0.0575
	(2.00**)		(2.43***)	(2.42**)	(2.28**)	(2.01**)
Outside director ratio		0.0500	0.0610	0.0675	0.0614	0.0542
		(2.06**)	(2.48***)	(2.70***)	(2.50***)	(2.04**)
Board size				-0.0024		
				(-1.63)		
Leadership				0.0056		
				(0.71)		
Market control					0.0421	
					(1.41)	
Debt monitor						-2E-4
						(-0.20)
Adjusted R-square	1.38	1.41	2.06	2.23	2.19	1.57
F-statistic	2.50	2.53	2.97	2.70	2.86	1.99
p-value	0.01	0.01	0.00	0.00	0.00	0.03
Observations	749	749	749	749	749	564

Table 7. Continued.

Panel D: Multivariate analysis of three-day *CAR [-1,1]* segmented by officers and directors ownership

Independent Variables	Category 1 (Lowest Ownership)	Category 2	Category 3	Category 4 (Highest Ownership)
Intercept	-0.0257	-0.2192	-0.2963	0.1935
	(-3.23***)	(-3.14***)	(-2.49)	(0.32)
Firm size	0.0022	0.0052	0.0077	-0.0039
	(0.63)	(1.68)	(1.58)	(-1.39)
MB	0.0001	0.0006	0.0017	0.0009
	(1.00)	(1.29)	(1.08)	(1.06)
Payment	0.0315	0.0110	0.0181	0.0237
	(1.97**)	(0.97)	(0.84)	(1.72*)
Acquisition mode	0.0143	0.0082	0.0090	-0.0117
	(1.26)	(0.98)	(0.53)	(-1.24)
Year dummies	-0.0013	-0.0019	-0.0038	-0.0026
	(-0.58)	(-1.03)	(-2.48***)	(-1.29)
Relative deal	0.0148	0.0058	0.1153	0.0053
	(1.86*)	(0.73)	(0.84)	(1.11)
Ownership	0.0582	0.0650	0.0555	0.0340
	(2.82***)	(2.89***)	(2.66***)	(1.39)
Outside director ratio	0.0525	0.0918	0.0915	0.1010
	(2.53***)	(3.14***)	(1.66*)	(3.29***)
Adjusted R-square	2.12	4.96	3.88	3.66
F-statistic	3.40	2.63	2.42	3.52
p-value	0.00	0.00	0.00	0.00
Observations	97	251	117	284

Table 8
Robustness Check: Three-day [-1, 1] and Eleven-day [-5, 5] Cumulative Abnormal Returns to Acquiring Firms Around Corporate Acquisition Announcements Using Equal-weighted Market Index

The sample consists of 749 completed acquisitions during the period January 1, 1990 to December 31, 1999. The cumulative abnormal return on stock *i*, CAR_i, is calculated as in table 5. *Low ownership* refers to acquiring firms whose common shares held by all executives and officers are at or lower than 5 %, otherwise the firms are classified as high ownership firms. *Low outside director ratio* refers to acquiring firms whose board includes independent board directors (non-employment directors) at or lower than 60%, otherwise the firms are classified as high outside director ratio firms. For each firm, the ownership data and outside board director ratios are obtained from the most recent proxy statements prior to the acquisition announcements. The mean and median *CARs* for the full sample and each sub-sample are reported with t-statistics in the parentheses. In panels C and D, means (medians) are reported. In the last column, the t-statistic is for the t-test of the difference between means. The z-test is for the Wilcoxon rank sum test of the difference between medians. ***, ** and * indicate significance at the 1, 5 and 10 percent levels, respectively.

Panel A: **[-1, 1]** *CARs* categorized by ownership

Statistics	Full Sample	Low Ownership	High Ownership	t/z Statistic For Difference
Mean (%)	-0.867**	-1.535***	-0.292	-2.37**
Median (%)	-0.663***	-1.192***	-0.078	-2.57***
Observations	749	348	401	

Panel B: **[-1, 1]** *CARs* categorized by outside director ratio

Statistics	Full Sample	Low Outside Director Ratio	High Outside Director Ratio	t/z Statistic For Difference
Mean (%)	-0.867**	-2.363***	-0.154	-4.52***
Median (%)	-0.663***	-2.682***	-0.432	-5.61***
Observations	749	304	445	

Panel C: **[-1, 1]** *CARs* categorized by ownership and outside director ratio

Ownership	High Outside Director Ratio	Low Outside Director Ratio	t/z Statistic For Difference
High ownership (%)	1.240**	-1.668**	-3.75***
	1.435**	-1.852**	-4.49***
	(observations: 189)	(observations: 212)	
Low ownership (%)	-0.658*	-3.970***	-4.07***
	-0.383*	-3.692***	-4.83***
	(observations: 257)	(observations: 91)	

Table 8. Continued.

Panel D: **[-5, 5]** *CARs* categorized by ownership

Statistics	Full Sample	Low Ownership	High Ownership	t/z Statistic For Difference
Mean (%)	-0.507*	-1.208**	0.096	-1.97**
Median (%)	-0.531**	-0.998**	0.070	-1.795*
Observations	749	348	401	

Panel E: *CARs* categorized by outside director ratio

Statistics	Full Sample	Low Outside Director Ratio	High Outside Director Ratio	t/z Statistic For Difference
Mean (%)	-0.507*	-1.650***	0.273	-2.59***
Median (%)	-0.531**	-1.654***	0.224	-2.99***
Observations	749	304	445	

Panel F: *CARs* categorized by ownership and outside director ratio

Ownership	High Outside Director Ratio	Low Outside Director Ratio	t/z Statistic For Difference
High ownership (%)	1.553**	-1.213*	-2.54***
	0.779**	- 1.049*	-2.79**
	(observations: 189)	(observations: 212)	
Low ownership (%)	-0.685	-2.661***	-1.975**
	-0.431	-3.032***	-2.18**
	(observations: 257)	(observations: 91)	

Table 9
Multivariate Regressions Explaining the Three-day [-1, 1] and Eleven-day [-5, 5] Cumulative Abnormal Returns to Acquiring Firms Around Corporate Acquisition Announcements Using Equal-weighted Market Index

The sample consists of 749 completed acquisitions during the period January 1, 1990 to December 31, 1999. The cumulative abnormal return on stock *i*, CAR_i, is calculated as in table 5. The dependent variable is the eleven-day [-5, 5] announcement period *CAR*. *Firm size* refers to the natural logarithm of the total assets of the acquirer. *MB* is the acquirers' market-to-book ratio, as measured by the book value of total assets minus the book value of equity plus the market value of equity divided by the book value of total assets on the day prior to the acquisition announcement date. *Payment* is a binary variable that takes the value of 1 if the acquisition was financed with 100% cash, and is 0 otherwise. *Acquisition mode* is a binary variable that takes the value of 1 if the acquisition is a conglomerate acquisition based on a match using the first two digits of the SIC code and is equal to 0 otherwise. *Year dummies* are qualitative variables capturing the year of acquisition. *Relative deal* refers to the ratio of target to acquirer market capitalization at the day prior to the announcement date. *Ownership* is the percentage of common shares held by all executive officers and directors, which is obtained from the most recent proxy statements prior to the acquisitions. *Outside director ratio* is the ratio of the number of independent board directors (non-employment directors) divided by the total number of members on the board. *Board size* is the total number of board directors. *Leadership* is a binary variable that takes the value of 1 if the chairman of the board is also the CEO of the company and is 0 otherwise. *Market control* is the corporate market discipline, measured by the fraction of firms acquired over the preceding five years within a firm's two-digit SIC industry. *Debt monitor* refers to the acquiring firms' use of debt, measured by the ratio of book value of long-term debt to invested capital, as obtained from COMPUSTAT. ***, ** and * indicate significance at the 1, 5 and 10 percent levels, respectively.

Panel A: Correlation matrix of independent variables

	Owner-ship	Outside Director Ratio	Board Size	Leader-ship	Firm Size	MB	Payment	Acquisition Mode	Year Dummy	Relative Deal	Market Control	Debt Monitor
Ownership	1.00											
Outside director ratio	-0.27	1.00										
Board size	-0.15	0.21	1.00									
Leadership	-0.09	0.08	0.06	1.00								
Firm size	0.00	-0.06	-0.03	0.02	1.00							
MB	0.06	0.01	-0.06	-0.04	0.06	1.00						
Payment	-0.38	0.24	0.34	0.16	-0.01	0.10	1.00					
Acquisition mode	0.07	-0.01	0.00	-0.07	-0.03	-0.04	-0.20	1.00				
Year dummy	0.09	-0.04	-0.05	-0.03	-0.02	0.01	-0.15	-0.01	1.00			
Relative deal	-0.05	0.05	0.03	-0.05	-0.05	-0.06	0.02	-0.03	-0.02	1.00		
Market control	0.07	-0.02	0.03	0.01	0.06	0.26	0.13	-0.04	0.06	-0.03	1.00	
Debt monitor	-0.03	0.00	0.06	-0.09	0.07	-0.09	-0.01	-0.03	0.01	-0.03	-0.06	1.00

Table 9. Continued.

Panel B: Multivariate analysis of **eleven**-day *CAR [-1,1]* around announcement date equally-weighted index

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Intercept	-0.0443	-0.0151	-0.0813	-0.0838	-0.0804	-0.0768
	(-1.34)	(-0.50)	(-2.27**)	(-2.48**)	(-2.41**)	(-1.92**)
Firm size	0.0019	-0.0017	0.0006	0.0009	0.0005	0.0007
	(1.25)	(-1.18)	(0.41)	(0.56)	(0.31)	(0.38)
MB	6E-4	7E-4	7E-4	7E-4	7E-4	8E-4
	(0.92)	(1.09)	(1.12)	(1.09)	(1.12)	(1.29)
Payment	0.0098	0.0076	0.0085	0.0084	0.0131	0.0166
	(1.31)	(1.01)	(1.15)	(1.14)	(1.66*)	(1.80*)
Acquisition mode	-0.0038	-0.0029	-0.0023	-0.0023	-0.0025	-0.0014
	(-1.31)	(-0.53)	(-0.43)	(-0.43)	(-0.46)	(-0.23)
Year dummies	-0.0016	-0.0011	-0.0016	-0.0017	-0.0018	-0.0016
	(-1.39)	(-0.96)	(-1.45)	(-1.50)	(-1.55)	(-1.27)
Relative deal	-0.0039	-0.0034	0.0039	0.0039	0.0041	0.0031
	(-1.08)	(-0.98)	(-1.14)	(-1.14)	(-1.18)	(-0.87)
Ownership	0.0306		0.0476	0.0475	0.0465	0.0433
	(2.60***)		(3.61***)	(3.60***)	(3.52***)	(3.13***)
Outside director ratio		0.0482	0.0539	0.0552	0.0542	0.0424
		(3.42***)	(4.28***)	(4.29***)	(4.29***)	(2.99***)
Board size				-0.0003		
				(-0.47)		
Leadership				-0.0014		
				(-0.25)		
Market control					0.0132	
					(0.61)	
Debt monitor						
Adjusted R-square	1.45	2.29	4.85	4.64	4.77	4.13
F-statistic	2.59	3.54	4.83	4.68	4.22	3.70
p-value	0.01	0.00	0.00	0.00	0.00	0.00
Observations	749	749	749	749	749	564

Table 9. Continued.

Panel C: Multivariate analysis of Eleven-day *CAR [-5,5]* around announcement date equally-weighted index

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Intercept	0.0586	0.0555	0.0841	0.0836	0.0828	0.0598
	(1.31)	(1.22)	(1.81)	(1.81)	(1.82)	(1.38)
Firm size	-0.0022	-0.0054	-0.0053	-0.0053	-0.0051	-0.0048
	(-1.05)	(-1.69)	(-1.62)	(-1.60)	(-1.61)	(-1.19)
MB	5E-4	0.0002	0.0003	0.0001	0.0001	0.0002
	(0.95)	(1.13)	(1.14)	(1.16)	(1.04)	(1.12)
Payment	0.0044	0.0024	0.0035	0.0033	0.0036	0.0057
	(0.44)	(0.24)	(0.35)	(0.32)	(0.35)	(0.49)
Acquisition mode	-0.0029	-0.0033	-0.0039	-0.0040	-0.0037	-0.0028
	(-1.39)	(-1.45)	(-1.54)	(-1.54)	(-1.50)	(-1.33)
Year dummies	-0.0005	-0.0013	-0.0048	-0.0051	-0.0007	-0.0010
	(-0.30)	(-0.87)	(-1.32)	(-1.33)	(-0.47)	(-0.58)
Relative deal	0.0039	0.0037	0.0040	0.0040	0.0042	0.0080
	(0.82)	(0.80)	(0.85)	(0.85)	(0.89)	(1.67)
Ownership	0.0276		0.0288	0.0287	0.0286	0.0268
	(3.36***)		(3.82***)	(3.81***)	(3.73***)	(2.45***)
Outside director ratio		0.0147	0.0165	0.0165	0.0165	0.0142
		(1.95**)	(2.66***)	(2.63***)	(2.67***)	(2.46***)
Board size				-0.0007		
				(-0.80)		
Leadership				0.0026		
				(0.33)		
Market control					0.0095	-0.0002
					(1.06)	(-1.14)
Debt monitor						
Adjusted R-square	1.58	1.60	2.50	2.51	2.56	2.51
F-statistic	1.92	1.95	2.40	2.09	2.18	1.97
p-value	0.10	0.10	0.01	0.05	0.02	0.05
Observations	749	749	749	749	749	564

Table 10
Robustness Check: Three-Day [-1, 1] and Eleven-Day [-5, 5] Cumulative Abnormal Returns to Acquiring Firms Around Corporate Acquisition Announcements Using Estimation Window [-20, 20]

The sample consists of 749 completed acquisitions during the period January 1, 1990 to December 31, 1999. The cumulative abnormal return on stock *i*, CAR_i, is calculated as in table 5. *Low ownership* refers to acquiring firms whose common shares held by all executives and officers are at or lower than 5 %, otherwise the firms are classified as *high ownership* firms. *Low outside director ratio* refers to acquiring firms whose board includes independent board directors (non-employment directors) at or lower than 60%, otherwise the firms are classified as *high outside director ratio* firms. For each firm, the ownership data and outside board director ratios are obtained from the most recent proxy statements prior to the acquisition announcements. The mean and median CARs for the full sample and each sub-sample are reported with t-statistics in the parentheses. In panels C and D, means (medians) are reported. In the last column, the t-statistic is from the t-test of the difference between means. The z-test is from the Wilcoxon rank sum test of difference between medians. ***, ** and * indicate significance at the 1, 5 and 10 percent levels, respectively.

Panel A: [-1, 1] *CARs* categorized by ownership

Statistic	Full Sample	Low Ownership	High Ownership	t/z Statistic for Difference
Mean (%)	-1.299***	-1.941***	-0.747	-2.30**
Median (%)	-1.073***	-1.452***	-0.523	-2.35**
Observations	749	348	401	

Panel B: [-1, 1] *CARs* categorized by outside director ratio

Statistic	Full Sample	Low Outside Director Ratio	High Outside Director Ratio	t/z Statistic for Difference
Mean (%)	-1.299***	-2.757***	-0.308	-3.44***
Median (%)	-1.073***	-2.668***	-0.050	-3.79***
Observations	749	304	445	

Panel C: [-1, 1] *CARs* categorized by ownership and outside director ratio

Ownership	High Outside Director Ratio	Low Outside Director Ratio	t/z Statistic For Difference
High Ownership (%)	0.573	-1.936***	-3.26***
	1.395*	(-2.005***)	4.16***
	(observations: 189)	(observations: 212)	
Low Ownership (%)	-0.968**	-4.669***	-4.64***
	(-0.719**)	(-4.201***)	-4.37***
	(observations: 257)	(observations: 91)	

Panel D: [-5, 5] *CARs* categorized by ownership

Statistic	Full Sample	Low Ownership	High Ownership	t/z Statistic for Difference
Mean (%)	-1.678***	-2.837**	-0.683	-3.03***
Median (%)	-1.652***	-2.628**	-0.470	-3.12***
Observations	749	348	401	

Panel E: [-5, 5] *CARs* categorized by outside director ratio

Statistic	Full Sample	Low Outside Director Ratio	High Outside Director Ratio	t/z Statistic for Difference
Mean (%)	-1.678***	-2.706***	-0.976*	-2.14**
Median (%)	-1.652***	-3.094***	-0.947*	-3.07***
Observations	749	304	445	

Panel F: [-5, 5] *CARs* categorized by ownership and outside director ratio

Ownership	High Outside Director Ratio	Low Outside Director Ratio	t/z Statistic For Difference
High Ownership (%)	0.343	-1.599**	-1.93*
	0.499	- 1.257**	-2.03**
	(observations: 189)	(observations: 212)	
Low Ownership (%)	-1.959***	-5.297***	-3.00***
	-1.652***	-5.278***	-4.09***
	(observations: 257)	(observations: 91)	

Table 11
Robustness Check: Multivariate Regressions Explaining the Three-Day [-1, 1] and Eleven-Day [-5, 5] Cumulative Abnormal Returns to Acquiring Firms Around Corporate Acquisition Announcements Using Estimation Window [-20, 20]

The sample consists of 749 completed acquisitions during the period January 1, 1990 to December 31, 1999. The cumulative abnormal return on stock *i*, CAR_i, is calculated as in table 5. The dependent variable is the eleven-day [-5, 5] announcement period *CAR*. *Firm size* refers to the natural logarithm of the total assets of the acquirer. *MB* is the acquirers' market-to-book ratio, as measured by the book value of total assets minus the book value of equity plus the market value of equity divided by the book value of total assets on the day prior to the acquisition announcement date. *Payment* is a binary variable that takes the value of 1 if the acquisition was financed with 100% cash, and is 0 otherwise. *Acquisition mode* is a binary variable that takes a value of 1 if the acquisition is a conglomerate acquisition based on a match using the first two digits of the SIC code and is equal to 0 otherwise. *Year dummies* are qualitative variables capturing the year of acquisition. *Relative deal* refers to the ratio of target to acquirer market capitalization on the day prior to the announcement date. *Ownership* is the percentage of common shares held by all executive officers and directors, which is obtained from the most recent proxy statements prior to the acquisitions. *Outside director ratio* is the ratio of the number of independent board directors (non-employment directors) divided by the total number of members on the board. *Board size* is the total number of board directors. *Leadership* is a binary variable that takes the value of 1 if the chairman of the board is also the CEO of the company and is 0 otherwise. *Market control* is the corporate market discipline, measured by the fraction of firms acquired over the preceding five years within a firm's two-digit SIC industry. *Debt monitor* refers to the acquiring firms' use of debt, as measured by the ratio of book value of long-term debt to invested capital, as obtained from COMPUSTAT. Panel A reports the correlation matrix of the independent variables. In panel B, estimated coefficients of each independent variable are reported with the t-statistics in parentheses. ***, ** and * indicate significance at the 1, 5 and 10 percent levels, respectively.

Table 11. Continued.

Panel A: Multivariate analysis of three-day *CAR [-1,1]* around announcement date						
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Intercept	-0.0373	-0.0061	-0.0728	-0.0826	-0.0724	-0.0438
	(-1.13)	(-0.20)	(-2.20**)	(2.47**)	(-2.18**)	(-1.09)
Firm size	0.0015	-0.0022	-0.0018	0.0012	1E-4	-8E-4
	(1.01)	(-1.51)	(-1.21)	(0.77)	(0.07)	(-0.45)
MB	-7E-4	-9E-4	-9 E-4	-8 E-4	-9 E-4	-0.0001
	(-1.21)	(-1.40)	(-1.41)	(-1.32)	(1.47)	(-1.67*)
Payment	0.0086	0.0066	0.0077	0.0075	0.0077	0.0086
	(1.15)	(0.89)	(1.04)	(1.02)	(1.04)	(1.10)
Acquisition mode	-0.0017	-0.0008	-2E-4	-2E-4	-3E-4	-6E-4
	(-0.12)	(-0.16)	(-0.04)	(-0.05)	(-0.06)	(-0.10)
Year dummies	-0.0022	-0.0017	-0.0022	-0.0025	-0.0023	-0.0019
	(-2.01**)	(-1.57)	(-2.06**)	(-2.27**)	(-2.10**)	(-1.49)
Relative deal	-0.0049	-0.0055	-0.0053	-0.0052	-0.0054	-0.0042
	(-1.41)	(-1.44)	(-1.52)	(-1.53)	(-1.56)	(-1.18)
Ownership	0.0612		0.0779	0.0780	0.0772	0.0720
	(3.63***)		(4.62***)	(4.63***)	(4.55***)	(3.55***)
Outside director ratio		0.0785	0.0738	0.0787	0.0738	0.0673
		(4.45***)	(4.30***)	(4.53***)	(4.30***)	(3.72***)
Board size				-0.0012		
				(-1.92**)		
Leadership				-0.0039		
				(-0.69)		
Market control					0.0084	
					(0.39)	
Debt monitor						-1E-4
						(-0.15)
Adjusted R-square	1.81	2.67	5.27	5.55	5.53	3.58
F-statistic	2.97	3.93	5.20	5.40	5.16	3.30
p-value	0.00	0.00	0.00	0.00	0.00	0.00
Observations	749	749	749	749	749	564

Table 11. Continued.

Panel B: Multivariate analysis of eleven-day *CAR [-5,5]* around announcement date						
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Intercept	-0.0434	0.0142	-00637	-0.0801	-0.0121	-0.0011
	(-0.96)	(0.34)	(-1.38)	(-1.67*)	(-0.26)	(-0.02)
Firm size	-0.0014	-0.0021	-0.0006	-0.0022	-0.0022	-0.0024
	(-0.68)	(-1.02)	(-0.30)	(-0.94)	(-1.02)	(-0.96)
MB	5E-4	5E-4	6E-4	4E-4	0.0002	0.0002
	(0.56)	(0.56)	(0.64)	(0.49)	(2.15**)	(1.84*)
Payment	0.0051	0.0033	0.0046	0.0048	0.0145	0.0163
	(0.56)	(0.32)	(0.45)	(0.49)	(1.42)	(1.36)
Acquisition mode	-0.0098	-0.0100	-0.0107	-0.0102	-0.0024	-0.0016
	(-1.33)	(-1.35)	(-1.45)	(-1.39)	(-0.33)	(-0.16)
Year dummies	-0.0027	-0.0021	-0.0027	-0.0031	-0.0025	-0.0017
	(-1.78*)	(-1.37)	(-1.79)	(-1.99**)	(-1.62)	(-0.94)
Relative deal	-0.0085	-0.0084	-0.0087	-0.0085	-0.0070	-0.0066
	(-1.78*)	(-1.75*)	(-1.89*)	(-1.78*)	(-1.46)	(-1.31)
Ownership	0.0803		0.0897	0.0889	0.0533	0.0575
	(3.51***)		(3.82***)	(3.82***)	(2.28**)	(2.01**)
Outside director ratio		0.0360	0.0527	0.0600	0.0614	0.0542
		(1.47)	(2.18**)	(2.39***)	(2.50***)	(2.04**)
Board size				-0.0018		
				(-1.28)		
Leadership				-0.0027		
				(-0.34)		
Market control					0.0421	
					(1.41)	
Debt monitor						-2E-4
						(-0.20)
Adjusted R-square	2.59	1.27	3.44	3.53	3.37	3.15
F-statistic	2.85	1.36	2.63	2.70	2.86	1.99
p-value	0.00	0.22	0.00	0.00	0.00	0.03
Observations	749	749	749	749	749	564

Table 12
Robustness Check: Three-Day [-1, 1] and Eleven-Day [-5, 5] Cumulative Abnormal Returns to Acquiring Firms Around Corporate Acquisition Announcements Using Different Board Composition Criteria

The sample consists of 749 completed acquisitions during the period January 1, 1990, to December 31, 1999. The cumulative abnormal return on stock i, CAR_i, is calculated as in table 5. *Low ownership* refers to acquiring firms whose common shares held by all executives and officers are at or lower than 5 %, otherwise the firms are classified as *high ownership* firms. *Low outside director ratio* refers to acquiring firms whose board includes independent board directors (non-employment directors) at or lower than 50%, otherwise the firms are classified as *high outside director ratio* firms. For each firm, the ownership data and outside board director ratios are obtained from the most recent proxy statements prior to the acquisition announcement. The mean and median CARs for full sample and each sub-sample are reported with t-statistics for significance in the parentheses. In panels C and D, means (medians) are reported. In the last column, the t-statistic is from the t-test of the difference between means. The z-test is from the Wilcoxon rank sum test of difference between medians. ***, ** and * indicate significance at the 1, 5 and 10 percent levels, respectively.

Panel A: *[-1, 1] CARs* categorized by ownership

Statistic	Full Sample	Low Ownership	High Ownership	t/z Statistic for Difference
Mean (%)	-1.132***	-1.755***	-0.591	-2.24**
Median (%)	-0.873***	-1.330***	-0.323	-2.57***
Observations	749	348	401	

Panel B: *[-1, 1] CARs* categorized by outside director ratio

Statistic	Full Sample	Low Outside Director Ratio	High Outside Director Ratio	t/z Statistic for Difference
Mean (%)	-1.132***	-2.408***	-0.823*	-2.306**
Median (%)	-0.873***	-3.075***	-0.392	-4.00***
Observations	749	146	603	

Panel C: *[-1, 1] CARs* categorized by ownership and outside director ratio

Ownership	High Outside Director Ratio	Low Outside Director Ratio	t/z Statistic for Difference
High	-0.134	-1.817***	-2.802***
Ownership	0.664	- 2.388***	-3.23***
(%)	(observations: 292)	(observations: 109)	
Low	-1.147**	-4.151***	-1.965**
Ownership	-1.046**	-4.425***	-3.358***
(%)	(observations: 311)	(observations: 37)	

Table 12. Continued.

Panel D: *[-5, 5] CARs* categorized by ownership

Statistic	Full Sample	Low Ownership	High Ownership	t/z Statistic for Difference
Mean (%)	-1.680***	-2.262***	-0.860	-2.67***
Median (%)	-1.639***	-2.628***	-0.809	-3.12***
Observations	749	348	401	

Panel E: *[-5, 5] CARs* categorized by outside director ratio

Statistic	Full Sample	Low Outside Director Ratio	High Outside Director Ratio	t/z Statistic for Difference
Mean (%)	-1.680***	-2.904***	-1.384**	-1.53
Median (%)	-1.639***	-3.854***	-1.354**	-2.16**
Observations	749	146	603	

Panel F: *[-5, 5] CARs* categorized by ownership and outside director ratio

Ownership	High Outside Director Ratio	Low Outside Director Ratio	t/z Statistic for Difference
High ownership (%)	-0.344	-2.242***	-1.49
	-0.371	-3.139***	-1.981**
	(observations: 292)	(observations:109)	
Low ownership (%)	-2.361**	-4.852***	-1.680*
	-2.202**	-4.191***	-1.978**
	(observations: 311)	(observations: 37)	

Table 13
Post-acquisition Performance: Three-year or 36 Month [1, 36] Performance of Acquiring Firms

The sample consists of 749 completed acquisitions during the period January 1, 1990, to December 31, 1999. To maintain the independence of the observations, we include only the first announcement date for each firm. The sample is therefore reduced to 496 observations. The high ownership sub-sample consists of 267 acquiring firms whose executives and officers hold more than 5 % of their common shares, and the low ownership sub-sample consists of the remaining 229 acquiring firms. The independent board sub-sample consists of the 289 acquiring firms whose board is composed of at least 60% independent board directors (non-employment directors), and the dependent board sub-sample consists of the remaining 207 acquiring firms. In the BHAR approach, The Buy-and-Hold abnormal return on stock *i*, $BHAR_{it}$, is calculated as $\prod_{t=1}^{T}(1+AR_{it})-1$. AR_{it} is the abnormal return to firm *i* at time *t*, which is calculated from the market model, $AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt}$, where R_{it} is the monthly return inclusive of dividends for security *i* in time *t*, and R_{mt} is the monthly return to the CRSP NYSE/AMEX/NASDAQ value-weighted market index. *T* is the length of the event window. α_i and β_i are market model parameter estimates obtained by regressing monthly R_{it} on the R_{mt} over the 60-month estimation period form event month -60 to -1 . *Low ownership* refers to acquiring firms whose common shares held by all executives and officers are at or lower than 5 %, otherwise the firms are classified as *high ownership* firms. *Low outside director ratio* refers to acquiring firms whose board includes independent board directors (non-employment directors) at or lower than 60%, otherwise the firms are classified as *high outside director ratio* firms. For each firm, the ownership data and outside board director ratios are obtained from the most recent proxy statement prior to the acquisition announcement. The mean and median *BHARs* for the full sample and each sub-sample are reported with t-statistics in the parentheses. In the last column, the t-value is from the t-test of the difference between means. The z-test is from the Wilcoxon rank sum test of the difference between medians. In the portfolio approach, post-acquisition performance is determined by calculating Jensen's alpha (α) for each firm in sub-sample p by running the following regression:

$$r_{it} - r_{ft} = \alpha_i + \beta_i(r_{Mt} - r_{ft}) + \varepsilon_{it},$$

where r_{it} is the return for acquiring firm *i* for month *t* within the 36 month [1, 36] post-acquisition period, r_{Mt} is the return for CRSP NYSE/AMEX/NASDAQ value-weighted market index for month *t* within the 36 month [1, 36] post-acquisition period, r_{ft} is the risk-free return (as proxied by the three-month treasury bill rate) for month *t* within the 36 month [1, 36] post-acquisition period,α_i and β_i are parameters to be estimated, and ε_i is the error term with the usual properties. Mean (median) alpha are reported. The t-statistic is for the t-test of the difference between means and the z-test is for the Wilcoxon rank sum test of the difference between medians are reported in the last column. ***, **, and * indicate significance at the 1 percent, 5 percent levels and 10 percent respectively.

Table 13. Continued

Panel A: 36 Month [1, 36] post-acquisition performance categorized by ownership

Type of Portfolio	Statistic	Low Ownership	High Ownership	t/z Statistic For Difference
BHAR Approach	Mean	-20.706**	-31.031***	1.96**
	Median	-29.442***	-46.394***	3.23***
Portfolio Approach	Average % Alpha	0.67**	-0.16	4.44***
		(0.63**)	(-0.23)	(4.01***)
	Average Beta	0.61	1.83	2.79***
Observation		229	267	

Panel B: 36 Month [1, 36] post-acquisition performance categorized by outside director ratio

Type of Portfolio	Statistic	Low Outside Director Ratio	High Outside Director Ratio	t/z Statistic For Difference
BHAR Approach	Mean	-29.352***	-24.052**	-0.52
	Median	-44.164***	-33.032***	-2.04**
Portfolio Approach	Average % Alpha	0.11	0.45**	-1.77*
		(0.05)	(0.52**)	(-1.86*)
	Average Beta	1.47	0.82	2.08**
Observation		207	289	

Panel C: Three-year *BHARs* categorized by ownership and outside director ratio

Ownership	High Outside Director Ratio	Low Outside Director Ratio	t/z Statistic For Difference
High ownership (%)	-32.694***	-29.545***	-0.33
	-44.743***	-47.048***	-0.45
	(observations: 126)	(observations: 141)	
Low ownership (%)	-17.373***	-28.939***	-1.65*
	-25.052***	-41.261***	-1.64*
	(observations: 163)	(observations: 66)	

Panel D: 36 Month [1, 36] post-acquisition Risk-Adjusted performance categorized by ownership and outside director ratio

Ownership	Statistic	High Outside Director Ratio	Low Outside Director Ratio	t/z Statistic For Difference
High ownership (%)	Average % Alpha	0.06	-0.44**	0.57
		(0.09)	(-0.47**)	(0.98)
	Average Beta	1.27	1.96	0.64
Low ownership (%)	Average % Alpha	0.66**	0.43**	0.67
		(0.47**)	(0.28*)	(0.87)
	Average Beta	0.53	0.67	0.12