Board Structure and Acquirer Performance

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We investigate the relationship between board structure and acquirer performance over two time periods centered on the issuance of government-led mandates that caused a *sea-change* in the composition of corporate boards. We assuage standard endogeneity concerns by focusing on the U.K. takeover market around the issuance of the Cadbury (1992) and the Higgs (2003) reports that, among other things, call for greater outside director representation on corporate boards. We find compliance with new board standards is associated with higher acquirer stock returns, which is confined to acquisitions of publicly-traded targets, where the cost of information acquisition for outside directors is presumably low, and reputation costs are high as outsiders actions are subjected to greater public scrutiny. We find that this effect is stronger in the early 1990's and much less pronounced from 2003 onwards. Overall, we do not endorse mandated board structures, but the evidence appears to be that such mandates are associated with improvements in performance for U.K. acquirers of publicly traded targets.

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1. Introduction

It is well-known that mergers and acquisitions (M&A) are plagued by substantial agency conflict between shareholders and management. The representation of outside directors on the corporate board is one mechanism that might ameliorate agency concerns in M&A. Given that outside directors are independent from management, they will be *more* willing to face up to the CEO to safeguard shareholder interests during key business decisions such as M&A, which, if poorly conceived, could potentially lower shareholder value, and tarnish outside directors reputation capital. Hence, one might expect that corporate boards with a greater representation of outside directors will lead to better M&A decisions and, as a consequence, better acquirer performance. The global trend towards outsider-dominated boards, over past 20 years and beyond, buttresses belief that more outside directors on the board will culminate in higher performance through better board decisions, such as acquiring other firms (Dahya and McConnell (2007); Duchin, Matsusaka and Ozbas (2010)).

Nonetheless, the results from the dearth of studies that scrutinize the link between the fraction of outsiders on the board and acquirer performance does not unanimously support this view. For example, Byrd and Hickman (1992) document a positive relationship between the fraction of outsiders on the board and acquirer performance, while more recently Masulis, Wang and Xie (2007) fail to report any such relationship, and Bauguess and Stegemoller (2008) find higher acquirer stock returns when insiders dominate the corporate board.

A leading explanation for the conflicting findings is that *acquirer* board structures are endogenous (Coles, Lemmon and Meschke (2012)). That is, each acquirer selects an optimum board configuration that obscures the underlying correlation, if any, between board structure and acquirer performance in the cross-section. This could be due to reverse causality, where poor performance might cause firms to add more outside directors to the board prior to M&A (Hermalin and Weisbach (1998)), or if changes in another, maybe

undiscovered, factor causes movement in both the representation of outsiders on the acquirer's board and corporate performance (Harris and Raviv (2008)).

A second explanation for the mixed results is that the effect, if any, of changing the representation of outside directors on board decisions, and corporate performance, is different across firms (Duchin et al. (2010)). Given that there exists an optimal board composition, then acquirers already at their optimum will make worse M&A decisions if they add more outsiders, while acquirers presently below their optimum (i.e., that are under-represented by outsiders on their boards) will make better M&A decisions by adding more outsiders. Embedded in this justification is an implicit assumption that market forces propel acquirers to alter their board composition toward some optimal set-up, when they are either under- or over-represented by outside directors.

A third, and rather obvious, justification for the mixed results is that board composition does not matter, which *flies-in-the-face* of regulatory moves around the world calling for more outside directors on corporate boards (Romano (2005)). This view is not as outlandish as it may seem, since the classic agency view that board independence positively impacts corporate performance has reported mixed findings. For example, studies which examine the correlation between the fraction of outside directors, corporate performance, and board specific tasks, generally report a positive correlation to CEO hiring and firing, outside director appointments, and setting CEO compensation (see Dahya and McConnell (2005) for a review), but an uncertain association to acquisition decisions (Byrd and Hickman (1992), Masulis et al. (2007), and Bauguess and Stegemoller (2008)). And the more direct evidence on the relationship between board independence and corporate performance reports little, if any, correlation among the variables (see Adams, Hermalin and Weisbach (2010) for a review).

And fourth, Bebchuk, Cohen and Wang (2013) report that the correlation between corporate performance and firm-level governance more broadly, as measured by the Gompers, Ishii and Metrick (2003) and Bebchuk, Cohen and Ferrell (2009) indexes, has changed over the past three decades. The authors document a stock price premium in *well-governed* firms during the 1990's but fail to document the same effect over more recent time periods. It would seem that firms and market participants have become desensitised to good governance practice through learning what constitutes good practice to the point where the premium for good governance reported during the 1990's has all but disappeared. This argument also lends weight to the mixed findings on the correlation between board independence and acquirer returns (Byrd and Hickman (1992) and Bauguess and Stegemoller (2008)).

In an effort to alleviate endogeneity concerns and address the time varying impact of corporate governance on acquisition performance, in this study, we investigate further the relationship between outside directors and acquisition performance over two time periods when U.K. firms were exogenously pushed to elevate the representation of outside directors on their boards. Specifically, we study the link between board composition and performance for U.K. acquirers over 1989 through 1996, which is centered on the issuance of the Cadbury Report in December 1992. The key recommendations contained in the Cadbury Code were that corporate boards of U.K. listed firms comprise at least three outside directors, and the role of the chief executive and chairman be held by two separate individuals. We then examine the relationship board composition and performance for U.K. acquirers over 1999 through 2007. This latter time frame is centred on the publication of the Higgs Report in 2003. The Higgs Report decreed that corporate boards of U.K. listed firms comprise a majority of outside directors.

The corporate board reforms triggered by the Cadbury and Higgs Reports imposed significant variation in the structure and composition of U.K. corporate boards over relatively short time periods (Dahya and McConnell (2007)). The issuance of the mandates represented an external shock that perturbed board composition in U.K. listed firms that offer a natural setting to test whether acquirer performance is correlated with (government-led) *exogenous* changes in the fraction of outside directors on the corporate board. As noted above, by analysing U.K. acquisition decisions from before to after the issuance of the Cadbury and Higgs mandates, we hope to allay endogeneity concerns at least with respect to this one key board decision and scrutinize whether the relationship, if any, between the composition of corporate boards and acquisition performance has changed over time.

An added benefit of using the U.K. takeover market in our study is the virtual absence of anti-takeover provisions in British firms (Black and Coffee (1994)). Consequently, greater emphasis is levelled at intra-firm governance arrangements such as the structure of the corporate board in U.K. takeover decisions because senior management cannot adopt anti-takeover provisions that insulate them from the discipline of the takeover market. Thus, the monitoring role of outside directors in publicly-traded U.K. firms may be more important than in their U.S. counterparts.[1]

Another novel feature of our study is that the U.K. has witnessed the publication of multiple government-led mandates calling for more outside directors on corporate boards, which provides a unique opportunity to gauge if market forces alone are sufficient to propel acquirers to *naturally* gravitate to their optimal fraction of outside directors on the board, or

[1] Michael Jensen substantiates this belief by arguing "in the U.K. there is an attitude amongst board members to take the monitoring and control function way more serious than U.S. directors do" Walkling (2010: p.5) and that "the function of a board member in the U.S. is basically to counsel and support the CEO. In the U.K., by contrast, there's a deep sense of obligation to exercise a control function, to hold management accountable" Walkling (2008: p.34).

whether constant calls from government-led regulation are needed. To elaborate further, assume that a large fraction of acquirers were operating below some optimal representation of outside directors on the board (say, before the issuance of the Cadbury Report). An exogenous push (such as publication of the Cadbury Report) increased the fraction of outsiders on the board, which resulted in better acquisition decisions and higher net acquirer performance.[2] Given that the initial push to add outsiders narrows the *sub-optimality* gap, then continued intervention for even more outside directors will eventually tip the balance of the board beyond some optimum resulting in worse acquisitions decisions and performance (Bebchuk et al. (2013)). Put simply, this implies that successive government mandates calling for more outside directors will be less effective than earlier ones. That is not to say that, ex-ante, we expect government mandates calling for more outside directors to lead to better or worse acquisition decisions.

Though our study does claim to be the first to examine the relationship between outside directors and acquisition performance over successive time periods when firms were coerced to increase the fraction of outside directors on their boards, we are not among the pioneers to examine the relationship between corporate performance and governance arrangements in response to government regulation. That privilege goes to Kole and Lehn (1997) and Kole and Lehn (1999) who study the impact of airline deregulation on equity ownership and CEO compensation. Other more recent studies include Coles and Hoi (2003), Dahya, McConnell and Travlos (2002), Dahya and McConnell (2007), and Duchin et al. (2010), among others.

Of special relevance to our study are Dahya and McConnell (2007) and Duchin et al. (2010) who analyse changes in board composition and corporate performance surrounding corporate governance reform in the U.K. and U.S., respectively. Both studies report a

[2] Note that this result is inconsistent with the belief that market forces, themselves, propel acquirers to alter their board composition toward some optimum.

significant improvement in corporate performance in companies that add outside directors to conform to new requirements imposed by the Cadbury Report (1992) in the U.K., and the Sarbanes-Oxley Act (2002) in the U.S. It is somewhat surprising that the base regression results in both the aforementioned studies go against the view that market forces propel the fraction of outside directors on the board to their optimal level. That is, corporate board reforms imposed variation in the composition of corporate boards in both the U.K. and U.S. over relatively short time periods, which was correlated with better corporate performance.

Notwithstanding, Duchin et al. (2010) do venture beyond the base regression to show that the value of outside directors on the corporate board depends on the cost that outsiders incur in acquiring event- or firm-specific information (i.e., information cost for outside directors). More simply, they find an inverse relationship between the cost of information acquisition to outsider directors (as measured by analyst following and EPS forecast accuracy) and firm value, following the enactment of a law that required a majority of outside directors on U.S. corporate boards. Transplanting this result to our study reveals a novel testable proposition pertaining to information cost to outside directors in acquisition decisions.

Given that information on publicly-traded target firms is readily available in filings, analysts' reports and other sources, outside directors on the acquirer's board will, all else equal, incur less cost in gathering information on public targets than on private targets. Outside directors in the acquirer will have little option but to rely on information provided by senior management and/or use more informal (and potentially less reliable non-public) channels to gather information on private targets. Consequently, information acquisition costs to outside directors are greater in securing quality information in deals involving private targets. Borrowing from Duchin et al. (2010) among others, we claim that acquisitions of publicly-traded targets will elicit a positive correlation between the representation of outside

directors on the board and acquirer stock returns following the issuance of the Cadbury and the Higgs Reports (which called for increased outside director representation on U.K. corporate boards).

A similar, conclusion on the connection between board independence, acquirer returns and target firm public-listing status can be gleaned from the literature on outside directors' reputation capital. Fama (1980) and Fama and Jensen (1983) observe that the separation of executive decision making and control implies that outside directors have an incentive to perform their oversight duties, and not collude with managers to expropriate investors. The incentive arises from a "substantial devaluation of human capital when internal control breaks down''. Given a well-functioning market for outside directors, a failure to monitor will imply a loss in human capital for ineffective outside directors. Such a loss is likely to be more apparent and visible in the acquisition of publicly-traded targets, which generally garner greater scrutiny from the business press, media, and financial analysts than deals involving private targets.[3]

Overall, the theories pertaining to "the directors cost of being informed" and "outside directors' reputation capital" both invite inspection on the *effectiveness* of outside directors conditional on the target firm listing status, with the prediction being that outside directors should be more valuable to acquirers in the takeover of public targets. As best as we can

[3] To gauge whether all-public deals engender greater publicity and scrutiny from the press, we use Lexis-Nexis to search for media cites of our sample deals. This examination reveals an average 37.6 media cites for public deals and only 5.38 media cites for private deals in the period following the issuance of the Cadbury Report in 1992 (the difference between the two sets is statistically significant at the 1% level). A similar trend is observed following the publication of the Higgs Report in 2003 with 234 media cites for public deals and 14 for private targets (the difference between the two sets is again statistically significant at the 1% level). These data reveal two interesting observations. First, public takeover targets garner significantly greater publicity than private targets irrespective of the time period. And second, media attention to M&A deals has increased from the early 1990's, though part of the increase is probably due to greater data coverage by Lexis-Nexis in the more recent years.

establish, our study is the first to examine the effect of board structures on acquirer returns by target listing status using a dataset that naturally alleviates endogeneity.

Our foregoing discussion on endogenous board structures frames the issues that we address in an experimental setting designed to alleviate such concern. To that end, we scrutinize board structure and acquirer returns over an eight-year period centred on the issuance of the Cadbury Report in 1992, which called for a minimum of three outside directors on U.K. corporate boards. We then repeat the analysis over a later eight-year time frame centred on the publication of the Higgs Report in 2003.

In the primary analysis, we estimate regressions in which the dependent variable is acquirer abnormal stock returns and the key independent variables are the fraction of outsiders on the board or an indicator variable on overall Cadbury compliance (with the two key Cadbury Committee recommendations – at least 3 outside directors and positions of CEO and chairman be held by two individuals), and various acquirer- and deal-specific characteristics. The results reveal that there is a positive relationship between Cadbury compliance, and a *sea-change* in the representation of outside directors on U.K. corporate boards, and acquirer returns.[4] We also find that the positive effect on acquirer returns following issuance of the Cadbury mandate is largely driven by the increase in the fraction of outside directors on acquirer boards. In a setting designed to curb the effects of endogeneity, our results support the classic agency view of outside director representation on the board in acquisition decisions.

We also test whether outside directors are indeed more valuable to acquirers in takeovers of public targets. To that end, we estimate pooled regressions including an

[4] As observed by Dahya and McConnell (2007), the representation of outsiders on all U.K. corporate boards jumped from 31.15% to 40.59% in the three years following the issuance of the Cadbury mandate. In relative terms, the increase in the fraction of outsiders on the corporate board from before to after the Cadbury Report is almost 1.7-times larger than the increase in outside director representation documented by Duchin et al. (2010) in their analysis of pre- and post-SOX compliance.

interaction term between board structure variables and target listing status, as well as separate regressions for public and private acquisitions. Consistent with our belief, the positive correlation between acquirer returns and the representation of outsiders on the corporate board is confined to the subsample of acquisitions involving public targets; there is no such effect observed when private firms are acquired. Moreover, the positive correlation between acquirer performance and the fraction of outside directors on the board in public deals is driven by proxies on both directors cost of being informed and outside directors reputation capital.

A plausible question that might be asked of our analyses is whether higher acquirer performance following the increase in outside directors in response to issuance of the Cadbury guidelines is unique, or whether governance mandates that call for greater outside director representation on corporate boards are associated with higher acquirer performance. Fortunately, the U.K. market allows us to perform such a test surrounding the issuance of the Higgs Report in 2003. The Higgs Report expanded upon the key recommendations of the Cadbury Committee by mandating the representation of outside directors on U.K. corporate boards to be at least half.

Thus, as a final step in our analysis, we mimic all the aforementioned analyses conducted over 1989 through 1996 around the issuance of the Cadbury Report to a more recent eight-year time frame centred on the issuance of the Higgs Report in 2003. This analysis is further motivated by Bebchuk et al. (2013) who document that the relationship between governance and equity prices is strong in the 1990s but disappears in the 2000s, which they attribute to investor learning.

In line with our initial results centred on the publication of the Cadbury Report, we continue to find that U.K. firms that met the Higgs criteria and reconfigured their corporate boards to comprise at least half of outside directors are associated higher acquirer returns in

all public deals. However, the effect documented over the more recent reform period is significantly smaller in magnitude in comparison to that noted following issuance of the earlier Cadbury Report and only pronounced in the regressions that pool together public and private deals. Taken collectively, these findings on U.K. acquisitions are consistent with those reported by Bebchuk et al. (2013), more generally, on U.S. firms.[5]

As a further check on our results we redo our entire analysis switching our acquirer performance measure from the announcement period returns to long-term operating performance, as measured by the industry-adjusted return on assets averaged over three post-acquisition years. We find that our results are equally strong using this fundamentals-based metric of performance.

Overall, we conclude that board structures prescribed by the Cadbury Committee, and further endorsed by the Higgs Report did enhance corporate board oversight that led to better acquisition decisions, however this effect is primarily confined to public firm acquisitions, where outside directors information acquisitions cost is higher and their reputation capital is more exposed. Though we stop short of endorsing mandated board structures, the evidence from this study appears to show that such mandates are associated with increased U.K. acquirer value when targeting publicly traded firms.

The studies most closely related to ours are Byrd and Hickman (1992), Masulis et al. (2007), and Bauguess and Stegemoller (2008) on corporate governance mechanisms and acquirer performance; and Dahya and McConnell (2007) and Duchin et al. (2010) on corporate governance reform, board structure and firm performance. Byrd and Hickman

[5] Another plausible explanation for the drop in statistical significance in the correlation between acquirer performance and the fraction of outside directors on the board over the more recent time period could be due to a lower incremental change in the fraction outsiders required to comply with the Higgs mandate. For example, Table 2 shows that the increase in outside directors on the acquirer boards from 2000-2003 to 2004-2007 was a meager 1.8%, while it was a staggering 38% from 1989-1992 to 1993-1996 (around issuance of the Cadbury Report).

(1992), Masulis et al. (2007), and Bauguess and Stegemoller (2008) study the effects of board independence on acquirer returns and report a positive, an insignificant, and a negative relationship, respectively. Our study reconciles these mixed results by showing that the effect of outside directors on acquirer returns is conditional upon target firm listing status. To circumvent the issue of endogeneity between board structure and acquirer performance, we follow a similar approach to Dahya and McConnell (2007) and Duchin et al. (2010) to show that the board structures of the type recommended by the Cadbury Committee improve another crucial and discrete board task – overseeing the firm's acquisition activity. Finally, our paper is also very much in line with the general findings of Bebchuk et al. (2013), in that the effect of governance (as measured by the fraction of outside directors on U.K. corporate boards, in our study) on stock performance (as measured by acquirer returns, in our case) appears to have lessened in importance over time.

The rest of the paper is organized as follows. Section 2 discusses the relevant literature. Section 3 presents the data, methodology, and describes the variables. We discuss our results and their implications in Section 4. Finally, Section 5 concludes.

2. Prior Studies

2.1. Board structure and firm performance

The literature on the connection between board composition and corporate performance is burgeoning, thus we focus only on the studies that are most closely related to our work. The reader can refer to Bhagat and Black (2002) and Adams, Hermalin and Weisbach (2010) for excellent surveys on corporate boards and performance. A major take-away from this expanding literature is that board composition does appear to be correlated with performance in the fulfilment of certain discrete board tasks, while the answer is not as clear with respect to performance more generally, which is attributed to endogeneity issues.

As noted by Bhagat and Black (1999), prior research on the relation between board composition and corporate performance generally appears to show that board composition does influence the manner in which corporate boards accomplish discrete tasks, including hiring and firing of the CEO (Weisbach (1988); Borokhovich, Parrino and Trapani (1996); Dahya et al. (2002); Dahya and McConnell (2005)), adoption and usage of anti-takeover provisions (Brickley, Coles and Terry (1994)), and responding to hostile takeovers (Byrd and Hickman (1992); Shivdasani (1993); Kini, Kracaw and Mian (2004); Cotter, Shivdasani and Zenner (1997)).

As for the overall corporate performance, Baysinger and Butler (1985), Hermalin and Weisbach (1991), Agrawal and Knoeber (2001), and Bhagat and Black (2002) fail to document any relationship between the composition of corporate boards and firm value. Hermalin and Weisbach (1991) regress varies measures of firm performance, including Tobin's Q and operating earnings, against the percentage of outside directors on the corporate board for a sample of 134 publicly-traded NYSE firms over 1971 through 1983. They experiment with various regression specifications but fail to shown any statistically significant correlation between performance and the fraction of outside directors on the board. Agrawal and Knoeber (1996) initially find evidence of an inverse relationship between board independence and Tobin's Q for a sample of 388 large U.S. firms in 1987, however in a follow-up study (Agrawal and Knoeber (2001)), the significant negative relationship between the percentage of outsiders on the corporate board and Tobin's Q disappears after the inclusion of additional control variables. Bhagat and Black (2002) scrutinize four different proxies on corporate performance, including Tobin's Q, long-run stock returns, ROA, and the ratio of sales/assets, against board independence for a sample of 828 U.S. firms in 1991. They also fail to report any significant link between the fraction of outside directors and firm performance, but they do note an up-tick in outside directors in firms that experience

poor performance.[6] The overarching conclusion from this line of inquiry is that board composition is endogenous (Hermalin and Weisbach (1998); Harris and Raviv (2008); and Coles et al. (2012)).

More recent studies by Lehn, Patro and Zhao (2009), Coles, Daniel and Naveen (2008), Boone et al. (2007), and Linck, Netter and Yang (2008), report that board composition depends upon certain firm characteristics that support the monitoring and advising roles of the board, such as firm complexity, growth opportunities, private benefits and CEO influence. For example, Lehn et al. (2009) find inside director representation on the corporate board is negatively related to firm size and growth opportunities for 81 publicly-traded firms that survived from 1935 through 2000. Boone et al. (2007) report that board independence for 1019 U.S. IPOs over 1998 to 2002 increases with firm complexity, and decreases with CEO influence, as measured by her tenure and equity ownership in the firm.

Extending this line of inquiry, Coles et al. (2008) find Tobin's Q is positively correlated to the fraction of insiders in complex firms with high R&D budgets, and firm value increases with the representation of outside directors in large firms and in firms with high leverage. While, Linck et al. (2008) report that board independence decreases firm value, and rises with firm complexity, CEO influence, and free cash flows, for a sample of 7,000 U.S. firms over 1990 through 2004. The key takeaway form these studies is that the firm's information environment appears to push firms toward board structures that meet the firm's monitoring and advisory needs. The empirical evidence cited above is consistent with the theory on board structures advanced by Hermalin and Weisbach (1998), Raheja (2005), Adams and Ferreira (2007), and Harris and Raviv (2008), among others.

[6] Klein (1998) examines the connection between board sub-committee composition and corporate performance and finds that certain sub-committees benefit from the presence of inside, as well as outside directors.

2.2. Board structure, firm performance and governance mandates

Duchin et al. (2010) provide direct insight on the connection between the firm's information environment, board composition, and corporate performance. Specifically, they show that the positive correlation between corporate performance and the fraction of outside directors on the board is conditional upon the firm's information environment. To limit endogeneity concerns, the authors use the passage of the Sarbanes-Oxley Act of (2002). In sum, they find that a greater fraction of outside directors on the corporate board improves the performance of firms when outsiders face a low cost of becoming informed, and hurts the performance of firms where these costs are high.

In many ways, Duchin et al. (2010) is modelled on Dahya and McConnell (2007) who analyse changes in operating performance (measured by the return on assets) and stock prices of U.K. firms around the adoption of the Cadbury recommendations. The authors show that firms adopting the Cadbury recommendations exhibit a significant increase in operating performance and a significant positive abnormal return of 0.44% to announcements of outside director appointments. It would appear that government-led mandates in the U.K. and U.S. that propelled firms to greater outside director representation on corporate boards were generally value enhancing (and at least in the U.S., conditional on information acquisition costs to outside directors).

2.3. Board structure and acquirer returns

While studies on board composition and corporate performance have used government-led exogenous changes in board composition to alleviate endogeneity concerns, the same is not true on studies that examine the relationship between board composition and acquirer performance. Consequently, it is unsurprising to observe that prior empirical evidence on this connection reports mixed findings. For example, Byrd and Hickman (1992) study a sample of 128 US tender offers and find that bidders with independent boards are associated with

higher announcement returns. Consistent with this result, Paul (2007) finds that U.S. acquirers with independent boards are less likely to complete acquisitions received poorly by the market, and are more likely to unwind such deals. Masulis et al. (2007), on the other hand, scrutinize acquisitions of both listed and unlisted targets in their analysis of anti-takeover protection (ATP) and corporate performance, and in regressions report an insignificant correlation between acquirer board independence and announcement returns.[7] And to complete the picture, Bauguess and Stegemoller (2008) focus on a sample of S&P 500 acquirers and show that acquirer returns increase with the level of *inside* directors on the board.

A plausible explanation for the mixed results is endogeneity between board composition and acquisition performance. One type of endogeneity is reverse-causality. That is, rather than a greater fraction of outside directors leading to 'good' acquisitions, it could be that managers planning an acquisition may first ply the corporate board with outside directors to preclude sanction from the capital markets. Another type of endogeneity is omitted variable bias, in which some unobservable phenomenon drives both board composition and acquirer performance. Our study design seeks to *naturally* alleviate both these endogeneity concerns, since we analyse the relationship between acquirer returns and board composition around the issuance of the Cadbury Report, which resulted in a exogenous move in the representation of outsiders on the board of U.K. firms over a relatively short time-frame.

Another explanation for the uncertain results is that the relationship between board composition and acquirer performance has changed over time (Bebchuk et al. (2013)). To explore this issue further, we scrutinize the aforementioned relationship over two separate 8-

[7] It could be argued that antitakeover provisions render board-level governance less relevant, which might explain the insignificant results on the correlation between board independence and corporate performance. The absence of anti-takeover provisions in U.K. firms allows a cleaner test on the correlation between board composition and acquisition performance.

year time frames centred on the publication of the Cadbury Report in 1992 and the Higgs Report in 2003. As noted at the onset, the Cadbury Report mandated a minimum of three outside directors on the boards of publicly traded companies from 1993 onward, while the Higgs Report raised the threshold of outside directors on the board to a at least half from 2004.

Lastly, John et al. (2010) examine the role of country-level legal shareholder protection on acquirer performance in cross-border acquisitions, and show that the impact of investor legal protection (at the country level) on acquirer returns is contingent upon target listing status. This result is consistent with our prediction that target firm listing status is a key determinant in explaining the relationship between governance arrangements designed to protect investors, such as the representation of outsiders on the corporate board, and acquirer performance. Our argument offers a subtle extension to John et al. (2010) in that we employ target firm listing status as an indicator on outside directors reputation capital and/or directors cost of being informed in acquisition decisions. Hence, we condition our analysis on target firm listing status.

3. Sample, Data and Method

The sample we use in our analysis begins with the universe of completed mergers and acquisitions by public firms extracted from the Thomson Financial Mergers and Acquisitions Database (SDC) over 1989 through 1996 and 2000 through 2007. Our initial trawl of the database identified 6931 acquisitions over both time frames. Of these, 1253 were eliminated due to missing deal value and a further 1408 due to missing method of payment information. Another 461 observations were dropped as they represented non-majority stake acquisitions, leaving 3809. Of the remaining deals, the requisite stock price data around the merger announcement date from *Datastream* is available for 2858 transactions. And, finally, smaller

deals, below £1 million or those that represented less than 1% of the acquirer's market value, were also excluded from the sample. In the aggregate, the sample includes 2292 U.K. mergers and acquisitions, of which 925 enter the analysis over 1989 through 1996 (centered on the issuance of the Cadbury Report in 1992) and 1367 that enter the analysis over 2000 through 2007 (centered on the publication of the Higgs Report in 2003).

3.1. Acquisition sample statistics

Table 1 presents acquirer and deal descriptive statistics for sample firms over an 8-year period surrounding the issuance of the Cadbury Report in 1992 in Panel A (Columns 1-3). All deals are then parsed by target firm listing status: 134 public targets (Columns 4-6) and 791 private targets (Columns 7-9). For each firm in the sample, for each year for which data are available, we take market value of equity, book value of assets, total long-term debt, earnings before depreciation, interest, and taxes, and industry affiliation from *Datastream*. Analyst following is taken from I/B/E/S. We also use *Datastream* to extract daily stock returns from two years before to one year after the merger announcement date for each deal in the sample. Deal-specific information such as deal value, acquirer hostility, method of payment, target industry relatedness, and the tender offer status are collated from SDC.

In Panel A of Table 1, acquirer size is denoted by *MV* which is the acquiring firm's market value in £ million one month prior to the merger announcement. The mean (median) bidder size measured by the market value of equity for the sample is £151.41 million (£53.03 million). *MTB* is the market-to-book assets ratio of the acquiring firm in the month prior to the merger announcement. The mean (median) *MTB* for sample firms is 2.84 (2.15). Run-up is the acquiring firm's buy-and-hold stock return less the FTSE All-Share Index taken over 200 days before to 2 days before the merger announcement date. The mean (median) run-up for sample acquirers is 10% (4%) over 1989 through 1996. Bidder size (Moeller,

Schlingemann and Stulz (2004)), acquirer run-up (Rosen (2006)), and the market-to-book-assets ratio (Dong et al. (2006)) have previously been shown to be negatively related to acquirer returns, thus we include these variables in our multivariate analysis.

Following Moeller et al. (2007), we also estimate acquirer idiosyncratic volatility *(Sigma)* as the standard deviation of the acquiring firm's excess return over a 200-day period (from 205 days to 6 days before the merger announcement). The mean (median) idiosyncratic volatility for our sample firms is 0.02 (0.01). The leverage ratio computed as acquirer total long-term debt scaled by total assets for the fiscal year ending prior to the announcement is also extracted from *Datastream*. The mean (median) leverage is 17% (14%) for sample acquirers. In line with prior work, we control for both idiosyncratic volatility and leverage however the relationship between each of these variables and acquirer performance is not unanimous. For example, Officer et al. (2009) report a positive correlation between sigma and acquirer returns, while Moeller et al. (2007) find a negative effect in deals financed purely by stock. Similarly, Maloney et al. (1993), contend that leverage is an important governance mechanism, as it limits managerial discretion by committing the firm to regular interest/principal payments. Consistent with this prediction, the authors report a positive relationship between leverage and acquirer returns. In contrast, Myers and Majluf (1984) argue that financial slack can be beneficial in a world of asymmetric information, thus, the relationship between leverage and acquirer returns could either be positive or negative.

The mean (median) deal value of £21.54 million (£4.82 million) in Panel A is the total consideration paid as reported by SDC for sample acquirers over 1989 through 1996. Using this number in the numerator and acquirer market value of equity in the denominator one month prior to the acquisition announcement date, we also measure relative size between the acquirer and target firm. The mean (median) relative size of the deal over this 8-year period is 0.31 (0.09). Closer scrutiny on this static reveals that median relative size of the deal is three

times larger when the target firm is public then when it is private. Fuller, Netter and Stegemoller (2002) report that the effect of relative size on bidder returns for a sample of 3135 U.S. acquisitions over 1990 through 2000 is negative in public deals but positive in private transactions.

Jensen and Ruback (1983) show that tender offers are associated with higher announcement period gains. Tender offers comprise only 13% of all deals in Panel A and 74% of deals involving publicly traded targets. In line with prior work, we also identify 1% of deals as "hostile" or "unsolicited" in SDC. When the sample surrounding issuance of the Cadbury Report is parsed by target firm listing status, almost 10% of public deals involve hostility. The evidence on hostility is mixed with Servaes (1991) reporting lower acquirer returns in hostile takeovers and Schwert (2000) unable to confirm this result. Following Masulis et al. (2007), we also partition acquirers by the form of payment offered to the target, into *all-cash offers* (where the sole consideration offered is cash) and *stock* offers (either partially or fully financed with stock).[8] Approximately, one quarter of the sample acquirers in Panel A use all cash, while the remaining acquirers include some form of stock as their preferred mode of payment to the target. Travlos (1987) shows that bidder returns are generally lower when stock is used as a method of payment in U.S. acquisitions. A more refined breakdown of stock financed deals by Chang (1998) reveals that deals targeting private companies are associated with even higher announcement period stock returns.

There is some disagreement in the literature regarding the value of diversification. Earlier papers by Lang and Stulz (1994) and Berger and Ofek (1995) report a diversification discount, while later studies suggest that this discount may be a product of the method

[8] The method payment in acquisitions is even more relevant in the U.K. setting, given an institutional quirk. That is, M&A regulation in the U.K. contained in the City Code requires that all stock offers must provide a cash alternative, which renders all-stock financed acquisitions as essentially mixed cash and stock deals. To accommodate this feature, we combine all stock and mixed cash and stock offers together.

(Campa and Kedia (2002)) or the data (Villalonga (2004)) used to assess diversification. For completeness, we designate diversifying deals as those in which the 2-digit SIC code of the acquiring firm is different from that of the target. Of the 925 sample deals in Panel A, 564 are classified as diversifying deal (the difference in the level of diversification between public and private targets is negligible).

We now turn our attention to the governance data for acquirers in the period centered on the issuance of the Cadbury Report in 1992.

3.2. Cadbury Report and corporate governance data

The Cadbury Committee was appointed by the Conservative Government of the U.K. in May 1991 with a mandate to broadly address the financial aspects of corporate governance. The Committee issued its report, the cornerstone of which was The Code of Best Practice, in December 1992. The two key recommendations in the Code, pertaining to board composition, is that boards of publicly traded firms have at least three outside directors and the positions of Chief Executive Officer (CEO) and Chairman of the Board (COB) be held by two different individuals. Dahya, McConnell and Travlos (2002) report that the representation of outsiders on the corporate board increased from an average of 35% from four years before (1989-1992) to an average of 46% over four years after (1993-1996) issuance of the Report in December 1992. The authors also report that the number of firms splitting the combined CEO/COB position increased by 33.2% (from 63.5% to 84.6%). The mass adoption of the Cadbury mandate, as shown above, represented an exogenous shock that perturbed U.K. corporate board structures over a relatively short time frame and permits clean identification of the effect of board composition on corporate performance.

Our study borrows heavily from the natural experimental setting offered by the publication of the Cadbury Code to further examine the connection between acquirer

performance and board composition. Therefore, for each sample acquirer, in each year end over 1989 through 1996, we manually collect data on board composition from company annual reports stored at the British Library, the London Business School Library and the Manchester Business School Library. This process reveals data for 744 acquirers, which comprises 80.43% of sample firms over 1989 through 1996. (Further scrutiny of all 925 firms reveals no discerning sample selection bias between those acquirers with and without governance data.)

Panel A in Table 1 also reports data on board size, the number and fraction of outside directors on the board, and whether the posts of chairman and CEO were combined. A quick inspection of these data reveals a mean board size of seven members of which roughly one third comprise outside directors.

The board composition variable of primary interest is the number (and fraction) of outside directors on the board. The Cadbury Committee recommended that publicly traded corporations should maintain at least three outside directors on the corporate board. Thus, we scrutinize the number of outsiders in each firm at the deal announcement to reveal that 396 acquirers complied with this requirement (hereafter, *Outsider Compliance*) and the remaining 348 acquirers did not. The board structure variable of secondary interest is whether the positions of CEO and Chairman are held by two individuals. For brevity, we define *CEO/Chair Split* as an indicator variable that takes the value of 1 if the CEO and COB roles are held by different individuals and 0 otherwise. In our sample, 517 deals involved acquirers that were in compliance with this one recommendation and the remaining 195 acquisitions were made by acquirer's that combined the CEO/COB positions. (In subsequent analyses, we define *Cadbury compliance* if both requirements of the Code are satisfied. This compliance classification yields 318 Cadbury compliant firms, and 426 non-compliant firms.)

Table 2 shows acquirer compliance to the two key recommendations of the Cadbury Report over the sample period. The percentage of acquirers meeting the minimum standards of the recommendations increases steadily over time (see Figure 1). For example, over 1989 through 1992, almost 42% of acquirers had at least 3 outside directors on their corporate boards (Column 4 in Panel A). Over 1993 through 1996, the compliance rate with respect to this one key recommendation had increased to 63% of acquirers – a 50 per cent increase![9] When the sample of acquirers is parsed into public and private targets, the fraction of outsiders on the board is similar to that reported for the overall sample. Columns 4 and 6 in Panel A of Table 2 report the rates of Cadbury compliance and Outsider compliance in sample acquirers. These results mimic those on the general increase in the fraction of outsiders. For example, compliance to the two key recommendations of the Cadbury Report increases from 29% to 54% from before to after publication of the Cadbury Report (see Column 6 in Panel A). Much of this increase is driven by the variable of primary interest – outsider compliance, which jumps from 42% to 63% (see column 4 in Panel A). Splitting the acquirers by target firm listing status does not seem to make a difference in the rate of outsider or overall compliance to Cadbury.

3.3. Higgs Report and corporate governance data

The issuance of the Cadbury Report in 1992 spurred what can best be described as corporate governance mania. Since 1992, over 25 countries have issued numerous corporate governance reports calling for increased representation of outside directors on corporate boards (including the SOX requirements issued in the U.S. in 2002 that mandated, among

[9] This percentage is in line with Dahya and McConnell (2007) who contend that this "sea-change" in board structures in response to the Cadbury mandate is unlikely to be endogenous. Furthermore, the authors show that the issuance of the Cadbury Report had an influence on board structures beyond that explained by the usual determinants of board composition over a relatively short time frame, thus easing endogeneity concerns.

others, establishment of audit committees comprising only outside directors; this later lead NYSE and NASDAQ to require all listed firms to have a majority independent board). The U.K. contributed to this move further by issuing the Higgs Report in 2003 to further strengthen the representation of outside directors on U.K. corporate boards.

The Higgs Committee was chaired by Sir Derek Higgs, under a Labour Party led-government, and was anointed to review the role and effectiveness of non-executive directors in U.K. quoted companies. The Higgs Committee issued its recommendations in January 2003. One key recommendation of the report required that U.K. publicly-traded companies maintain a majority of outside directors on the corporate board. In many ways, this additional variation in board composition provides a buttress to the earlier Cadbury Report's recommendations that called for three or more outside directors, and was in direct response to the widespread scandals in the U.S., involving Tyco, WorldCom, and Enron, among others.

As with the Cadbury guidelines, the Higgs recommendations were not statutory demands but rather prescriptive. Nonetheless, the recommendations of the Committee were embodied by the London Stock Exchange listing requirements and formed the cornerstone of a Combined Code (on corporate governance for U.K. firms) and, for our purpose, introduced additional variation in board independence to allow us to scrutinize the relationship between board independence and acquirer performance a second time.

In sum, the guidelines on board composition put forth in the Higgs Report are not as revolutionary as those proposed by the Cadbury Committee, but they did coerce U.K. firms to modestly raise the fraction of outside directors on their corporate boards to a majority. Analysis surrounding the issuance of the Higgs guidelines offers a unique opportunity to re-examine the relationship between the representation of outsiders on the corporate board and acquirer returns over a more recent time frame, and thus assess the robustness of the results on the earlier Cadbury recommendations to determine whether they are indeed generalizable.

For this purpose, we collect the same governance variables as for the Cadbury period, though this time these data are available from BoardEx. Panel B in Table 2 reports a 0.9% increase in the fraction of outside directors on acquirer boards from 49.6% to 50.5%. Much of this increase is confined in the small set of acquirers that target publicly-traded firms. For this set, the increase was around 9% from the four-year period from before to after issuance of the Higgs mandate. However, the sample is rather small at 15 acquisitions over 2000-2003 and 31 acquisitions over 2004-2007. It is worth reemphasizing that the additional variation in outside director representation on the board induced by the Higgs Report is rather small, which may hamper efforts in search of a significant association with acquirer returns. We will revisit this issue in discussing our results.

3.3. Acquirer returns

Having described the board data collation procedure, we now switch focus to acquisition performance measurement. The method that we employ to estimate acquisition announcement returns follows Fuller et al. (2002) who estimate abnormal returns using a modified market model (or simply market-adjusted returns). The model employs the following return generating process: $AR_{i,t} = R_{i,t} - R_{m,t}$. Where $AR_{i,t}$ is the abnormal stock return of acquirer *i* for deal announcement day *t*, $R_{i,t}$ is the observed stock return of acquirer *i* for the deal announcement day *t*, and $R_{m,t}$ is the FTSE All-Share Index return for day *t*. We use FTSE All-Share Index to proxy the market. We then cumulate abnormal returns over the event window (-1, +1), where 0 is the announcement day in line Moeller et al. (2004).[10] Brown and Warner (1980) show that abnormal return estimation is not improved by adjusting returns for risk over short event windows. Additionally, Hackbarth and Morellec (2008) report that acquisitions substantially alter firm betas making market model parameter

[10] We also estimate cumulative abnormal returns using longer event windows (-2, +2) and (-10, +10) and find qualitatively similar results to those reported over the shorter announcement window (-1, +1).

estimation based on historical performance somewhat misleading (as a check, we also compute abnormal returns using a market model over a 3-day event window that estimates market model parameters from t-220 to t-20, where t is the deal announcement date; the results are very similar to those reported here).

4. Results and Analysis

4.1 Univariate results

We begin our analysis by examining univariate differences in acquirer returns by compliant versus non-compliant firms. To reiterate, our priors based on earlier literature are that outside directors should be associated with better acquisition performance, and that this effect should be stronger for public firm takeovers. We also expect the results to be stronger in the Cadbury relative to the Higgs period given that the variation in board structures engendered by the former reform is significantly higher (Figure 1), as well as given the time-varying value of governance (Bebchuk et al. (2013)). Table 3 reports the results of the univariate tests.

We first focus on the Cadbury period results (Panel A). There is no difference in acquirer returns between compliant and non-compliant acquirers in the overall sample. However, when we partition the sample into public and private acquisitions, an interesting pattern emerges. In the public acquisitions sub-sample, overall-compliant acquirers are associated with a 1.83% better market reception of their acquisition announcements relative to non-compliant acquirers. Similarly, acquirers with at least three outside directors outperform those with less than three by 1.71%. Both differences are statistically significant at the 10% level. Furthermore, the difference-in-differences estimates (the differences in returns between compliant and non-compliant acquirers in public deals relative to the same differences in private ones) reported in the last row of Panel A are significant at the 5% level.

On the other hand, neither overall compliance nor outside director representation is associated with better acquisitions in the sub-sample of private acquisitions, and there are no significant difference-in-differences effects. Turning to Panel B, we find similar directional patterns. For example, acquirers complying with the outside directors requirement of the Higgs report outperform those not in compliance with this provision by 1.19% when the target is public, and the difference between this effect and that in private deals (the diff-in-diff estimate) is 1.50%. However, none of these return differentials are statistically significant at conventional levels. This could be due to i) a small number of public firm acquisitions in the Higgs period, ii) a relatively weaker shock to board structures resulting from the second reform, or iii) a generally lower impact of governance on stock prices in the 2000s as in Bebchuk et al. (2013).

So far, there is evidence that Cadbury-type governance structure, and in particular outside director representation, is associated with better acquirer performance in the case of public firm acquisitions, and that these effects are most detectable during the early governance reforms. Of course, these tests do not take into account any confounding effects. To make sure that these patterns are not driven by other determinants of acquirer returns, we repeat our analysis of acquirer returns in the multivariate regression analysis context.

[Please insert Table 3 about here]

4.2 Regression results

We now turn to cross-sectional regressions of acquirer returns on the overall compliance and the fraction of outside directors as well as a set of control variables motivated by prior literature on acquirer returns. The controls include target firm listing status (*public target*), the method of payment *(stock deals*), attitude (*hostile deals*), acquisition technique (*tender offer*), relative size of the deal (*relative size*), target industry relatedness (*diversifying deals),* acquirer run up (*run-up),* acquirer size (*Market Value (Ln)*), acquirer valuation

(*market-to-book ratio*), acquirer leverage (*leverage*), and acquirer idiosyncratic stock return volatility (*sigma*).

Table 4 reports the full sample results, with Panel A focusing on the Cadbury period and Panel B on the Higgs period. Specifications (1) and (2) use *Compliance* as our main governance variable, and we focus on *Outside Directors* in specifications (3) and (4). The results indicate that acquirer compliance does not explain acquirer returns when considered on its own. However, its interaction with the *Public Target* indicator obtains a positive coefficient significant at the 5% level. That is, compliant acquirers exhibit higher returns in public firm acquisitions. When we focus on the fraction of outsiders on the board we find that this variable is positive and significant at the 5% level. This result is again driven by the public firm acquisitions as the interaction of the *Outside Directors* variable with the *Public Target* dummy in Specification (4) obtains a positive coefficient that is significant at the 1% level. Most control variables exhibit signs consistent with prior literature. For instance, the main effect of public deals on acquirer returns is negative, and so is the effect of the *relative size* of the deal.

[Please insert Table 4 about here]

Panel B repeats the analysis using the period surrounding Higgs Report. We find results that are generally consistent with those for the Cadbury period, albeit weaker. Only the fraction of outsiders interacted with the public target dummy is positive and significant at 5% level (Specification (4)). The magnitude of this coefficient is in line with that obtained in the Cadbury period regressions. The control variables obtain signs consistent with the literature.

Table 5 splits the sample by target firm listing status. The first two columns are for public targets and the last two are for private targets. Again, Panels A and B report the results for the Cadbury and the Higgs periods, respectively. For the Cadbury period we find that both the compliance dummy and the fraction of outsiders are positive and statistically significant

(at the 10% and 1% levels, respectively). Strikingly, the fraction of outsiders is the single most significant variable in this regression. The economic significance of the estimated effect is also high – a one standard deviation change in the fraction of outsiders (corresponding to 0.18 in our sample) is associated with a 1.38% increase in acquirer returns. At the same time, neither the overall compliance nor the fraction of outsiders is significant in the private target regressions. Interestingly, we do not find a significant effect in either the public or the private target subsamples during the Higgs period. This result can be justified by two non-mutually exclusive explanations. First, the power of these tests is reduced due to the lack of additional variation in board structures as a result of the second reform. Recall from Figure 1 and Table 3 that the fraction of outsiders following the Higgs reform was only marginally increased. This lack of incremental variation works against our finding of a significant relationship between board structure and acquirer performance in the Higgs period. In contrast, board structures were perturbed in an avalanche-like fashion following the Cadbury Report. Second, this result is broadly in line with the recent findings of Bebchuk et al. (2013) who show that the relationships between governance and firm performance was strong in the 1990s but disappears in the 2000s. The authors argue that this is the result of investor learning. Extrapolating their argument to our setting, if by the time the Higgs report was introduced investors already anticipated outsider-dominated firms to make better acquisitions, they would have priced it in *ex-ante*, leaving no room for incremental acquirer returns for well-governed acquirers.

[Please insert Table 5 about here]

Overall, these results are consistent with overall compliant acquirers and acquirers with larger fractions of outsiders on their boards making better acquisition decisions, but only in the case of public firm acquisitions. The differential effect of outside directors on acquisition performance in public versus private deals is consistent with greater reputational exposure as

well as the higher cost of information acquisition in public firm takeovers. We now try to econometrically disentangle the two effects.[11]

Table 6 reports the statistics on our empirical proxies for deal publicity and the outside directors' cost of becoming informed. As usual, Panel A is for the Cadbury period and Panel B is for the Higgs period. To measure publicity (our proxy for reputational exposure) we use Lexis-Nexis to count the number of times the deal is cited in the media in the 6 period starting one month before and ending 5 months after the formal announcement of the deal. This variable is capped at the 95th percentile in order to mitigate skewness. The deal is considered cited when the acquirer's and the target's name is mentioned in the same article. A cursory examination of the numbers reported in the Table 6 reveals that public deals engender a level of publicity that is greater than that for private firm acquisitions by a factor of 7 to 17 depending on the subsample and the period considered. Clearly, the outside directors' reputational exposure is larger in public firm acquisitions given the substantial publicity accompanying these deals.

To measure the outside directors' cost of becoming informed we follow Duchin et al. (2010) and construct an information cost index as the average of three decile rankings: i) the number of analysts following the acquirer, ii) the dispersion of analyst forecasts, and ii) the mean analyst forecast error. This variable is available only for acquirers followed by at least 2 analysts because the dispersion of analyst forecasts is not defined otherwise. This index characterizes the richness and the quality of the firm's information environment. It must be noted at this point that we are only able to measure the directors' cost of becoming informed about their own firm, i.e. the acquirer. While being able to appreciate the stand-alone prospects of the acquirer is clearly important, much of the information necessary to evaluate

[11] Having shown that the effect of overall compliance is driven by the fraction of outside directors, we focus on the latter variable in the remainder of our tests. Besides, the reputational exposure and the cost of becoming informed theories relate directly to outside directors.

the deal is target-specific. Thus, we are missing a crucial information component in our measure of the cost of becoming informed. This will limit the ability of the information cost index to explain the differential effect of outside director representation on acquirer returns in public and private deals.[12] Consistent with the above discussion, we find that the outside directors' cost of becoming informed as measured by the information cost index is not different between public and private deals. This is to be expected, given that we are only capturing the acquiring-firm-specific cost of becoming informed, and the acquirers pursuing public and private targets are not much different.

[Please insert Table 6 about here]

We now attempt to explain the differential effect of outside director representation on acquirer returns in public and private deals. To that end, we return to our full sample regressions and augment specification (4) of Table 4 with an interaction term between the fraction of outsiders and deal publicity, and between the fraction of outsiders and the information cost index. These results are reported in Table 7 (Panel A for the Cadbury period and Panel B for the Higgs period).

We focus our discussion on the Cadbury period results first. Specification (1) repeats specification (4) of Table 4 to serve as our benchmark. Specification (2) includes the deal publicity interaction. Consistent with the reputational exposure story, this interaction term obtains a positive and significant coefficient (at the 5% level). That is, outside directors are more effective when the publicity around the deal brought about by the media is large, thereby generating greater reputational exposure for the outside directors. This is consistent with Golubov, Petmezas and Travlos (2012). Nevertheless, the inclusion of this interaction term does not entirely explain the differential effect of outside directors in public versus private deals. In fact, the coefficient on the *outside directors x public target* interaction is

[12] We could construct the target-specific measure for a subset of public targets, but this automatically precludes us from being able to explain the differential effect of outside directors between public and private deals.

reduced by only ((0.0794-0.0581)/0.0794) = 26.83%. It must be the case that the lower cost of becoming informed is responsible for the remaining 73.17% incrementally higher effect of outsiders in public deals.

Specification (3) attempts to tease out this latter effect by including the interaction between the fraction of outside directors and the information cost index. The coefficient on this interaction term is of the right sign (negative) but is not statistically significant at conventional levels. Two caveats are in order. First, our sample size for this specification is reduced by 38.5% (from 667 to 410 observations) due to availability of the data necessary for the construction of the information cost index. Second, as noted above, the information cost index only captures the cost of becoming informed about the directors' own firm (the acquirer), whereas much of the information necessary to evaluation the deal is target-specific. Therefore, the *Outside Director x Public Dummy* interaction still captures a sizeable portion of the difference in information acquisition costs between the two types of deals, even after controlling for the outside directors' cost of becoming informed about their own firm. In short, the target firm listing status acts as a proxy for the outside directors' information cost in the takeover setting.

For the Higgs period, the results are less clear-cut. We find that *Outside Directors x Public Target* interaction is still positive and significant in specification (2) where we add the publicity interaction, but the latter is not significant. In specification (3) we add the information cost interaction and find that neither it nor the public target interaction is significant. This is probably a manifestation of the large sample size reduction (37.8%) in this specification, as well as of our general tendency to find weaker results in the Higgs period.

We conclude that outside directors are associated with better acquirer returns, but only in the case of public firm deals. This differential effect is explained by both higher reputational exposure and lower cost of becoming informed – consistent with the pertinent

theories regarding the effectiveness of outside directors. Interestingly, we find that the effect of outsiders is strong in the period surrounding the Cadbury reform, and is almost non-detectable in the more recent period surrounding the Higgs reform. These findings echo the results of Bebchuk et al. (2013) with respect to governance indices and equity prices.

[Please insert Table 7 about here]

Finally, in Table 8 we switch our performance metric and rerun our analysis replacing acquirer returns with accounting operating performance measured as the operating return on assets (EBITDA/Total Assets) averaged over three post-acquisition years. As before, Panel A is for the Cadbury period and Panel B is for the Higgs period.

Using this long-term, fundamental measure of acquirer performance, we again find that a larger fraction of outside directors on the board is associated with better performance, but only for public firm acquisitions. We do not find that our publicity and information cost proxies help explain this differential effect when using operating performance as our measure of deal quality. Interestingly, this time find an equally strong effect in both the Cadbury and the Higgs periods. This result fits very well with the findings Bebchuk et al. (2013). They argue that investor learning is behind the disappearance of the relationship between governance indices and equity prices. In our setting, this means that the higher expected performance of acquirers with outsider-dominated boards during the Higgs period will already be priced by the market *ex-ante* and thus will not be detectable in announcement returns. However, the fundamentally better performance of acquisitions made by such boards is bound to show up in operating performance numbers. This is exactly what we find.

[Please insert Table 8 about here]

5. Conclusion

Motivated by the inconclusive evidence from prior studies, we set out to re-examine the relationship between board independence and returns to acquisitions – one of the major board decisions. We argued that using the UK takeover market as our laboratory circumvents a multitude of issues that plagued prior work.

First, historically there is little variation in board structures in the US, while the UK has seen almost a doubling of outside director representation in the short period surrounding the Cadbury Report of 1992 (and a smaller additional shock in 2003 following the Higgs Report). Second, any variation in board structures is likely endogenous, while the government-mandated nature of the UK shifts in outside director representation makes it a pure exogenous shock. Third, firms in the US are protected by state-level antitakeover regulation as well as by firm-level antitakeover provisions, effectively insulating the board from the disciplining forces of the market for corporate control, thereby rendering board-level governance less effective. In the UK the use of antitakeover provisions is virtually non-existent.

Armed with these improvements to the research design, we are able to document a positive association between outside director representation and acquirer returns, but only for a subset of public firm acquisitions. There is no significant effect of outside directors on acquirer returns in private deals. This result is consistent with greater reputational exposure brought about by the publicity of public firm takeover situations. It is also consistent with the "cost of becoming informed" theories of board structure, whereby outside director effectiveness is conditional on the cost of firm- and event-level information acquisition. Becoming informed about operations of a non-listed firm is prohibitively high.

Interestingly, the strength of the relationship between outside director representation and acquirer performance is significantly reduced in the more recent Higgs reform episode we investigate. This finding is consistent with much muted variation in board structures as

compared to that engendered by the Cadbury reform. It is also very much in line with the recent findings of Bebchuk et al. (2013) who find that the relationship between governance indices and equity prices was strong in the 1990s but disappears in the 2000s, attributing this to investor learning.

While we stop short of advocating mandated board structures, it appears that such mandates are associated with improved performance for at least some UK acquirers.

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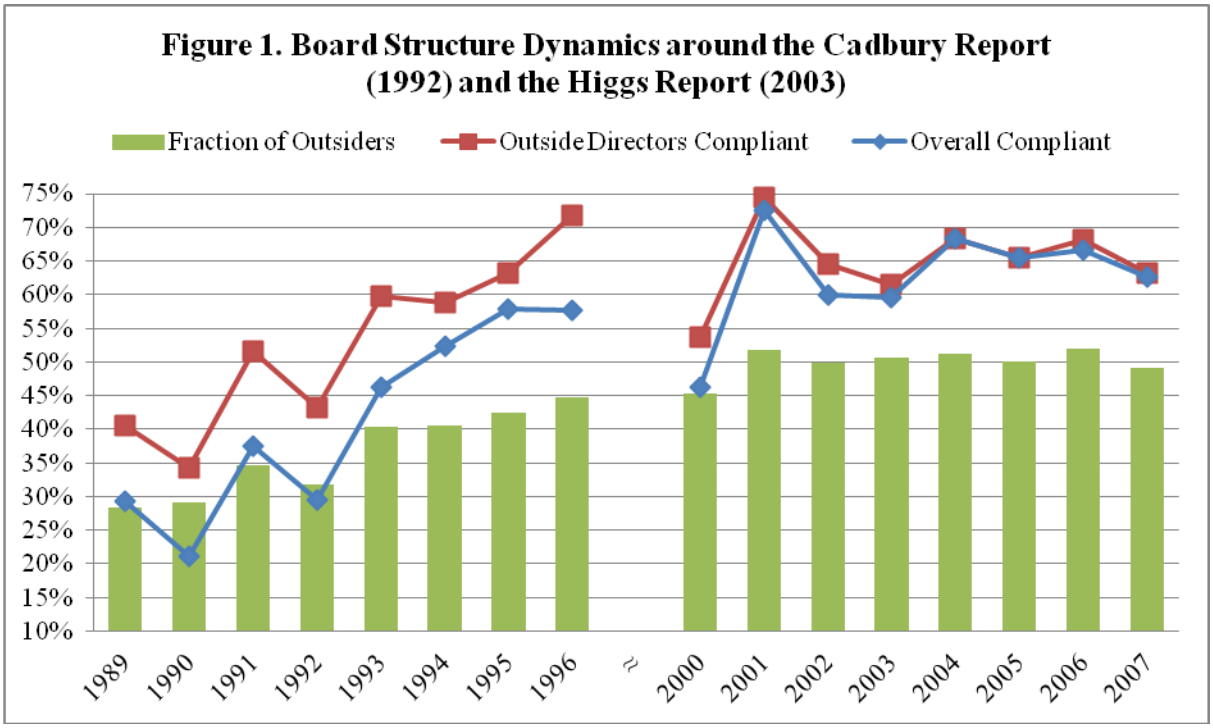
Figure 1. Board Structure Dynamics around the Cadbury Report (1992) and the Higgs Report (2003)



The figure describes the evolution of board structures over the periods surrounding the Cadbury report (1989-1996) and the Higgs report (2000-2007). The green bars show the average fraction of outside directors on the boards of acquiring firms in the sample. The red line shows the percentage of acquirers in compliance with the minimum number of outside directors requirement (at least 3 for Cadbury and at least half for Higgs). The blue line shows the percentage of acquirers complying with both the minimum number of outside directors requirement and the CEO/Chairman separation requirement.

Table 1
Descriptive Statistics

The table presents descriptive statistics for deal and firm-specific characteristics for the full sample as well as for public and private deals separately. The sample of UK domestic acquisitions is from Thomson Financial SDC M&A Database (SDC) and covers the period from January 1989 to December 1996 for the Cadbury period (Panel A) and from January 2000 to December 2007 for the Higgs period (Panel B). MV is the acquiring firm's market capitalisation in £ million one month prior to the acquisition announcement. BV is the acquiring firm's book value of equity in £ million for the fiscal year end prior to the announcement. MTB is the acquirer's market-to-book value and is calculated as the firm's market value one month prior to the acquisition announcement divided by the book value of equity. Run-up is acquirer buy-and-hold market-adjusted return measured from 200 days to 2 days prior to the announcement date. Sigma is the idiosyncratic volatility of the acquirer stock return measured from 205 days to 6 days prior to the acquisition announcement. Leverage is measured as acquirer total debt over total assets for the fiscal year ending prior to the announcement obtained from Datastream. Board size is the total number of directors on the acquirer's board. Outside Directors is the number of outside directors on the acquirer's board. Outside Directors % is the fraction of outside directors on the acquirer's board. Split CEO/COB is a dummy taking the value of 1 when the acquirer splits the roles of CEO and Chairman of the Board, 0 otherwise. Deal value is the transaction value in £ million as reported by SDC. Relative size is computed as the deal value divided by the acquirer MV one month prior to the acquisition announcement. Diversifying deals is a dummy that takes the value of 1 if the 2-digit SIC code of the acquirer is different from that of the target and 0 otherwise. Tender offers variable is a dummy taking a value of 1 if the transaction is a tender offer and 0 otherwise. Hostile deals is a dichotomous variable taking the value of 1 if a deal is reported as "hostile" by SDC, and 0 otherwise. Stock deals represent either fully or partially stock-financed transactions. Analyst following is the number of analysts following the acquirer. Transaction data is from SDC. Stock market data, accounting data and analyst forecast data are from Datastream. Board data is from annual reports for the Cadbury period and from BoardEx for the Higgs period. N denotes the number of observations.

Panel A: Cadbury Report	**All Sample**			**Public Target**			**Private Target**		
	Mean	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**N**
Acquirer Characteristics									
MV (£m)	151.41	53.03	925	372.69	99.41	134	113.92	46.26	791
BV (£m)	74.03	16.14	828	211.37	32.61	127	49.15	15.02	701
MTB	2.84	2.145	878	2.50	1.79	131	2.90	2.20	747
Run-Up	0.10	0.04	888	0.13	0.06	129	0.09	0.04	759
Sigma	0.02	0.01	886	0.02	0.01	128	0.02	0.01	758
Leverage	0.17	0.14	813	0.17	0.13	123	0.17	0.14	690
Analyst Following	3.64	2.00	892	5.66	3.50	126	3.31	2.00	766
Deal Characteristics									
Deal Value (£m)	21.54	4.82	925	93.03	18.28	134	9.43	3.80	791
Relative Size	0.31	0.09	925	0.58	0.28	134	0.27	0.08	791
Diversifying Deals (%)	0.61	-	925	0.63	-	134	0.60	-	791
Tender Offers (%)	0.13	-	925	0.74	-	134	0.03	-	791
Hostile Deals (%)	0.01	-	925	0.10	-	134	0.00	-	791
Stock Deals (%)	0.74	-	925	0.80	-	134	0.74	-	791
Board Characteristics									
Board Size	7.03	7.00	744	7.75	7.00	116	6.90	7.00	628
Outside Directors	2.60	3.00	744	2.62	3.00	116	2.60	3.00	628
Outside Directors (%)	0.37	0.40	744	0.32	0.33	116	0.37	0.40	628
Split CEO/COB	0.73	1.00	712	0.74	1.00	108	0.72	1.00	604

Panel B: Higgs Report	**All Sample**			**Public Target**			**Private Target**		
	Mean	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**N**
Acquirer Characteristics									
MV (£m)	428.01	62.70	1367	2472.36	146.94	131	211.34	58.74	1236
BV (£m)	20.90	53.03	1296	629.13	44.43	127	77.94	19.47	1169
MTB	2.41	1.82	1346	2.09	1.43	129	2.44	1.85	1217
Run-Up	0.27	0.06	1247	0.27	0.02	124	0.27	0.06	1123
Sigma	0.03	0.02	1245	0.02	0.02	124	0.03	0.02	1121
Leverage	0.18	0.13	1305	0.18	0.14	127	0.18	0.13	1178
Analyst Following	2.99	1.00	1299	5.52	3.00	127	2.71	1.00	1172
Deal Characteristics									
Deal Value (£m)	76.33	6.41	1367	619.84	53.70	131	18.72	5.68	1236
Relative Size	0.52	0.11	1367	0.70	0.42	131	0.50	0.09	1236
Diversifying Deals (%)	0.44	-	1367	0.39	-	131	0.45	-	1236
Tender Offers (%)	0.08	-	1367	0.79	-	131	0.00	-	1236
Hostile Deals (%)	0.00	-	1367	0.03	-	131	0.00	-	1236
Stock Deals (%)	0.47	-	1367	0.61	-	131	0.46	-	1236
Board Characteristics									
Board Size	6.88	6.88	688	7.42	7.00	65	6.82	6.82	623
Outside Directors	3.47	3.00	688	3.82	3.00	65	3.44	3.00	623
Board Independence (%)	0.50	0.50	688	0.51	0.55	65	0.50	0.50	623
Split CEO/COB	0.96	1.00	688	0.95	1.00	65	0.96	1.00	623

Table 2

Acquirer Compliance with the Cadbury Report (1992) and the Higgs Report (2003)

The table presents the statistics on governance characteristics of the acquiring firms. Panel A is for the period surrounding the Cadbury Report (1989-1996), Panel B is for the period surrounding the Higgs Report (2000-2007). The first column presents the average fraction of outsiders on the board for all acquirers. The second column presents the number and the proportion of acquirers in compliance with the minimum number of outside directors requirement (of the respective report). The third column presents the number and the proportion of acquirers in compliance with both the minimum number of outside directors requirement and the CEO/Chairman split requirement. Stars indicate that the post-reform figure is significantly different from the pre-reform (*** 1% level, ** 5% level, * 10% level). N denotes the number of observations.

		Outsiders Compliance		Compliance		Total N
Panel A: Cadbury Report	**Outsiders %**	**N**	**%**	**N**	**%**	
All Acquirers						
1989-1992	30.33%	139	41.62%	97	29.04%	334
1993-1996	41.85%***	257	62.68%***	221	53.9%***	410
Public Targets						
1989-1992	26.02%	28	42.42%	24	36.36%	66
1993-1996	40.69%***	31	62.00%**	28	56%**	50
Private Targets						
1989-1992	31.39%	111	41.42%	73	27.24%	268
1993-1996	42.01%***	226	62.78%***	193	53.61%***	360
Panel B: Higgs Report						
All Acquirers						
2000-2003	49.59%	121	64.02%	114	60.32%	189
2004-2007	50.49%	329	65.93%	326	65.33%	499
Public Targets						
2000-2003	45.17%	15	60.00%	15	60.00%	25
2004-2007	54.19%*	31	77.50%	31	77.50%	40
Private Targets						
2000-2003	50.26%	106	64.63%	99	60.37%	164
2004-2007	50.17%	298	64.92%	295	64.27%	459

Table 3

Acquirer Returns by Compliance with the Cadbury Report (1992) and the Higgs Report (2003)

The table presents univariate comparisons of acquirer CARs by compliance with the key recommendations of the Cadbury and the Higgs reports. Acquirer CAR is the cumulative market-adjusted abnormal return of the acquiring firm over the 3-day window surrounding the acquisition announcement, with FTSE All-Share Index as the benchmark. Compliant acquirers satisfy both the minimum number of outside directors requirement of the respective report and split the roles of CEO and Chairman. Outside directors compliant acquirers satisfy the minimum number of outside directors requirement of the respective report. N denotes the number of observations. Significance tests are two-tailed.

	Overall Compliance		**Outsiders Compliance**	
Panel A: Cadbury Report	CAR [N]	*p-val*	CAR [N]	*p-val*
YES				
All	0.64% [318]	*0.004*	0.67% [396]	*0.001*
Public Target	0.28% [52]	*0.671*	0.11% [59]	*0.860*
Private Target	0.71% [266]	*0.003*	0.77% [337]	*0.000*
NO				
All	0.38% [426]	*0.067*	0.29% [348]	*0.210*
Public Target	-1.55% [64]	*0.025*	-1.60% [57]	*0.031*
Private Target	0.72% [362]	*0.001*	0.66% [291]	*0.005*
Difference (YES minus NO)				
All	0.26%	*0.386*	0.38%	*0.210*
Public Target	1.82%	*0.058*	1.71%	*0.075*
Private Target	0.00%	*0.990*	0.11%	*0.725*
Difference (Public less Private)				
YES minus NO	1.83%	*0.028*	1.60%	*0.053*
Panel B: Higgs Report				
YES				
All	1.53% [440]	*0.000*	1.49% [450]	*0.000*
Public Target	-0.76% [46]	*0.528*	-0.76% [46]	*0.528*
Private Target	1.80% [394]	*0.000*	1.75% [404]	*0.000*
NO				
All	1.66% [248]	*0.000*	1.74% [238]	*0.000*
Public Target	-1.95% [19]	*0.165*	-1.95% [19]	*0.165*
Private Target	1.96% [229]	*0.000*	2.06% [219]	*0.000*
Difference (YES minus NO)				
All	-0.12%	*0.816*	-0.25%	*0.645*
Public Target	1.19%	*0.566*	1.19%	*0.566*
Private Target	-0.15%	*0.776*	-0.31%	*0.572*
Difference (Public minus Private)				
YES minus NO	1.34%	*0.478*	1.50%	*0.429*

Table 4

Cross Sectional Regressions of Acquirer Returns - Full Sample

The table presents the results of cross-sectional regression analysis of acquirer CARs on the overall compliance with the reform and the fraction of outside directors, controlling for acquirer- and deal-specific characteristics. Panel A is for the period surrounding the Cadbury Report (1989-1996), Panel B is for the period surrounding the Higgs Report (2000-2007). The dependent variable is acquirer CAR which is the cumulative market-adjusted abnormal return of the acquiring firm over the 3-day window surrounding the acquisition announcement, with FTSE All-Share Index as the benchmark. Compliance dummy is a dichotomous variable taking the value of 1 if the acquiring firm complies with the minimum number of outside directors requirement of the respective report and splits the roles of CEO and Chairman, and 0 otherwise. Outside directors is the proportion of outside directors on the board. All other explanatory variables are defined in Table 2. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses.

Panel A: Cadbury Report	(1)	(2)	(3)	(4)
Constant	0.0130*	0.0168**	0.0063	0.0132*
	(1.80)	(2.41)	(0.80)	(1.78)
Compliance	0.0036	-0.0001		
	(1.05)	(-0.02)		
Compliance X Public Target		0.0250**		
		(2.40)		
Outside Directors			0.0238**	0.0098
			(2.43)	(0.97)
Outside Directors X Public Target				0.0794***
				(2.84)
Public Target	-0.0056	-0.0144*	-0.0030	-0.0264***
	(-0.76)	(-1.84)	(-0.41)	(-2.70)
Stock Deals	0.0026	0.0022	0.0025	0.0017
	(0.90)	(0.76)	(0.86)	(0.60)
Hostile	0.0071	0.0063	0.0077	0.0084
	(0.36)	(0.30)	(0.40)	(0.45)
Tender Offer	-0.0076	-0.0100	-0.0094	-0.0132*
	(-0.99)	(-1.29)	(-1.25)	(-1.77)
Relative Size	-0.0047***	-0.0047***	-0.0048***	-0.0046***
	(-3.52)	(-3.68)	(-3.58)	(-3.64)
Diversifying Deals	-0.0039	-0.0036	-0.0038	-0.0030
	(-1.22)	(-1.15)	(-1.19)	(-0.96)
Run-Up	0.0088	0.0089	0.0075	0.0067
	(1.56)	(1.55)	(1.33)	(1.21)
Market Value (Ln)	-0.0011	-0.0015	-0.0011	-0.0014
	(-0.79)	(-1.12)	(-0.85)	(-1.17)
Market-to-Book Ratio	-0.0000	-0.0000	-0.0000	-0.0000
	(-0.86)	(-1.09)	(-0.75)	(-0.98)
Leverage	-0.0466***	-0.0471***	-0.0507***	-0.0503***
	(-3.55)	(-3.57)	(-3.83)	(-3.89)
Sigma	0.3990*	0.3735	0.4086*	0.3991*
	(1.68)	(1.59)	(1.71)	(1.71)
Observations	667	667	667	667
Adjusted R2	0.0529	0.0635	0.0615	0.0782

Panel B: Higgs Report	(1)	(2)	(3)	(4)
Constant	0.0268*	0.0278**	0.0243	0.0321**
	(1.94)	(2.03)	(1.56)	(1.99)
Compliance	-0.0017	-0.0032		
	(-0.30)	(-0.55)		
Compliance X Public Target		0.0172		
		(0.79)		
Outside Directors			0.0047	-0.0141
			(0.21)	(-0.56)
Outside Directors X Public Target				0.1070**
				(2.02)
Public Target	-0.0277	-0.0407	-0.0277	-0.0822***
	(-1.30)	(-1.63)	(-1.31)	(-2.64)
Stock Deals	0.0089	0.0087	0.0090	0.0082
	(1.52)	(1.48)	(1.51)	(1.36)
Hostile	-0.0005	-0.0056	-0.0014	-0.0012
	(-0.04)	(-0.34)	(-0.11)	(-0.09)
Tender Offer	0.0019	0.0036	0.0020	0.0037
	(0.08)	(0.15)	(0.08)	(0.17)
Relative Size	-0.0031**	-0.0032**	-0.0031*	-0.0031**
	(-2.01)	(-2.03)	(-1.96)	(-2.03)
Diversifying Deals	0.0056	0.0055	0.0058	0.0053
	(1.10)	(1.07)	(1.12)	(1.04)
Run-Up	0.0097	0.0100	0.0098	0.0107
	(1.22)	(1.25)	(1.22)	(1.32)
Market Value (Ln)	-0.0061***	-0.0061***	-0.0062***	-0.0062***
	(-2.93)	(-2.96)	(-2.99)	(-3.01)
Market-to-Book Ratio	0.0000**	0.0000**	0.0000**	0.0000**
	(2.15)	(2.12)	(2.22)	(2.15)
Leverage	0.0774***	0.0772***	0.0765***	0.0776***
	(3.11)	(3.09)	(3.07)	(3.11)
Sigma	0.0695	0.0894	0.0613	0.1430
	(0.13)	(0.16)	(0.11)	(0.26)
Observations	643	643	643	643
Adjusted R2	0.0814	0.0812	0.0813	0.0856

Table 5
Cross Sectional Regressions of Acquirer Returns by Target Firm Listing Status

The table presents the results of cross-sectional regression analysis of acquirer CARs on the overall compliance with the reform and the fraction of outside directors, controlling for acquirer- and deal-specific characteristics and splitting the sample into public (first two columns) and private (second two columns) targets. Panel A is for the period surrounding the Cadbury Report (1989-1996), Panel B is for the period surrounding the Higgs Report (2000-2007). The dependent variable is acquirer CAR which is the cumulative market-adjusted abnormal return of the acquiring firm over the 3-day window surrounding the acquisition announcement, with FTSE All-Share Index as the benchmark. Compliance dummy is a dichotomous variable taking the value of 1 if the acquiring firm complies with the minimum number of outside directors requirement of the respective report and splits the roles of CEO and Chairman, and 0 otherwise. Outside directors is the proportion of outside directors on the board. All other explanatory variables are defined in Table 2. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses.

Panel A: Cadbury Report	**Public**	**Public**	**Private**	**Private**
Constant	-0.0061	-0.0183	0.0243***	0.0211***
	(-0.28)	(-0.83)	(3.27)	(2.72)
Compliance	0.0169*		0.0012	
	(1.76)		(0.33)	
Outside Directors		0.0767***		0.0105
		(2.71)		(1.04)
Stock Deals	-0.0046	-0.0073	0.0030	0.0031
	(-0.41)	(-0.67)	(1.02)	(1.03)
Hostile	0.0171	0.0176		
	(0.76)	(0.84)		
Tender Offer	-0.0136	-0.0191	-0.0023	-0.0030
	(-1.11)	(-1.62)	(-0.26)	(-0.35)
Relative Size	-0.0125	-0.0117	-0.0038***	-0.0038***
	(-1.58)	(-1.52)	(-3.80)	(-3.97)
Diversifying Deals	-0.0069	-0.0019	-0.0040	-0.0041
	(-0.73)	(-0.20)	(-1.22)	(-1.24)
Run-Up	0.0250***	0.0177*	0.0067	0.0062
	(2.70)	(1.81)	(1.07)	(1.01)
Market Value (Ln)	0.0030	0.0028	-0.0033**	-0.0033**
	(0.70)	(0.71)	(-2.31)	(-2.53)
Market-to-Book Ratio	0.0004***	0.0003***	-0.0000	-0.0000
	(3.44)	(2.68)	(-1.56)	(-1.49)
Leverage	-0.0434	-0.0537	-0.0526***	-0.0545***
	(-0.87)	(-1.12)	(-3.98)	(-4.08)
Sigma	0.4025	0.4748	0.3512	0.3578
	(0.68)	(0.87)	(1.41)	(1.44)
Observations	104	104	563	563
Adjusted R2	0.0859	0.134	0.0546	0.0566

Panel B: Higgs Report	**Public**	**Public**	**Private**	**Private**
Constant	0.0734*	0.0602	0.0247*	0.0285*
	(1.71)	(1.22)	(1.76)	(1.77)
Compliance	0.0049		-0.0034	
	(0.25)		(-0.59)	
Outside Directors		0.0356		-0.0134
		(0.62)		(-0.54)
Stock Deals	-0.0133	-0.0147	0.0112*	0.0109*
	(-0.77)	(-0.84)	(1.80)	(1.72)
Hostile	-0.0268	-0.0246		
	(-1.28)	(-1.25)		
Tender Offer	0.0031	0.0020	0.0825***	0.0822***
	(0.13)	(0.09)	(2.62)	(2.67)
Relative Size	-0.0134	-0.0124	-0.0032**	-0.0032**
	(-0.64)	(-0.59)	(-2.15)	(-2.17)
Diversifying Deals	0.0179	0.0172	0.0076	0.0077
	(0.99)	(0.93)	(1.44)	(1.45)
Run-Up	0.0541	0.0563	0.0100	0.0100
	(1.54)	(1.59)	(1.25)	(1.25)
Market Value (Ln)	-0.0012	-0.0014	-0.0084***	-0.0083***
	(-0.31)	(-0.39)	(-3.80)	(-3.73)
Market-to-Book Ratio	0.0001**	0.0001**	0.0000***	0.0000***
	(2.08)	(2.11)	(3.13)	(3.12)
Leverage	-0.0126	-0.0144	0.0828***	0.0834***
	(-0.24)	(-0.29)	(3.65)	(3.65)
Sigma	-3.7459**	-3.6665**	0.6346	0.6464
	(-2.50)	(-2.45)	(1.26)	(1.25)
Observations	61	61	582	582
Adjusted R2	0.134	0.139	0.117	0.116

Table 6
Deal Publicity and Outsiders Information Cost around the Cadbury Report (1992) and Higgs Report (2003)

The table presents the statistics on deal publicity and the outside directors' cost of becoming informed (about their own firm). Publicity is defined as the number of times the deal is cited in the media in the 6 month period starting one month before and ending five months after the deal announcement (from Lexis-Nexis), capped at the 95th percentile to mitigate skewness. The deal is considered cited when the acquirer's name and the target's name are mentioned in the same article. The information cost index is defined similarly to Duchin, Matsusaka and Ozbas (2010) as the average decile ranking of i) the number of analysts following the acquirer, ii) the dispersion of analyst forecasts, and iii) the mean analyst forecast error (all from I/B/E/S on Datastream). This variable is limited to acquirers followed by at least two analysts as the dispersion of analyst forecasts is not defined otherwise.

Panel A: Cadbury Report	**Deal Publicity**	**Information Cost Index**	**% Outsiders**
All Acquirers			
1989-1992	7.01	4.49	30.33%
1993-1996	9.31	4.79	41.85%
Public Targets			
1989-1992	27.23	4.52	26.02%
1993-1996	37.64	4.64	40.69%
Private Targets			
1989-1992	2.04	4.48	31.39%
1993-1996	5.38	4.81	42.01%
Panel B: Higgs Report			
All Acquirers			
2000-2003	31.63	4.84	49.59%
2004-2007	31.72	4.04	50.49%
Public Targets			
2000-2003	173.60	4.61	45.17%
2004-2007	234.10	3.95	54.19%
Private Targets			
2000-2003	9.99	4.88	50.26%
2004-2007	14.09	4.05	50.17%

Table 7

Cross Sectional Regressions of Acquirer Returns with Publicity and the Cost of Becoming Informed

The table presents the results of cross-sectional regression analysis of acquirer CARs on the fraction of outside directors, controlling for acquirer- and deal-specific characteristics and conditioning the effect of outside directors on deal publicity and the cost of becoming informed. The latter two variables are defined in Table 6. Panel A is for the period surrounding the Cadbury Report (1989-1996), Panel B is for the period surrounding the Higgs Report (2000-2007). The dependent variable is acquirer CAR which is the cumulative market-adjusted abnormal return of the acquiring firm over the 3-day window surrounding the acquisition announcement, with FTSE All-Share Index as the benchmark. Outside directors is the proportion of outside directors on the board. All other explanatory variables are defined in Table 2. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses.

Panel A: Cadbury Report	(1)	(2)	(3)
Constant	0.0132*	0.0181**	-0.0040
	(1.78)	(2.51)	(-0.32)
Outside Directors	0.0098	0.0027	0.0112
	(0.97)	(0.25)	(0.64)
Outside Directors X Public Target	0.0794***	0.0581**	0.0682*
	(2.84)	(2.10)	(1.80)
Outside Directors X Deal Publicity		0.0016**	
		(2.19)	
Outside Directors X Information Cost Index			-0.0016
			(-0.53)
Public Target	-0.0264***	-0.0226**	-0.0170
	(-2.70)	(-2.31)	(-1.38)
Stock Deals	0.0017	0.0010	0.0043
	(0.60)	(0.36)	(1.28)
Hostile	0.0084	0.0027	0.0084
	(0.45)	(0.14)	(0.34)
Tender Offer	-0.0132*	-0.0164**	-0.0183*
	(-1.77)	(-2.18)	(-1.76)
Relative Size	-0.0046***	-0.0052***	0.0030
	(-3.64)	(-3.91)	(0.41)
Diversifying Deals	-0.0030	-0.0029	-0.0026
	(-0.96)	(-0.91)	(-0.68)
Run-Up	0.0067	0.0068	-0.0062
	(1.21)	(1.23)	(-0.68)
Market Value (Ln)	-0.0014	-0.0023**	-0.0000
	(-1.17)	(-2.00)	(-0.00)
Market-to-Book Ratio	-0.0000	-0.0000	0.0001*
	(-0.98)	(-0.94)	(1.90)
Leverage	-0.0503***	-0.0516***	-0.0260
	(-3.89)	(-3.95)	(-1.55)
Sigma	0.3991*	0.3875*	0.8959
	(1.71)	(1.66)	(1.59)
Observations	667	667	410
Adjusted R2	0.0782	0.0867	0.0219

Panel B: Higgs Report	(1)	(2)	(3)
Constant	0.0321**	0.0329**	0.0298*
	(1.99)	(1.97)	(1.68)
Outside Directors	-0.0141	-0.0155	-0.0366
	(-0.56)	(-0.60)	(-1.26)
Outside Directors X Public Target	0.1070**	0.0991*	0.0819
	(2.02)	(1.71)	(1.33)
Outside Directors X Deal Publicity		0.0001	
		(0.29)	
Outside Directors X Information Cost Index			0.0019
			(0.53)
Public Target	-0.0822***	-0.0818***	-0.0717*
	(-2.64)	(-2.63)	(-1.88)
Stock Deals	0.0082	0.0081	-0.0058
	(1.36)	(1.34)	(-1.04)
Hostile	-0.0012	-0.0024	-0.0199
	(-0.09)	(-0.19)	(-1.15)
Tender Offer	0.0037	0.0036	0.0119
	(0.17)	(0.16)	(0.58)
Relative Size	-0.0031**	-0.0032**	0.0214
	(-2.03)	(-2.03)	(0.88)
Diversifying Deals	0.0053	0.0053	0.0083*
	(1.04)	(1.04)	(1.69)
Run-Up	0.0107	0.0107	0.0016
	(1.32)	(1.32)	(0.16)
Market Value (Ln)	-0.0062***	-0.0063***	-0.0018
	(-3.01)	(-3.05)	(-0.75)
Market-to-Book Ratio	0.0000**	0.0000**	-0.0018
	(2.15)	(2.18)	(-1.54)
Leverage	0.0776***	0.0770***	0.0093
	(3.11)	(3.00)	(0.57)
Sigma	0.1430	0.1478	0.2764
	(0.26)	(0.27)	(0.63)
Observations	643	643	400
Adjusted R2	0.0856	0.0843	0.0201

Table 8
Cross Sectional Regressions of Operating Performance with Publicity and the Cost of Becoming Informed

The table presents the results of cross-sectional regression analysis of acquirer operating performance on the fraction of outside directors, controlling for acquirer- and deal-specific characteristics and conditioning the effect of outside directors on deal publicity and the cost of becoming informed. The latter two variables are defined in Table 6. Panel A is for the period surrounding the Cadbury Report (1989-1996), Panel B is for the period surrounding the Higgs Report (2000-2007). The dependent variable is acquirer operating performance which is defined as industry-adjusted return on assets (IAROA) averaged over the three post-acquisition years. Outside directors is the proportion of outside directors on the board. All other explanatory variables are defined in Table 2. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. White's heteroskedasticity-adjusted t-statistics are reported in parentheses.

Panel A: Cadbury Report	(1)	(2)	(3)
Constant	0.0550**	0.0572**	0.1159***
	(2.51)	(2.51)	(5.03)
Outside Directors	-0.0398	-0.0430	-0.0156
	(-1.59)	(-1.64)	(-0.39)
Outside Directors X Public Target	0.1262**	0.1165**	0.1961***
	(2.51)	(2.44)	(2.98)
Outside Directors X Deal Publicity		0.0008	
		(0.51)	
Outside Directors X Information Cost Index			-0.0096
			(-1.52)
Public Target	-0.0402**	-0.0383**	-0.0519**
	(-2.22)	(-2.17)	(-2.45)
Stock Deals	-0.0063	-0.0066	-0.0019
	(-0.86)	(-0.88)	(-0.23)
Hostile	-0.0079	-0.0109	-0.0188
	(-0.40)	(-0.50)	(-0.83)
Tender Offer	-0.0193	-0.0211*	-0.0185
	(-1.53)	(-1.69)	(-1.29)
Relative Size	0.0067**	0.0064*	0.0117
	(2.00)	(1.84)	(0.96)
Diversifying Deals	-0.0188**	-0.0187**	-0.0237***
	(-2.37)	(-2.35)	(-2.93)
Run-Up	0.0260*	0.0261*	0.0015
	(1.83)	(1.84)	(0.11)
Market Value (Ln)	0.0077**	0.0073**	-0.0017
	(2.47)	(2.20)	(-0.51)
Market-to-Book Ratio	0.0004***	0.0004***	0.0017***
	(3.33)	(3.34)	(5.29)
Leverage	-0.0832*	-0.0842*	-0.1427***
	(-1.94)	(-1.96)	(-3.53)
Sigma	-1.8688***	-1.8715***	-2.2073**
	(-2.83)	(-2.83)	(-2.30)
Observations	602	602	377
Adjusted R2	0.146	0.145	0.226

Panel B: Higgs Report	(1)	(2)	(3)
Constant	0.0769*	0.0754	0.0189
	(1.67)	(1.61)	(0.47)
Outside Directors	-0.0725	-0.0698	-0.1135*
	(-1.25)	(-1.17)	(-1.69)
Outside Directors X Public Target	0.1873*	0.2028*	0.1727*
	(1.88)	(1.69)	(1.68)
Outside Directors X Deal Publicity		-0.0002	
		(-0.31)	
Outside Directors X Information Cost Index			0.0133
			(1.22)
Public Target	-0.0649	-0.0659	-0.0938*
	(-1.16)	(-1.17)	(-1.85)
Stock Deals	-0.0445***	-0.0443***	-0.0235*
	(-2.93)	(-2.94)	(-1.65)
Hostile	0.0181	0.0203	0.0195
	(0.91)	(1.08)	(0.95)
Tender Offer	0.0103	0.0108	0.0373
	(0.26)	(0.28)	(1.07)
Relative Size	-0.0007	-0.0005	0.0001
	(-0.56)	(-0.35)	(0.00)
Diversifying Deals	0.0027	0.0027	-0.0002
	(0.23)	(0.24)	(-0.02)
Run-Up	-0.0143	-0.0143	0.0080
	(-0.64)	(-0.64)	(0.56)
Market Value (Ln)	0.0011	0.0014	0.0072
	(0.17)	(0.21)	(1.31)
Market-to-Book Ratio	-0.0001***	-0.0001***	0.0049**
	(-3.98)	(-4.05)	(2.26)
Leverage	0.0046	0.0062	-0.0112
	(0.22)	(0.30)	(-0.32)
Sigma	-1.6082	-1.6186	-1.2435
	(-1.21)	(-1.21)	(-0.92)
Observations	497	497	302
Adjusted R2	0.0342	0.0323	0.0130