

## TARGET BOARD STRUCTURE AND TAKEOVER-INDUCED ABNORMAL RETURNS IN THE UK

*Costas Constantinou, Lenos Trigeorgis, and Nikos Vafeas\**

### Abstract

We examine the link between board structure and bid-induced abnormal returns for a sample of 198 UK-based firms that became takeover targets between 1989 and 1998. As expected, takeover targets experience significant gains during the takeover announcement period. In line with a disciplinary explanation for takeovers, we find that target boards that are larger, with fewer independent directors, and a managing director chairman, experience more favorable announcement-period returns. Targets with more reputable directors and directors with greater ownership incentives, also experience more favorable announcement-period returns.

**Keywords:** Board of directors; takeovers; bidders

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*\* Constantinou is a Lecturer at the University of Strathclyde; Trigeorgis and Vafeas are Professor and Associate Professor, respectively, at the Department of Public and Business Administration of the University of Cyprus. Address all correspondence to Lenos Trigeorgis, University of Cyprus, Kallipoleos 75, POBox 537, Nicosia-1678; e-mail: lenos@ucy.ac.cy.*

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### 1. Introduction

Corporate takeovers involve considerable discretion on management's part. Because of this, takeovers present a useful setting for observing the effectiveness of alternative corporate governance structures in guiding managerial discretion and in protecting shareholder interests. In particular, prior research has suggested that the structure of a corporate board, a mechanism that is at the apex of corporate governance, is a major determinant of a takeover's success. The first such evidence came from Byrd and Hickman (1992) who report that bidders in the US experience more positive announcement-period returns when their boards are independent of management's influence. In a related vein, Cotter et al. (1997) report an analogous result for US takeover targets. The presumption in both studies is that independent boards help to protect shareholder interests in takeover transactions, and that such benefits are reflected on share prices (the effective board explanation). We posit a competing possibility, suggesting that takeovers are most beneficial for shareholders when targeting poorly governed firms. In this view, firms with less independent, and otherwise less effective, boards stand to gain more from a takeover because the potential improvement in governance resulting from the change in control is greater for poorly governed firms (the disciplinary explanation).

In this study, we address these competing explanations empirically by studying the importance of board structures in explaining shareholder returns for a sample of UK firms becoming takeover targets between 1989 and 1998. Our study adds to existing knowledge in two additional ways: First, it is staged in a UK, rather than in a US, setting. Although in both countries ownership in public corporations is dispersed and shareholders receive significant legal protection in the common law tradition, there are important differences in the way corporate boards are structured and operate: In marked contrast to US-based firms, in the vast majority of UK firms there is a separation in the roles of board chairperson and CEO, executives and non-executives are roughly evenly represented on boards, boards are generally small, executive compensation packages are leaner and simpler, and little work is delegated to board committees. (See Conyon (1994) for descriptive statistics on UK boards, and Yermack (1996) for descriptive statistics on US boards.) The impact of these differences on the shareholder wealth effects of takeovers is not a priori clear.

Second, exploiting these differences and building on prior work, this study employs a wide set of proxies for board structure in addition to board independence, such as board size, leadership structure, director ownership, director incentives, and director reputation. This approach draws on a growing body of research that suggests that several features beyond independence may be important in

measuring successful boards, and tests the importance of these features in enhancing target shareholder wealth. Our findings are mostly in line with a disciplinary explanation for the market reaction to takeovers. Importantly, we find that target boards that are larger, with fewer independent directors, and a managing director chairman, experience more favorable announcement-period returns. Firms with smaller, less independent boards that are led by a CEO-chair are likely to be firms with more corporate governance problems and would, presumably, benefit more from a change in control. In contrast, we also report evidence that targets with more reputable directors and directors with greater ownership incentives, experience more favorable announcement-period returns, suggesting that director incentives may increase the wealth of target shareholders. The study is organised as follows. The literature review and hypotheses are presented in section two. Our data collection procedure, variable selection, sample description, and methodology comprise section three. A discussion of the results obtained from multivariate analysis is reported in section four. Section five summarises and concludes.

## 2. Literature Review and Testable Hypotheses

### 2.1 Background

In this study we address the following question: 'how does a takeover target's board structure affect its shareholders' wealth during a takeover?' This pursuit draws on agency theory<sup>1</sup> that highlights the conflicts of interest that usually appear in public corporations. Jensen and Meckling (1976) and Fama and Jensen (1983) argue that agency costs can be minimised by using a variety of governance mechanisms that reduce the scope of managerial discretion. Such mechanisms include the corporate board, ownership structure, and compensation incentives. In cases where internal structures are not working properly, the market for corporate control acts as a monitoring mechanism of last resort, since it corrects for managerial failure by displacing under-performing managers (e.g., Weir, 1997). Thus, firms with inadequate internal controls are expected to have poor financial performance and a higher likelihood of becoming takeover targets; poorer financial performance will attract outside bidders who can potentially manage the firm's resources better than existing management.

This assertion is empirically supported by Limmack (1994) who finds evidence that acquisitions are undertaken not only for synergistic

reasons but also to acquire previously under-utilised assets, suggesting that the market for corporate control acts as one of the disciplinary mechanisms aiming to improve corporate profitability. In a related vein, Cotter, Shivdasani, and Zenner (1997) find that when the target's board is independent, the initial tender offer premium, the bid premium revision, and the target shareholder gains over the entire tender offer period are higher. They conclude that independent outside directors enhance the target shareholders' wealth and that independent target boards are more likely to use resistance strategies.

Shivdasani (1993) compares a sample of hostile US targets to a sample of non-targets and concludes that the likelihood of hostile takeovers is negatively related to stock ownership, and the number of additional directorships held by non-executive directors, in line with firms with poorer governance structures being more likely to resist a takeover. Furthermore, Brickley and James (1987) find that the presence of non-executive directors serves to reduce consumption of perquisites in the absence of an effective takeover market, consistent with independent boards and the corporate control market being substitute mechanisms in disciplining management. Finally, Stulz (1988) argues that higher managerial stock ownership can reduce the likelihood of a successful takeover, since a higher equity stake might prevent the efficient operation of the market for corporate control. In such a case, managers can block an offer or set a high premium that may be unprofitable for the bidding company.

Focusing on a sample of UK firms, Weir (1997) studied the relationship between the probability of being acquired, firm performance, and governance structure. He finds that board independence and leadership structure can differentiate between acquired and non-acquired firms. Weir also finds that targets are poor performers, a fact that supports the view that their internal governance is ineffective. Finally, O'Sullivan and Wong (1998) find that executive stock ownership decreases the likelihood of a hostile takeover in the UK, but increases the likelihood of a successful takeover.

### 2.2 Testable Propositions

The preceding discussion leaves open the possibility for two competing effects of board effectiveness on the target shareholders' wealth: First, the most widely held view is that effective boards elicit more attractive bids, and make better decisions for their shareholders, resulting in higher returns in the presence of good governance (an effective board explanation). In contrast, a disciplinary explanation predicts lower returns for targets that are properly governed because such firms have less to gain from a change in control.

Below, we present a series of governance mechanisms and argue their potential importance in corporate governance. Because of the competing

<sup>1</sup> Agency problems are the conflicts that arise when the interests of shareholders and managers diverge. More formally, agency problems occur because the control and management functions are separated from risk bearing.

nature of the “effective board” and “disciplinary” explanations, we do not express directional expectations in stating our hypotheses. Instead, we simply illuminate each mechanism as potentially important in explaining the target shareholder’s returns and outline the arguments supporting each explanation for the market reaction to takeovers.

### 2.2.1 Pct. Outside Directors

The board of directors is responsible for supervising the actions of senior management to protect shareholder interests (Fama, 1980). This objective has been closely linked to the composition of the board, i.e., executive and non-executive director representation.<sup>2</sup> Specifically, it is recommended that non-executive directors assume an active monitoring role in the boardroom (Fama, 1980; Fama and Jensen, 1983; and Cadbury, 1992). The oversight provided by outside directors when a firm has to respond to a tender offer is of great importance for shareholders, since tender offers can have a very significant effect on shareholder wealth. Although target shareholder gains are usually large in successful tender offers, managers may suffer (e.g., by losing their jobs), and thus may try to reject such offers. Thus, according to the effective board explanation, independent boards will make better decisions for the target firm’s shareholders, consistent with shareholder wealth maximisation.

Alternatively, in line with the disciplinary explanation, firms with more independent boards have less to gain from a takeover because these firms are, on average, well-governed. Shareholders will respond with greater relief to news of a change in control in firms where managers have control of the board, and who compromise the board’s monitoring effectiveness. Thus,

*Hypothesis 1: Shareholder gains during tender offers are related to the fraction of outside directors serving on the board.*

### 2.2.2 CEO-Chairman

A second important characteristic of the board, highlighting its independence, is its leadership structure or concentration. Some argue that no individual director should hold the CEO and board chair jobs together (e.g., Cadbury, 1992). Having a

unitary leadership structure by combining the roles of chairman and CEO can yield excessive power to one person, thus reducing the board’s ability to exercise effective, independent control over management. (For mixed empirical evidence on the value-relevance of leadership structure see Brickley, Coles, and Jarrell, 1997.) Separating the two roles allows the CEO to run every-day business while allowing the chairman to focus on different strategies and evaluate the performance of the firm and its directors independently. In line with the earlier discussion, if more independent board chairpersons make better takeover decisions, targets that have separated the CEO chairman roles would experience greater returns. In the disciplinary view of takeovers, the removal of a CEO chairman from a target’s board would result in a greater reduction in agency costs, and would thus elicit greater announcement-period returns for the target.

*Hypothesis 2: Shareholder gains during tender offers are related to the presence of a CEO-chairman on the board.*

### 2.2.3 Pct. Interlocking Directors

Third, probing further into the independence of boards, we identify all target firms with directors also serving on the bidder’s board (termed interlocking directors). We examine how such directorships can affect the target shareholders’ wealth given that these directors have a fiduciary obligation to both firms, and face a conflict of interests. Further, interlocking directorships can reduce the information asymmetry between the target and bidder, so other bidders may be discouraged from making a bid, also reducing the potential benefits of shareholders. Alternatively, the presence of interlocking directors is likely to cause conflicts in the board because of conflicting interests among directors. Bringing the entire board under the bidder’s control will increase the board’s operating efficiency.

*Hypothesis 3: Shareholder gains during tender offers are related to the fraction of interlocking directors serving on the target firm’s board.*

### 2.2.4 Directorships Held by Outside Directors

Fourth, the reputation of independent directors is another relevant director attribute. A proxy of how reputable independent directors are in the labour market is their value in the market for directorships. Fama (1980) and Fama and Jensen (1983) underline the importance of reputation capital as a measure of director effectiveness. One proxy for director reputation, and thus for director ability and willingness to protect shareholder interests, is the number of additional directorships held by outside directors. According to the effective board explanation, companies whose board includes more

<sup>2</sup> Executive, dependent, or inside directors are appointed to the board because of their experience and industry-specific knowledge of the business. Inside directors are full-time employees of the firm. Non-executive, independent, or outside directors are those directors who are not current or past employees of the corporation. In this study independent directors might include directors that have some affiliation with the firm, or have substantial business or family ties with the firm. The duties of a non-executive director are to encourage senior management to improve corporate performance, to offer specialised assistance when required, and to monitor managerial actions.

reputable non-executive directors (those holding more additional board seats) make better decisions during takeover contests, and are thus able to elicit higher returns for the target firm's shareholders. According to the disciplinary explanation, targets stand to benefit more when the directors to be replaced are less reputable, and thus less effective in overseeing management.

*Hypothesis 4: Shareholder gains during tender offers are related to the number of directorships held by the target firm's outside directors.*

### 2.2.5 Director Incentive Shares

A fifth characteristic that is critical in testing the role of the board of directors in takeover bids is the amount of incentive shares held by the target firm's directors, both executive and non-executive. It is a widely-held belief that agency problems between corporate directors and shareholders can be reduced through appropriate incentives by which shareholder and director interests are aligned. Two possibilities exist: a) better motivated directors make better takeover decisions or b) replacing poorly motivated directors creates additional wealth for takeover targets.

*Hypothesis 5: Shareholder gains during tender offers are related to the amount of incentive shares held by the target's directors.*

### 2.2.6 Director Stock Ownership

Related to director incentives, a sixth key characteristic of the board is the amount of stock owned by directors. It is expected that in firms with high director stock ownership, directors are more inclined to act in line with shareholder interests. First, non-executive director shareholdings contribute to a large extent to the minimisation of the asymmetry of information between the managers and the rest of the shareholders since non-executives have an incentive to monitor the managers' behaviour while simultaneously protecting their own interests. On the other hand, stock ownership by management can reduce the agency problem stemming from the separation of ownership and control. According to the effective board explanation, the more stock managers own, the stronger their motivation to raise the value of the firm's stock (e.g., McConnell and Servaes, 1990).<sup>3</sup> According to the disciplinary explanation, the removal of directors with low equity-holdings (in anticipation of new directors with greater equity-holdings) is positively received by the market.

<sup>3</sup> At the extreme, excessive managerial stock ownership might work the other way around and increase agency problems, as in the case of many family-controlled firms where directors may put the interests of the family above the interests of shareholders.

*Hypothesis 6: Shareholder gains during tender offers are related to the amount of director stock ownership.*

### 2.2.7 Board Size

Finally, the size of the board is also an essential part of board structure. Up to a point, there are essential benefits to large boards because an increased number of board members may bring a wider perspective to the board. However, process losses and operational inefficiencies may render boards that are larger than a critical level to be less functional (e.g., Yermack, 1996). Often a board of directors faces co-ordination problems, which increase as the size of the board increases.<sup>4</sup> Given that small boards are unusual in public firms, we expect the effect of board size on bid-induced returns to be monotonic, i.e., the effective board explanation would predict a negative relation between board size and shareholder gains; the disciplinary explanation would predict a positive relation.

*Hypothesis 7: Shareholder gains during tender offers are related to the target firm's board size.*

In addition to these variables, we control for other factors that can potentially explain the market reaction to takeover bids. First, a binary variable distinguishes all-cash transactions from those that are financed partly with equity (see Travlos, 1987). Second, the market-to-book ratio reflecting the target's growth opportunities, is used to capture the bidder's incentives for a disciplinary takeover to eliminate over-investment by the target. Third, an industry affiliation dummy separates synergistic acquisitions from diversifying acquisitions. Finally, the tests control for the target's size relative to the bidder, the target's leverage, and its pre-bid equity capitalisation.

## 3. Data and Methodology

### 3.1 Data

Data on the bidding and target firms and the characteristics of the bid were collected from Acquisitions Monthly, and span the period from December 1989 to April 1998. For a firm to be included in the sample, both the bidder and target had to be based in the UK. To measure the wealth effect of the bid, we collected data on daily security returns from Datastream. Our corporate governance data, covering each firm's board and ownership characteristics, come from the Price Waterhouse Corporate Register. Specifically, before 1995 governance data were obtained from the Register's bi-annual books, and after 1995 from the Register's

<sup>4</sup> Theoretically, the optimal size of the board is determined by increasing the number of directors until the benefits from additional perspectives are offset by the costs of greater difficulties in co-ordination and decision making.

quarterly books. Firms that were not listed in either Datastream or the Price Waterhouse Corporate Register were excluded from the sample. The final sample of takeover targets used in this study comprises 198 tender offers. The sample is then divided into hostile bids (bids that were contested by the target firm's management) and friendly bids. Hostile bids are in turn divided into successful and unsuccessful bids. Specifically, we consider a bid to be hostile if Acquisitions Monthly reports that the target firm resisted the offer. A bid is considered to be friendly if Acquisitions Monthly reports that it was accepted by the target firm's management. If the bid was hostile, but at last was completed, it is considered to be hostile and successful; otherwise, it is considered to be hostile and unsuccessful. Data concerning whether the bidder and target firms were in the same industry, and whether or not the bid settlement was made entirely in cash, were also collected from Acquisitions Monthly. To evaluate the impact of the bid on the target shareholders' wealth we use standard event-study methodology and estimate the cumulative average abnormal returns (CARs) around the bid's announcement date. Further, we employ two groups of variables to explain the shareholder wealth effects. The first group includes our governance variables, proxying for board and ownership structures. The second group comprises control variables for firm size, growth opportunities, leverage, the method of payment, an industry dummy, and a hostile offer dummy. The definition of all governance and control variables is provided in the Appendix.

[insert table 1]

Table 1 provides a brief description of our sample by year. The total number of announcements is 198, of which most occur between 1995-97. The number of resisted (hostile) offers is 58 (about 29%);<sup>5</sup> contested offers are distributed rather evenly between successfully completed offers and unsuccessful offers. The overall sample contains 50 cash offers and 148 offers that were paid in full or in part through the issuance of other securities. Last, in 90 cases (45%) the bidder and the target were in the same industry, and in 108 cases they were not.

### 3.2 Methodology

In order to evaluate the influence of board composition on shareholder wealth, we estimate abnormal stock performance around the takeover announcement as the difference between the

expected and actual return. For each company we estimate a single-factor market model and compute the excess return for each day  $t$  as

$$\text{Abnormal Return (AR}_{it}) = R_{it} - (a_i + b_i R_{mt})$$

where  $R_{it}$  is the return on time  $t$  for the shares of company  $i$ , and  $R_{mt}$  is the rate of return for period  $t$  on the FTSE all share index. The estimation period is 260 days, spanning from -300 to -41 trading days prior the announcement of the initial bid. Following Dodd and Warner (1983), we standardise each abnormal return by the estimate of its standard error, with the standardised abnormal return computed as:

$$\text{SAR}_{it} = \frac{AR_{it}}{\sqrt{\text{Var}(AR_{it})}}$$

$\text{Var}(AR_{it})$  is the variance of the abnormal returns, defined as

$$\text{Var}(AR_{it}) = \sigma_i^2 \left( 1 + \frac{1}{N} + \frac{(R_{mt} - \bar{R}_m)^2}{(N-1)\text{Var}(R_{mt})} \right),$$

where  $\sigma_i^2$  is the residual variance from the market model regression,  $N$  is the number of observations,  $R_{mt}$  is market return on day  $t$ , and  $\bar{R}_m$  is average daily market return over the estimation period. To measure the abnormal returns over a specific interval for firm  $i$ , the abnormal returns (AR) are summed to give the cumulative abnormal returns as:

$$\text{CAR}_i(T_1, T_2) = \sum_{t=T_1}^{T_2} AR_{it}$$

To form the interval test statistic, we first standardise the individual  $t$ -statistic for company  $i$  for a number of  $(T_2 - T_1)$  days in the interval as:

$$\text{SCAR}_i(T_1, T_2) = \sum_{t=T_1}^{T_2} \frac{\text{SAR}_{it}}{\sqrt{T_2 - T_1 + 1}}$$

For the overall sample the interval test statistic is given by:

$$Z = \sum_{i=1}^N \frac{\text{SCAR}_i}{\sqrt{N}}$$

Since the individual  $\text{SAR}_{it}$  are assumed to be unit-normal and independent under the null hypothesis of no abnormal returns, both  $\text{SCAR}_i$  and  $Z$  will be approximately unit normal.

## 4. Results

### 4.1 Descriptive Results

[insert table 2]

Table 2 presents daily average abnormal returns (AR) from forty days prior to the bid announcement to 40 days after the announcement, and cumulative average abnormal returns (CAR) for selected windows during this period. The related test statistics

<sup>5</sup> In our sample, 29% of takeovers are classified as hostile, a figure that is in line with those reported by prior studies. Franks and Mayer (1996) study a sample of 325 UK bids during 1985-86 and find that 23% are hostile; Cosh and Guest, (2000) study a sample of 204 UK takeovers taking place between 1985-96 and similarly find that 23% are hostile. Schwert, (2000) studies a sample of 2346 takeovers taking place between 1975-96 and finds that 21% were hostile.

for the hypothesis that these returns are different from zero are reported in the last column(s). The results suggest that there are small positive pre-bid (cumulative) returns that become significant as early as 34 trading days prior to the announcement, and steadily increase up to 4% 10 days before the announcement, and to 7.9% two days before the announcement. The event itself (day 0) is associated with a 13.2% unexpected return, in line with prior evidence and consistent with the notion that takeover targets benefit significantly at the bid announcement. This pattern of returns suggests some information leakage prior to the bid and the release of substantial information with the bid announcement. It is interesting to note that returns in the ten days after the bid are near zero, suggesting that the market absorbs and reflects accurately and instantaneously the information released at the bid announcement.

[insert table 3]

In table 3 we present descriptive statistics on the explanatory governance and control variables. Among the governance variables we observe a lower average participation of non-executives than in the US (45%), smaller boards, negligible stockholdings by non-executive directors, and a high incidence of firms exhibiting a separation between the CEO and board chair positions. A quarter of the offers are made for cash only, 45% belong to the same industry, 29% are resisted, and 86% are successfully completed. The average target firm has an equity capitalization of 238.3 million pounds, a market-to-book ratio of 2.00, and a borrowing (leverage-to-assets) ratio of 0.56.

[insert table 4]

Table 4 presents correlations among the explanatory variables. In general, these correlations are not high, indicating a low risk of multicollinearity for the results. Most notably, firms with high inside ownership tend to have less independent boards, in line with the notion that boards and managerial ownership are substitute monitoring mechanisms; these firms are also smaller, and less likely to resist a takeover; large firms have more reputable directors on their boards and are more likely to receive a hostile offer; and hostile offers are less likely to be successful.

[insert table 5]

Next, we split the sample into firms with an outside-dominated board, where outsiders are at least as many as insiders on the board ( $n = 82$ ), and firms where board insiders dominate outsiders ( $n = 116$ ), and proceed to compare the governance and financial characteristics of the two sub-samples. Table 5 provides a brief summary of these sub-sample comparisons, partitioned by board independence. By sub-sample construction, roughly one third of directors are non-executives in insider-dominated firms, while two thirds are non-executives in outside-dominated firms. Contrary to what might be expected, firms with independent boards on average receive a lower initial bid premium than firms with

insider-dominated boards, while announcement-period returns are indistinguishable between the two groups. This should not be surprising in view of the fact that in outside-dominated firms non-executives collectively own a lower fraction of target shares, while executives own a higher fraction of their firms' common shares. Consistent with board independence and board quality being correlated, insider-dominated boards are larger, have more interlocking directors, and directors holding fewer board seats, on average. The two groups are not different in terms of size, as measured by equity capitalisation.

## 4.2 Multiple Regression Results

To examine the link between governance structure and takeover-induced wealth effects, we estimate the following relationship:

$CAR = f(\text{target's board and ownership characteristics; control variables})$

[insert table 6]

To this end, we use OLS regressions. Because of missing data on some of our variables, and the deletion of observations in the upper and lower 1% of their respective variable distributions as outliers, a total of 157 observations remain and are being used. All t-statistics are adjusted for heteroskedasticity using White's (1980) consistent variance-covariance matrix. The results for the target CAR, using various event windows, are presented in Table 6. The results are generally stronger for windows encompassing a longer period around the event. Also, adjusted R-squared values decrease significantly in regressions focusing on narrower event windows.

One interesting result from table 6 is that the coefficient on the percentage of independent directors (hypothesis 1) is negative and highly significant. That is, *ceteris paribus*, the cumulative abnormal returns (CAR) around the announcement day are lower for targets with an outside-dominated board than they are for insider-dominated targets. This is more pronounced using windows that encompass a longer pre-event period. In a similar vein, the announcement returns are larger in targets with a greater fraction of interlocking directors serving on the board (hypothesis 3). Finally, targets benefit more from a takeover when the managing director (CEO) is also the chairman of the board, contrary to the prescriptions of good governance practices (hypothesis 2). In sum, these results suggest that various measures of board independence do not enhance, and may actually decrease, target shareholder wealth during takeovers for this sample of UK targets. Vafeas and Theodorou (1998) also find that outside directors are not important in explaining firm value in the UK. Further conflicting good governance standards, targets with larger boards elicit larger pay-offs, despite evidence by Yermack (1996) that larger boards are less efficient and are valued less by the market (hypothesis 7).

These non-conventional results appear to be consistent with the disciplinary explanation for the market reaction to takeovers. First, target boards may have limited power over the outcome of a takeover. Also, shareholders may react more favourably to news of a change in control when their firms' boards are sub-optimally structured, because they may perceive larger forthcoming performance improvements as a result of the change in control. Second, if the market for outside directors is thin, the expectation or requirement that firms have many non-executives on their boards may result in a sub-optimal board composition for many small firms that have difficulty in recruiting highly qualified non-executive directors. By contrast, insiders with good decision management skills, or entrenched interests, may have an advantage in guiding the target firm through a takeover.

In contrast, there is strong evidence that more outside directorships held by the target's directors enhance the benefits of a takeover (hypothesis 4), in line with more reputable directors promoting shareholder interests more effectively during takeovers, and with evidence from the US from Shivdasani (1993).

However, as evidenced by the negative coefficient of directorships squared, these benefits are not linear and decline beyond a given level, due to rising drawbacks of holding too many board seats, such as less available time and a lower level of commitment to each board. The result on outside director ownership is also interesting: In targets where outsiders own a high amount of equity, targets benefit more from the takeover as signified by the coefficient on director ownership that is positive and significant (hypothesis 6). (We have re-estimated the model including the square of the executives stock ownership variable to capture potential non-linearities in this relation. That squared term was always statistically insignificant, and is thus not reported). Similarly, the fraction of incentive shares held by executive directors is positively, albeit weakly, related to bid-induced returns (hypothesis 5). This result is in line with the notion that director incentives guide outside directors in making better decisions for shareholders. Other ownership variables are not statistically significant.

Finally, two control variables are found to be significant in explaining the announcement-induced abnormal returns. First, firms with lower growth opportunities, having a low equity capitalisation compared to equity book values and signifying more agency problems, elicit a greater market reaction during takeovers. In firms with greater agency problems, shareholders may welcome the change in control as an opportunity for value enhancement. Similarly, firms with a lower level of borrowing, and thus fewer disciplinary pressures from creditors, also elicit a stronger stock market reaction. This agrees with the notion that takeovers may substitute for leverage in disciplining management. Both results on

the control variables are consistent with results on board-related agency problems discussed earlier.

### 4.3 Sensitivity Analysis

To probe further into the reasons our results on board independence counter conventional wisdom, we perform a series of sensitivity checks as follows: First, we created a 2x2 table splitting our sample firms at the median by outside director representation and by CAR, over three different event windows. Comparing the columns with low and high outsider representation we do not find meaningful frequency differences on the basis of low/high CAR.

Second, focusing on the cell (sub-sample) of firms with takeover-induced CAR below the median, and outside director representation above the median (49 firms), we find that 12 firms belong to the financial sector and 7 to communications, providing a weak indication that firms in regulated industries may be weakly responsible for the results. Third, examining the possibility of event clustering in time, we observe that these deals are spread fairly evenly throughout the sample period with a somewhat unusually high occurrence of 14 such deals in 1997.

Fourth, compared to the whole sample of independent boards, executive directors in these firms have higher average stock ownership than the rest, but similar median ownership, while non-executives have less stock ownership. The average salary of directors in these cases is significantly lower than the salary of directors for the remaining sample of firms with independent boards. This finding does not support the notion that high salaries and poor incentives drive managers to destroy shareholder value in takeovers. Other possibilities exist in explaining the results. Perhaps differences in returns would become evident if a long-term horizon was examined. Also, it may be that the likelihood of a bid revision, and thus of higher returns, depends on board structure as well, affecting shareholder wealth. Finally, it is possible that outside directors in the UK play a different role than in the US. We leave these questions to be addressed by future work.

### 5. Summary and Conclusion

In this study we examine whether the structure of the bidder's board of directors influences the wealth effects of a takeover bid to the bidder's shareholders. We statistically show that certain board characteristics are indeed related to the takeover-induced abnormal returns. Specifically, we examine takeover bids for a sample of 198 publicly traded firms based in the UK that became takeover targets between 1989 and 1998. We find that target firms experience significant positive returns (CAR) of nearly 23% in the days surrounding the announcement of a takeover bid. We then proceed to examine the relation between board structure and

bid-induced abnormal returns. We posit two competing explanations for this relation: First, under the “effective board” explanation, takeover targets with more appropriately structured boards elicit higher gains for shareholders, in accordance with a basic premise of agency theory. Alternatively, under a disciplinary explanation, firms with ineffective boards stand to benefit more from a change in control that will presumably improve governance and reduce related agency costs. The empirical results are mostly consistent with the disciplinary explanation. Specifically, we find that independent boards (those with more non-executive directors, fewer interlocking directors, and an independent board chairperson), and larger boards, are associated with lower announcement-period returns compared to inside-dominated boards. Controlling for board composition and size, the incentives of non-executive directors are positively related to bid-induced returns, i.e., higher returns are experienced by targets when non-executives hold more equity, and more outside board seats.

An alternative explanation for the results is that limited availability of competent non-executive directors, and informational advantages of executive directors may lead to a more beneficial role for executives in the case of takeovers. We conclude that firms with larger, management-controlled, boards that potentially face greater agency problems, have more to gain from a takeover and thus experience greater bid-induced returns, consistent with a “disciplinary” explanation for takeovers.

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## Appendices

**Table 1.** Partition of 198 UK takeovers occurring between December 1989 and April 1998 as friendly vs. hostile, cash financed vs. other, and related vs. unrelated

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total	%
<b>Bid outcome</b>												
Friendly bids	2	10	8	9	14	11	27	16	39	4	140	71%
Hostile successful bids	1	5	4	3	4	4	6	3	0	0	30	15%
Hostile unsuccessful bids	0	1	5	4	2	4	4	5	3	0	28	14%
<b>Total</b>	<b>3</b>	<b>16</b>	<b>17</b>	<b>16</b>	<b>20</b>	<b>19</b>	<b>37</b>	<b>24</b>	<b>42</b>	<b>4</b>	<b>198</b>	<b>100%</b>
<b>Method of payment</b>												
Cash only	1	5	2	5	6	6	9	6	9	1	50	25%
Mixed payment	2	11	15	11	14	13	28	18	33	3	148	75%
<b>Total</b>	<b>3</b>	<b>16</b>	<b>17</b>	<b>16</b>	<b>20</b>	<b>19</b>	<b>37</b>	<b>24</b>	<b>42</b>	<b>4</b>	<b>198</b>	<b>100%</b>
<b>Industry affiliation</b>												
Same industry	0	9	10	7	14	8	16	9	16	1	90	45%
Different industry	3	7	7	9	6	11	21	15	26	3	108	55%
<b>Total</b>	<b>3</b>	<b>16</b>	<b>17</b>	<b>16</b>	<b>20</b>	<b>19</b>	<b>37</b>	<b>24</b>	<b>42</b>	<b>4</b>	<b>198</b>	<b>100%</b>
<b>Overall</b>												
# of bids	3	16	17	16	20	19	37	24	42	4	198	
% of sample	1.5	8.1	8.6	8.1	10.1	9.6	18.7	12.1	21.2	2	100	

**Table 2.** Daily average abnormal returns (AR) and cumulative abnormal returns (CAR) around the announcement of takeover bids for a sample of UK takeover targets

Day	AR	t-stat	Interval	CAR	z-stat	Day	AR	t-stat	Interval	CAR	z-stat
-40	-0.2%	-0.73	(-40)	-0.2%	-0.72	0	12.5%	111.1***	(-40,0)	22.0%	29.6***
-39	0.2%	0.39	(-40,-39)	0.0%	-0.15	1	0.3%	8.0***	(-40, 1)	22.3%	30.5***
-38	0.1%	0.11	(-40,-38)	0.0%	-0.14	2	0.2%	1.5***	(-40, 2)	22.6%	30.4***
-37	0.2%	0.95	(-40,-37)	0.2%	0.23	3	0.0%	0.2	(-40, 3)	22.5%	30.1***
-36	0.3%	1.59*	(-40,-36)	0.5%	0.85	4	0.1%	0.1	(-40, 4)	22.6%	29.8***
-35	0.2%	1.82*	(-40,-35)	0.7%	1.48	5	0.0%	-1.4	(-40, 5)	22.5%	29.2***
-34	0.3%	1.18	(-40,-34)	1.0%	1.81*	6	0.2%	2.4**	(-40, 6)	22.8%	29.3***
-33	0.0%	-0.55	(-40,-33)	1.0%	1.53*	7	-0.1%	-0.5	(-40, 7)	22.7%	28.9***
-32	0.1%	1.43	(-40,-32)	1.1%	1.98**	8	0.1%	0.9	(-40, 8)	22.8%	28.8***
-31	0.0%	-0.55	(-40,-31)	1.1%	1.71*	9	0.1%	0.8	(-40, 9)	22.9%	28.6***
-30	-0.1%	0.89	(-40,-30)	1.0%	1.91*	10	0.1%	-0.8	(-40, 10)	23.0%	28.2***
-29	0.0%	-0.35	(-40,-29)	1.0%	1.76*	11	0.1%	0.1	(-40,+11)	23.0%	27.9***
-28	0.0%	0.05	(-40,-28)	0.9%	1.72*	12	-0.1%	-0.1	(-40,+12)	23.0%	27.7***
-27	0.0%	0.91	(-40,-27)	0.9%	1.90*	13	0.2%	1.3	(-40,+13)	23.2%	27.6***
-26	0.4%	3.18***	(-40,-26)	1.3%	2.63***	14	0.1%	0.8	(-40,+14)	23.4%	27.5***
-25	0.2%	0.88	(-40,-25)	1.4%	2.73***	15	0.2%	0.9	(-40,+15)	23.6%	27.3***
-24	0.0%	-0.23	(-40,-24)	1.4%	2.62***	16	0.1%	0.7	(-40,+16)	23.7%	27.2***
-23	-0.3%	0.79	(-40,-23)	1.2%	2.73***	17	0.2%	1.4	(-40,+17)	23.9%	27.1***
-22	0.0%	1.35	(-40,-22)	1.2%	3.00***	18	0.1%	0.6	(-40,+18)	24.0%	27.0***
-21	-0.2%	-2.48***	(-40,-21)	1.1%	2.43**	19	0.1%	0.3	(-40,+19)	24.1%	26.8***
-20	0.3%	2.55**	(-40,-20)	1.4%	2.90***	20	0.0%	-1.0	(-40,+20)	24.1%	26.4***
-19	-0.1%	0.43	(-40,-19)	1.4%	2.98***	21	-0.4%	-0.3	(-40,+21)	23.7%	26.2***
-18	0.8%	5.31***	(-40,-18)	2.3%	4.01***	22	0.2%	1.0	(-40,+22)	23.9%	26.1***
-17	0.0%	-0.29	(-40,-17)	2.2%	3.87***	23	0.2%	0.9	(-40,+23)	24.0%	26.0***
-16	-0.1%	0.50	(-40,-16)	2.2%	3.89***	24	0.3%	1.8	(-40,+24)	24.3%	26.0***
-15	0.3%	2.24***	(-40,-15)	2.5%	4.27***	25	0.1%	0.3	(-40,+25)	24.4%	25.9***
-14	0.0%	-0.32	(-40,-14)	2.5%	4.12***	26	0.1%	0.8	(-40,+26)	24.5%	25.8***
-13	0.6%	3.73***	(-40,-13)	3.1%	4.74***	27	0.2%	1.8	(-40,+27)	24.7%	25.8***

-12	0.3%	2.26***	(-40,-12)	3.3%	5.08***	28	0.1%	-0.2	(-40,+28)	24.8%	25.6***
-11	0.3%	3.36***	(-40,-11)	3.7%	5.61***	29	0.0%	0.1	(-40,+29)	24.8%	25.4***
-10	0.1%	1.2	(-40,-10)	3.8%	5.7***	30	0.0%	-0.1	(-40,+30)	24.9%	25.3***
-9	0.3%	3.4***	(-40,-9)	4.1%	6.2***	31	0.1%	0.3	(-40,+31)	24.9%	25.1***
-8	0.3%	3.0***	(-40,-8)	4.5%	6.7***	32	0.1%	0.8	(-40,+32)	25.0%	25.0***
-7	0.3%	2.0**	(-40,-7)	4.9%	6.9***	33	0.2%	1.2	(-40,+33)	25.1%	25.0***
-6	0.1%	2.1**	(-40,-6)	5.1%	7.2***	34	0.1%	1.5	(-40,+34)	25.2%	25.0***
-5	0.7%	6.8***	(-40,-5)	5.7%	8.2***	35	0.2%	2.0	(-40,+35)	25.5%	25.1***
-4	0.4%	4.9***	(-40,-4)	6.2%	8.9***	36	0.4%	2.6	(-40,+36)	25.8%	25.2***
-3	0.9%	6.9***	(-40,-3)	7.0%	9.9***	37	0.2%	1.8	(-40,+37)	26.0%	25.3***
-2	0.3%	1.1	(-40,-2)	7.4%	10.0***	38	0.0%	-0.1	(-40,+38)	26.0%	25.1***
-1	1.9%	16.9***	(-40,-1)	9.2%	12.5***	39	0.0%	0.2	(-40,+39)	26.0%	25.0***
						40	0.1%	-0.4	(-40,+40)	26.1%	24.8***
<i>Other Selected Intervals</i>											
		Interval	CAR	Z-Stat				Interval	CAR	Z-Stat	
		(-40,+40)	26.1%	24.8***				(-30,+30)	23.8%	26.64***	
		(-40,0)	22.0%	29.6***				(-20,+20)	23.0%	30.40***	
		(-30,0)	21.0%	33.0***				(-10,+10)	19.3%	36.70***	
		(-20,0)	20.9%	38.6***				(-5,+5)	17.5%	45.34***	
		(-10,0)	18.3%	46.5***				(-4,+4)	16.8%	48.01***	
		(-5, 0)	16.9%	56.2***				(-3,+3)	16.3%	51.88***	
		(-3, 0)	15.9%	61.3***				(-2,+2)	15.5%	62.42***	
		(-2, 0)	15.0%	65.0***				(-1,+1)	15.0%	61.29***	
		(-1, 0)	14.6%	74.4***				( 0 )	12.8%	112.0***	

**Table 3.** Descriptive statistics on governance, deal-related, and other control variables used to explain announcement-induced returns for a sample of 198 UK-based takeover targets

Variable	Mean	S. D.	Min	Percentiles								
				1%	5%	10%	50%	90%	95%	99%	Max	
<b>Corporate Governance Variables</b>												
% outsiders	0.45	0.22	0.00	0.00	0.00	0.18	0.43	0.71	1.00	1.00	1.00	1.00
% interlocks	0.14	0.34	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Directorships	1.42	1.33	0.00	0.00	0.00	0.00	1.10	3.33	4.00	6.67	6.67	6.67
Ex. Ownership	0.07	0.14	0.00	0.00	0.00	0.00	0.01	0.27	0.42	0.69	0.69	0.69
Nex. ownership	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.07	0.14	0.33	0.33	0.33
Ex. Incentive sh.	0.01	0.02	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.11	0.11	0.11
Nex Incentive sh.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
CEO chairman	0.19	0.39	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Board size	6.78	2.41	2.00	3.00	4.00	4.00	6.50	10.00	11.00	16.00	17.00	17.00
<b>Deal Characteristics</b>												
Cash dummy	0.25	0.44	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Industry dummy	0.45	0.50	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Hostile offer	0.29	0.46	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Successful offer	0.86	0.35	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
<b>Control Variables</b>												
Equity capitaliz.	238.82	588.1	2.66	2.77	4.75	6.38	35.20	705	1184	3790	5123	5123
Market-to-book	2.00	3.14	(11.05)	0.20	0.40	0.61	1.45	4.85	6.20	9.20	15.64	15.64
Borrowing ratio	0.56	0.75	0.00	0.00	0.00	0.02	0.37	1.23	1.97	4.47	4.47	4.47

**Table 4.** Pairwise Pearson correlations among the independent variables explaining takeover-induced abnormal returns

Negative correlations are in parentheses. Figures in bold indicate statistical significance at the 0.01 level or better.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	% outsiders	1.00																
2	% interlocks	0.04	1.00															
3	Directorships	0.06	0.09	1.00														
4	(directorships) <sup>2</sup>	0.00	0.20	0.91	1.00													
5	Ex. Ownership	(0.25)	0.04	(0.15)	(0.07)	1.00												
6	N-ex. ownership	(0.05)	(0.06)	(0.08)	(0.06)	0.15	1.00											
7	Ex. Incentive sh.	0.05	(0.08)	(0.13)	(0.09)	0.06	0.06	1.00										
8	N-ex. Incentive sh.	0.08	(0.04)	(0.09)	(0.09)	0.07	(0.04)	0.07	1.00									
9	Ln (equity capital.)	0.07	(0.02)	0.25	0.12	(0.34)	(0.22)	(0.23)	(0.17)	1.00								
10	Market-to-book	(0.04)	0.01	(0.02)	(0.05)	0.19	0.05	(0.06)	0.20	0.08	1.00							
11	Cash financing	0.08	(0.10)	0.04	0.00	(0.03)	0.11	0.19	0.17	(0.01)	0.07	1.00						
12	Industry dummy	(0.12)	(0.04)	(0.12)	(0.06)	0.11	0.19	0.09	(0.03)	(0.09)	(0.09)	(0.04)	1.00					
13	Borrowing ratio	0.00	0.04	(0.02)	(0.07)	(0.05)	(0.09)	0.15	0.01	0.03	0.16	0.12	(0.07)	1.00				
14	Ln(board size)	0.13	0.04	0.18	0.10	(0.28)	(0.15)	(0.07)	(0.00)	0.55	0.11	0.09	0.04	0.10	1.00			
15	CEO-chairman	(0.02)	(0.05)	(0.22)	(0.16)	0.08	(0.11)	0.10	(0.05)	(0.08)	0.09	0.11	0.12	0.01	0.01	1.00		
16	Hostile offer	0.12	(0.14)	0.01	(0.03)	(0.26)	(0.14)	(0.15)	0.03	0.29	(0.15)	(0.13)	0.01	(0.13)	0.10	(0.05)	1.00	
17	Successful offer	(0.09)	0.17	0.00	0.03	0.13	0.09	0.04	0.02	(0.20)	0.12	0.13	0.09	0.11	0.08	0.03	(0.64)	1.00

**Table 5.** Profile comparison of 198 UK-based takeover targets partitioned by board composition

Boards with 50% non-executive directors are defined as insider-dominated; boards with more than 50% outside directors are defined as outsider-dominated.

Variable		Full sample (198)	Insider-dominated (116)	Outsider-dominated (82)	Diff.	t-statistic Wilcox. z
% of outside directors	Mean	44.6	30.4	64.7		
	Median	42.9	33.3	60.0		
Cumul. abnormal return (-40,+40))	Mean	26.9	29.4	23.2	6.2	1.5
	Median	28.6	30.8	18.7		2.2**
Initial bid premium (%)	Mean	31.0	34.8	25.6	9.2	1.91**
	Median	29.5	35.0	24.0		3.1***
Executive ownership (%)	Mean	7.25	9.7	3.8	5.9	2.9***
	Median	0.7	1.8	0.3		3.8***
Non-executive ownership (%)	Mean	2.2	2.3	2.1	0.2	0.3
	Median	0.1	0.1	0.1		-0.6
Board size	Mean	6.8	7.1	6.3	0.8	2.1**
	Median	6.5	7.0	6.0		2.8***
% interlocking directorships	Mean	5.1	5.0	5.1	-0.1	-0.06
	Median	0.0	0.0	0.0		0.1
Additional directorships per director	Mean	1.4	1.3	1.6	-0.3	-1.2
	Median	1.1	1.0	1.5		0.1
Market value of equity (in millions of pounds)	Mean	238.8	238.3	239.5	-1.2	-0.01
	Median	35.2	39.6	30.3		0.8

\*, \*\*, \*\*\*, significant at the 0.10, 0.05, and 0.01 level, respectively

**Table 6.** OLS regressions of corporate governance and control variables on takeover-induced abnormal returns for a sample of UK targets

This table presents the results of multivariate regressions of the targets' CAR on board composition, board characteristics, stock ownership, incentives, firm and tender offer characteristics. All the data concerning the takeover deals and their characteristics have been collected from *Acquisitions Monthly*. Our corporate governance data covering each firm's board and ownership characteristics come from the *Price Waterhouse Corporate Register*. The results are based on 157 tender offers after removing the outliers and the companies for which we were unable to obtain share price and accounting data from *Datastream*. The associated p-values of the coefficients are the numbers in parentheses. The variable definitions are provided in the Appendix.

Explanatory Variables	CAR		CAR		CAR		CAR		CAR		CAR		CAR	
	(-40,+40)		(-40,0)		(-30,0)		(-20,0)		(-5,+5)		(-30,+30)		(-20,+20)	
Intercept	0.52	(0.05)	0.13	(0.55)	0.08	(0.67)	0.06	(0.77)	0.22	(0.20)	0.52	(0.02)	0.43	(0.04)
Percentage of outside directors	-0.19	(0.12)	-0.17	(0.09)	-0.25	(0.01)	-0.23	(0.01)	-0.13	(0.09)	-0.29	(0.01)	-0.26	(0.01)
Percentage of interlocking directors	0.04	(0.50)	0.06	(0.27)	0.04	(0.41)	0.03	(0.51)	0.00	(0.95)	0.03	(0.60)	0.02	(0.74)
Additional directorships per director	0.10	(0.02)	0.08	(0.02)	0.06	(0.06)	0.05	(0.13)	-0.01	(0.75)	0.06	(0.11)	0.04	(0.24)
Additional directorships squared	-0.01	(0.08)	-0.01	(0.12)	0.00	(0.48)	0.00	(0.64)	0.01	(0.32)	-0.01	(0.47)	0.00	(0.79)
Executive stock ownership	0.16	(0.33)	0.18	(0.19)	0.12	(0.33)	0.10	(0.40)	0.11	(0.28)	0.05	(0.74)	0.06	(0.63)
Non-executive stock ownership	0.72	(0.05)	0.38	(0.21)	0.36	(0.19)	0.42	(0.12)	0.24	(0.32)	0.57	(0.07)	0.64	(0.03)
% of executive incentive shares	1.88	(0.13)	1.30	(0.21)	2.46	(0.01)	1.07	(0.24)	0.65	(0.42)	2.33	(0.03)	0.82	(0.40)
% of non-executive incentive shares	16.51	(0.12)	15.26	(0.08)	6.75	(0.39)	9.86	(0.21)	0.43	(0.95)	7.73	(0.39)	8.56	(0.30)
Log (equity capitalization)	-0.03	(0.11)	0.00	(0.85)	0.00	(0.90)	0.00	(0.77)	0.00	(0.76)	-0.02	(0.11)	-0.02	(0.17)
Market- to-book value of equity	-0.02	(0.03)	-0.01	(0.02)	-0.01	(0.28)	-0.01	(0.28)	-0.01	(0.06)	-0.01	(0.19)	-0.01	(0.28)
Cash financing dummy	-0.12	(0.02)	-0.07	(0.08)	-0.05	(0.18)	-0.05	(0.21)	0.00	(0.92)	-0.08	(0.05)	-0.07	(0.07)
Industry dummy	-0.06	(0.18)	-0.04	(0.29)	-0.03	(0.30)	-0.02	(0.53)	-0.02	(0.45)	-0.07	(0.07)	-0.04	(0.23)
Borrowing ratio	-0.01	(0.62)	-0.03	(0.21)	-0.01	(0.51)	-0.02	(0.35)	-0.02	(0.23)	0.00	(0.92)	0.00	(0.91)
Log (Board Size)	0.12	(0.13)	0.09	(0.18)	0.07	(0.23)	0.08	(0.17)	0.00	(0.95)	0.11	(0.13)	0.11	(0.09)
CEO and chairman dummy	0.09	(0.10)	0.08	(0.08)	0.09	(0.04)	0.04	(0.28)	0.01	(0.81)	0.10	(0.04)	0.05	(0.24)
Hostile takeover dummy	0.08	(0.11)	0.03	(0.52)	0.03	(0.50)	-0.01	(0.81)	-0.01	(0.83)	0.06	(0.14)	0.03	(0.45)
Number of obs.	157		157		157		157		157		157		157	
Prob > F	0.03		0.08		0.03		0.14		0.38		0.03		0.10	
Adj R-squared	0.08		0.06		0.08		0.04		0.01		0.08		0.05	

#### APPENDIX - Variable definitions

The sample used in this study includes 198 tender offers taking place from December 1989 to April 1998. Companies for which data on board, deal, or firm characteristics were not available have been excluded from the sample. Moreover, deals where either the bidder or the target was not a UK firm were eliminated from the sample.

Board Characteristics	
	All data related to board characteristics were collected from the 'Price Waterhouse Corporate Register'. Data were obtained from the bi-annual volumes for the years September 1989 to September 1994 and from the quarterly volumes for the years 1995 onwards.
% outside directors	Measures the proportion of non-executive (outside) directors represented on the board. Alternatively, a dummy variable is set equal to one if the board is independent (greater than 50% outsider representation), and zero otherwise. The 'Price Waterhouse Corporate Register' lists separately the names of executives and non-executives. This variable is constructed by adding the number of non-executives and then dividing by the total number of directors in the board (executives + non executives).
% Interlocking directors	Dummy variable equal to one when any of the non-executive directors of the target firm also serves as an executive director in the acquiring firm, and zero otherwise. For every acquisition we find both the target and the bidder firms on the 'Price Waterhouse Corporate Register' (the volume that is closest to the announcement date). Interlocking directorships arise when the name of any executive director of the acquiring firm appears on the targets' board at that time.
Additional directorships per director	Average number of additional directorships that are held by non-executive directors. A squared term is also included to examine non-linearities in the relation under consideration. For every acquisition we find the names of the non-executive directors of the acquiring company on the 'Price Waterhouse Corporate Register' (on the volume that is closest to the announcement date). We then use the "Directors and Officers" section of

	the 'Price Waterhouse Corporate Register' that lists the directorships of each director, and we find how many additional directorships are held by the non-executive directors of the acquiring firm. Finally to obtain the average number of additional directorships we add the additional directorships of all non-executives and divide that by the total number of non-executive directors.
Executive stock ownership	Measures the percentage of total ordinary shares held by executive directors. A squared term is also included in the model to capture non-linearities in the CAR-ownership relation. To construct this variable for every acquisition we add the ordinary shares held by executives and divide by the number of shares outstanding.
Non-executive stock ownership	Measures the percentage of total ordinary shares held by non-executive directors. For every acquisition we sum the ordinary shares held by non executives and divide by the number of shares outstanding.
Executive incentive shares	Measures the percentage of incentive shares that are held by executive directors. We sum the incentive shares that are held by executives. The 'Price Waterhouse Corporate Register' lists separately (in brackets next to each director's name) the number of ordinary and incentive shares held by executives and non-executives. We then divide by total shares outstanding. Incentive shares are issued from the company to directors as part of their remuneration to reward more effort.
Non-executive incentive shares	Measures the percentage of incentive shares that are held by non executive directors. We sum the incentive shares that are held by non-executives and divide by total shares outstanding.
CEO-chairman	Dummy variable set equal to one when the chairman and the CEO is the same person, and zero otherwise. The 'Price Waterhouse Corporate Register' lists separately the chairman's, CEO's and CFO's names.
Board size	Measures the total number of directors in the board (log-transformed). For every acquisition we find the acquiring company on the 'Price Waterhouse Corporate Register' (on the volume that is closest to the announcement date) and sum all executives and non-executives to obtain the total number of directors serving on the board.
Deal Characteristics	
All data related with bid characteristics were collected from the 'Acquisitions Monthly'	
Cash financing	Dummy variable equal to one if the bid settlement is entirely made in cash and zero otherwise. 'Acquisitions Monthly' includes a synopsis for every acquisition that describes the general terms of the deal. These terms include the exchange ratio, the price paid for every target share acquired as well as the medium of payment. We consider cash financed acquisitions, those acquisitions in which the acquirer has paid only cash for the acquisition and no shares were issued for this purpose.
Industry (related acquisition) dummy	Dummy variable that equals one when the acquirer and the target are in the same industry. 'Acquisitions Monthly' describes separately for the target and the bidder the type of their operations (this industry classification is based on the US SIC classification). Based on this description we define a related acquisition as an acquisition in which both the acquirer and the target have similar operations. Otherwise the deal is classified as unrelated.
Hostile offer	A dummy variable equals one when the bid is hostile. A bid is defined as hostile when the initial reaction of the target's board is to recommend their shareholders to reject the offer. We consider a bid to be 'hostile' if 'Acquisitions Monthly' reports that the target firm has resisted the offer. A bid is considered to be 'friendly' if it is reported in the 'Acquisitions Monthly' that the target's board has accepted the offer.
Successful offer	Dummy variable that equals one if the offer was successfully completed and zero otherwise. Acquisitions Monthly' lists for every calendar month all new bids, pending bids and completed bids. Completed bids are usually bids that were reported as new bids or pending bids in the previous month's issue. We consider an offer to be successful if we find the deal under the 'Completed Deals' section of 'Acquisitions Monthly'. Otherwise the deal is classified as unsuccessful.
Firm Characteristics	
Data for share returns and accounting items were collected from DATASTREAM.	
Log (equity capitalization)	Measured as the logarithm of market capitalisation, taken as the market price per share times shares outstanding at the end of the year preceding the event year. Data were collected from Datastream using program code 900B and accounting item MV.
Market to book value of equity	Measured as the market value of equity divided by the book value of equity of the acquirer at the end of the year preceding the event year. It proxies for growth opportunities of the firm and the quality of management. Data were collected from Datastream using program code 900B and accounting item MTBV.
Borrowing ratio	Total loans (total debt), divided by the sum of equity capital plus reserves minus total intangibles at the end of the year preceding the event year. Data were collected from Datastream using program code 900B.