

Workforce reductions and post-acquisition operating performance: The role of corporate governance

Abstract

This paper examines whether corporate governance mechanisms influence the association between workforce reductions and post-acquisition operating performance. Using UK-based acquisitions, it is found that there is a negative relationship between employment reductions and post-acquisition operating performance. However, the results show that this negative association becomes positive when the board has a substantial equity ownership. This suggests acquirers with higher levels of board ownership make better quality layoff decisions and, thereby, achieve operating performance improvement subsequent to workforce reductions. The results also indicate that larger board size and greater board independence decrease the negative effect of acquisition-related workforce reductions on subsequent operating performance. Further, our results show that CEO duality increases the negative relationship between employment reductions and post-acquisition operating performance. Overall, the results suggest that corporate governance plays an important role in understanding the performance effect of acquisition-related workforce reductions.

Key words: workforce reductions; post-acquisition operating performance; corporate governance; merger and acquisition

1. Introduction

Mergers and acquisitions (M&A) are often followed by corporate restructuring leading to employee layoffs (Cliffe, 1999; Lehto & Böckerman, 2008; O'Shaughnessy & Flanagan, 1998). Prior studies examine whether workforce reductions help bidders to achieve operating performance improvement in the post-acquisition period (Krishnan & Park, 2002; Krishnan, Hitt, & Park, 2007). They document that a reduction in workforce is associated with a poorer post-acquisition operating performance. Other studies investigate whether corporate governance affects employment change decisions (Abor, Graham, & Yawson, 2011; Yawson, 2006). Their results suggest that such decisions are dependent on the governance characteristics of the company. While these studies are interesting they, however, raise the further question of whether the quality of layoff¹ decisions, in terms of improving the operating performance of the company, is moderated by corporate governance. More specifically, it is not known if the governance characteristics of a board influences their ability to effectively monitor and supervise the management team's layoff decisions so that operating performance improvement is achieved subsequent to workforce reductions. For example, Yawson (2006) shows that smaller boards are positively associated with downsizing decisions which does not necessarily imply that workforce reductions made by firms with such board characteristic leads to performance improvement. Taken together, these factors suggest that there is a need to examine whether and how governance characteristics affect the operating performance of a company subsequent to workforce reductions.

This paper aims to fill this gap in the literature and to examine whether corporate governance mechanisms impact the relationship between workforce reductions and post-acquisition operating performance. Examining this research question is likely to throw light on the anomaly of why firms

¹ In this paper, we are using 'quality of layoffs' as a surrogate which encompasses both the nature, type and amount of layoffs that are made.

engage in layoffs when the empirical evidence suggests that, on average, they result in a reduction in operating performance. Whilst the latter may be true for the population of merged firms it is argued that an individual bidder firm with strong governance may believe they can improve operating performance by making layoffs. In this paper, we contend that certain board characteristics may have a positive effect on the association between employee layoffs and post-acquisition operating performance thus vindicating managers' perceptions, a priori, that the acquisition-related workforce reductions will be beneficial.

Corporate governance mechanisms, particularly boards of directors, play an important role in monitoring the decisions and actions of the top management team. The quality of the monitoring is likely to depend on board characteristics such as board size (Adams & Ferreira, 2007; Singh, Tabassum, Darwish, & Batsakis, 2018), board independence (Weisbach, 1988; Yoshikawa & McGuire, 2008), CEO duality (Jensen, 1993; Veprauskaitė & Adams, 2013) and board ownership (Cosh, Guest, & Hughes, 2006; Jensen & Meckling, 1976). For example, agency theory contends that substantial board share ownership can reduce the conflict of interest existing between directors and shareholders and increase directors' incentives to be more vigilant in monitoring the decisions made by management, which is likely to improve firm performance (Fama, 1980; Jensen, 1993; Jensen & Meckling, 1976). By contrast, the managerial power hypothesis and agency theory claim that the CEO duality characteristic of a board decreases its ability to effectively monitor managerial decisions and actions (Fama & Jensen, 1983; Jensen, 1993; Veprauskaitė & Adams, 2013). This gives the CEO an opportunity to make decisions that increase her/his personal wealth instead of firm performance or value.

Although employee layoffs frequently occur after acquisitions they are an important corporate decision because their nature, scope, and process of implementation affect the operating performance of the firm which, in turn, will be critical in determining the success or failure of the

acquisition decision made by the board of directors. Hence, there is a strong incentive for a board to monitor the layoff decision taken by management and this is likely to be an increasing function of the magnitude of the layoffs. The quality of the monitoring carried out by the board and hence the effect of the workforce reductions on operating performance will, we argue, be affected by board characteristics. This is because bidders with certain board characteristics are likely to be more competent and vigilant in monitoring the quality of layoff decisions and thereby achieve an improved post-acquisition operating performance. For example, they will want to ensure that the magnitude of workforce reductions is at the optimum level and that the downsizing is mainly carried out in the inefficient segments of the organization. Therefore, we contend that while it is important to examine the relationship between workforce reductions and operating performance, they are not on their own sufficient to comprehensively capture the effect of downsizing on profitability - we also need to consider corporate governance as it has an important role in monitoring and supervising layoff decisions.

We seek to examine the effect of board characteristics on the relationship between workforce reductions and post-acquisition operating performance in the context of the UK for two reasons. First, the UK market is the second largest M&A market in the world (Lehmann, 2016) where employment reductions often follow bids (Conyon, Girma, Thompson, & Wright, 2002; Kuvandikov, Pendleton, & Higgins, 2014). Second, in the UK, several reports have been introduced to improve corporate governance practices since the early 1990s (e.g., Cadbury Report, 1992; Greenbury Report, 1995; Hampel Report, 1998; Higgs Report, 2003). For example, they suggest several practices to align the goals of managers with those of shareholders, such as increasing the share ownership of directors. Furthermore, these reports encourage firms to have a substantial number of non-executive directors on their boards to achieve efficient monitoring. Taken together, these features of the UK market provide reasons to investigate whether the

relationship between employment reductions and post-acquisition operating performance is influenced by corporate governance.

We find that although extant studies document a negative association between employee layoffs and post-acquisition operating performance, our results indicate that this relationship is affected by corporate governance mechanisms. More specifically, our results show that the negative effect of workforce reductions on post-acquisition operating performance becomes positive when the board has a substantial equity ownership. This suggests acquirers with higher levels of board ownership make better quality layoff decisions and, thereby, achieve operating performance improvement subsequent to workforce reductions, supporting agency theory. We also find that larger board size and greater board independence mitigate the negative association between employee layoffs and post-acquisition operating performance. This is consistent with the view that a board's ability to conduct monitoring increases with its size and independence (e.g., Adams & Ferreira, 2007; Haniffa & Hudaib, 2006). Furthermore, our results show that CEO duality increases the negative effect of downsizing on post-acquisition operating performance. This supports the managerial power hypothesis and agency theory which contend that role duality decreases a board's ability to conduct effective monitoring and, thereby, gives the CEO an opportunity to make decisions that are not in line with the interests of shareholders (e.g., Jensen, 1993; Veprauskaitė & Adams, 2013). Overall, the results suggest that corporate governance plays an important role in understanding the performance effect of acquisition-related workforce reductions.

This study contributes to the literature in two respects. First, it extends the acquisition-related workforce reductions and operating performance literature by providing evidence that board characteristics affect the relationship between employment reductions and post-acquisition operating performance. To the best of our knowledge, this is the first study to provide such

evidence. Existing studies find a negative association between workforce reductions and post-acquisition operating performance but they do not examine whether this relationship is affected by corporate governance mechanisms (Abor et al., 2011; Krishnan & Park, 2002; Krishnan et al., 2007). Our results suggest that the negative effect becomes positive when the board has substantial share ownership but becomes less negative when the board size is larger but more negative when the CEO is also the chairman. Thus, contrary to the extant evidence, one cannot conclude that, subsequent to an acquisition, workforce reductions will likely lead to a deterioration in operating performance. Hence, when a bidding firm indicates that acquisition-related downsizing will bring benefits because it gives opportunities for rationalization, analysts need to consider the corporate governance arrangements in the bidder when assessing the likelihood of these being realized. This might be of particular interest to investors with substantial shareholdings in a company which has announced it intends to improve efficiency by means of making workforce reductions. Here, investors need to be more thorough in their questioning of such a strategy when they are aware of how certain corporate governance variables moderate the effect of workforce reductions on operating performance.

Second, it extends the corporate governance and operating performance literature by providing evidence of the effects of board size, board independence, board ownership and role duality on profitability in the acquisition-related workforce reductions setting. Prior studies in this literature examine the relationship between corporate governance mechanisms and operating performance in general contexts (e.g., Haniffa & Hudaib, 2006; Kiel & Nicholson, 2003; Klein, 1998; Veprauskaitė & Adams, 2013) or in specific settings such as M&A (e.g., Cosh et al., 2006). Investigating this association in the context of employee layoffs is also important because it allows us to understand whether and how corporate governance mechanisms help firms to achieve operating performance improvement subsequent to workforce reductions. Therefore, unlike related

studies in this area that show governance mechanisms affect the decision to lay off employees (Abor et al., 2011; Yawson, 2006), our results provide evidence on the role that corporate governance plays in the interaction between workforce reductions and post-acquisition operating performance.

This paper proceeds as follows: Section 2 develops our main hypotheses. Section 3 discusses the data and sample selection and presents the research design. Section 4 reports the empirical results and Section 5 concludes.

2. Literature review and hypothesis development

2.1. Literature review

The extant academic literature provides evidence that workforce reductions are likely to take place subsequent to acquisitions (e.g., Cliffe, 1999; Lehto & Böckerman, 2008). One rationale for this is that bidders target underperforming firms to reallocate resources to increase efficiency, which leads to workforce reductions (Chatterjee, 1992). In support of this rationale, O'Shaughnessy and Flanagan (1998) find that the probability of layoffs subsequent to acquisitions is negatively associated with the labor efficiency of the target firm. Acquisition-related workforce reductions may also occur due to the need to close down certain lines of business and refocus on the main business to increase profitability (Porter, 1987). Furthermore, there might be duplication of activities after acquisitions particularly when the bidder and target have similar businesses which give scope for layoffs (O'Shaughnessy & Flanagan, 1998). Therefore, it is important to examine and understand the relationship between workforce reductions and firms' post-acquisition operating performance. Krishnan and Park (2002) investigate this issue using 60 US-based acquisitions and find that workforce reductions have a negative effect on acquirers' subsequent operating performance. Krishnan et al. (2007) extend the research in this area by documenting

evidence that managerial staff cost cutting decisions, undertaken in order to cover high premiums paid for bids, is the main driver of post-acquisition employee layoffs. They conclude that this process, in turn, negatively affects operating performance.

The adverse effect of layoffs on operating performance may be due to a number of reasons. For example, if management make workforce reductions in areas where they are not required, or of an excessive nature, and these are not detected and rectified because of poor monitoring by the board of directors, this will detrimentally affect the operating performance of the company. This is because workforce reductions that are excessive may lead to the loss of knowledge and skills or cause severe morale problems for the survivors which decreases their productivity (e.g., Johnson, 1996; Walsh, 1988). Thus, the board needs to effectively monitor the layoff decisions that managers make, and their implementation, if the company is to obtain the expected benefits of engaging in workforce reductions. Prior studies have focused their investigation on the direct effect of workforce reductions on post-acquisition operating performance. However, this approach does not consider the corporate governance environment within which workforce reductions are monitored and supervised.

The governance literature shows that managers make optimal or suboptimal corporate decisions depending on their governance mechanisms such as board size (Adams & Ferreira, 2007; Kiel & Nicholson, 2003), board independence (Weisbach, 1988; Yoshikawa & McGuire, 2008), CEO duality (Jensen, 1993; Veprauskaitė & Adams, 2013) and board ownership (Cosh et al., 2006; Jensen & Meckling, 1976). Whilst the decision to take over another firm is likely to be made by the board of directors (Paul, 2007), they may delegate the operational integration of the new subsidiary to the top management team. However, since the board will want to demonstrate that the takeover has been successful they will have a strong interest in monitoring, overseeing and supervising (Perry & Shivdasani, 2005) the actions, such as layoffs, taken by the top management

team. This monitoring will be designed to ensure not only that management select workforce reductions that are not only commensurate with the integration of the subsidiary but also that such actions are effectively implemented. Furthermore, the extent of monitoring is likely to depend on the magnitude of layoffs being contemplated by management. The reasons for this are twofold. First, where the number of layoffs are substantial there is more potential for any errors to deviate a greater amount from the optimal level of layoffs and, thus, have a more negative effect on profit than where the layoff numbers are small. Second, when substantial layoffs are announced they may be subject to criticism by the media if they consider they are not justified and this may have a political cost for the firm which the directors would want to mitigate by ensuring the number of layoffs being considered are justified. Overall, these factors motivate us to extend the literature by examining whether governance mechanisms affect the relationship between workforce reductions and post-acquisition operating performance.

2.2. Hypothesis development

2.2.1. Board ownership

Board ownership is defined as the proportion of the company shares held by board members. Agency theory contends that substantial board share ownership can reduce the conflict of interest existing between directors and shareholders (Fama, 1980; Jensen, 1993; Jensen & Meckling, 1976). Hence, as the proportion of the company shares held by directors increases their goals and those of shareholders become more aligned. Consequently, board ownership provides directors with incentives to not only formulate and implement the corporate decisions they take, but also monitor the decisions they have delegated to top management with the objective of improving the company's performance which, thereby, enhances the directors' human capital and wealth. This argument is supported by several empirical studies. Ang, Cole, and Lin (2000) find that providing

directors with an ownership interest increases operating efficiency and reduces agency costs. Similar results are found by Cosh et al. (2006) who show that there is a positive relationship between board ownership and takeover performance. With respect to workforce reductions, the argument is that individual members of the board who have shares in the bidder will want to maximize the share price and, hence, their wealth; but, this will only be achieved if the market perceives management have taken layoff decisions that increase the operating efficiency and, hence, profit of the firm. This concern of the directors to maximize share price will provide an incentive to them to more effectively monitor the management's layoff strategy which results in a greater likelihood of layoffs being undertaken that are most likely to improve the operating performance of the firm. Consequently, it is argued that as the level of board ownership increases there is a greater likelihood of the board scrutinizing employee layoff decisions, and their implementation, taken by top management subsequent to acquisitions. More formally, we propose the following hypothesis:

H1: Board ownership positively affects the association between workforce reductions and post-acquisition operating performance.

2.2.2. Board size

Several studies argue that an increase in board size may lead to greater coordination/communication problems and agency problems. Jensen (1993) contends that as board size increases the directors become less effective in monitoring management and, thereby, the CEO becomes more powerful in influencing corporate decisions. This is because when the board gets larger it becomes more difficult for board members to reach an agreement on crucial corporate decisions. It has been found by Pye (2000) that as the board grows larger it becomes difficult to achieve well informed and challenging corporate dialogue about decisions taken by both the board

and management. Cheng (2008) shows that in larger boards corporate decisions are likely to be less extreme because there is more negotiation and compromise in such boards before they make a final decision. As a consequence, a larger board's decision-making in respect of agreeing to and monitoring the effectiveness of a particular layoff strategy may be impaired and result in poorer quality layoff decisions and/or their implementation.

Several studies, however, support the opposite view that a board's ability to conduct monitoring increases with size. This is because larger boards provide an increased pool of expertise as well as facilitating greater scrutiny of the operations and management of the company (e.g., Adams & Ferreira, 2007; Kiel & Nicholson, 2003; Singh et al., 2018). Larger boards are also more likely to have directors with a greater variety of skills and experience which, in turn, leads to improved corporate decision making and monitoring (e.g., Dalton, Daily, Johnson & Ellstrand, 1999; Haniffa & Hudaib, 2006). Consequently, these arguments suggest that acquirers with larger boards may be more effective in the monitoring of workforce reductions and, thereby, achieve superior post-acquisition operating performance than their counterparts with smaller boards.

A further complication is that there may be some interaction of board size with board ownership. Thus, in the situation where one company has four board members with a certain level of share ownership, but another company has twelve board members but with greater share ownership than the first company, it is difficult to conclude which board is likely to be the more effective monitor. In essence, for two companies with different board size the effectiveness of its monitoring is likely to be mediated by the level of share ownership within each of the two boards. In larger boards individual directors may be more inclined to free ride on the monitoring being performed by other directors and, hence, the overall amount of monitoring decreases. In smaller boards there is less opportunity and incentive for individual directors to free ride; however, the quality of monitoring may decline either because the board consists of an incomplete set of skills

and experience or because there is an insufficient number of directors for the effective monitoring that is required given the volume and complexity of the issues coming before the board. Therefore, the interaction between board size and board ownership on the effectiveness of the directors' monitoring function is a complex issue which is difficult, a priori, to determine.²

In summary, arguments exist for both a positive and negative association between board size and board effectiveness in corporate decision making and monitoring. Therefore, we do not predict a sign for board size, leading to the following hypothesis:

H2: Board size affects the association between workforce reductions and post-acquisition operating performance.

2.2.3. Board independence

According to agency theory, the role of independent directors is to monitor and question policies formulated and implemented by corporate management (De Villiers, Naiker, & Van Staden, 2011; Donadelli, Fasan, & Magnanelli, 2014; Jensen & Meckling, 1976; Weisbach, 1988). Since they are not involved in the day to day running of the company they are able to take a detached and critical view of decision making within the board. They also have less allegiance to the CEO relative to non-independent directors. Board composition theory argues that independent directors have incentives to challenge managers' corporate decisions since they are eager to develop their reputations as experts in monitoring management which, in turn, can help them not only maintain their current directorships but also obtain additional directorships (Fama & Jensen, 1983). Independent directors, therefore, may play an important role in aligning the goals of

² In the form of a robustness check, we test these arguments by including a three-way interaction between workforce reductions, board size and board ownership in our main regression model. We find that the effect of board size on the relationship between employment reductions and post-acquisition operating performance depends on the level of board ownership. More specifically, the results suggest that board size becomes more effective in moderating the association between operating performance and workforce reductions when the board has more equity ownership.

managers with those of shareholders. Furthermore, as independent directors are knowledgeable and experienced individuals, they can bring in expertise external to the firm which enables them to provide advice and resources and, thereby, improve corporate decision making (Yoshikawa & McGuire, 2008). Therefore, agency theory suggests that a higher proportion of independent directors on the board is desirable to achieve more objective and efficient monitoring. Consequently, one may argue that when an acquisition occurs and the decision is taken to make workforce reductions those acquirers with a greater number of independent directors are likely to make better quality layoff decisions and, thus, achieve superior post-acquisition operating performance than bidders with a lower proportion of independent directors.

Conversely, acquirers with a greater number of the independent directors may make poorer layoff decisions because non-executives are not able to conduct their monitoring duties effectively. This is because independent directors are not part of the company's management team and therefore have, unlike executive directors, less direct access to the complete information set used for making a particular decision (Grossman, 2010). Furthermore, they may have difficulties in understanding the complexities of the organization and to maintain independence have an "arm's length" relationship with a given company's decision-making apparatus. Baysinger and Hoskisson (1990) document no relationship between the proportion of independent directors and performance which they contend is because independent directors lack the necessary information for decision making and do not fully understand the organization. These arguments are also supported by other studies such as Weir and Laing (2000) who find that the greater the number of independent directors on a board has a negative effect on operating performance. Drawing on the above discussion, we do not predict a sign for board independence:

H3: Board independence affects the association between workforce reductions and post-acquisition operating performance.

2.2.4. Role duality

Role duality occurs when the CEO is also the chairman of the board. The managerial power hypothesis contends that role duality decreases board independence and effectiveness and increases the CEO's power in making corporate decisions (Jensen, 1993; Veprauskaitė & Adams, 2013). Similarly, agency theory claims that the combination of CEO and chairman positions results in an increase in agency cost (Fama & Jensen, 1983; Finkelstein & D'aveni, 1994). Thus, in these instances, CEOs have more scope to make decisions which are not in line with the interests of shareholders. For example, the CEO may have a desire to engage in an acquisition by paying a high premium because it will increase his/her personal wealth, power or status. Subsequently, after the acquisition is consummated it becomes apparent that the price paid for the acquisition is too high; the CEO, in response to this, over-reacts by making or agreeing to large workforce reductions in excess of what is optimal; and there is not sufficient challenge or monitoring from other board members (Krishnan et al., 2007). This will then lead to a deterioration in the post-acquisition operating performance. The criticism of role duality is also supported by the latest UK Corporate Governance Code (2018, provision 9) which states that the chair and chief executive should not be the same person which helps in ensuring that the company is run effectively and protects the interests of shareholders. This is consistent with the results of several empirical studies documenting that where the CEO is also the chairman, corporate decision making tends to be poorer (e.g., Jermias, 2007; Singh et al., 2018). Therefore, it may be argued that after an acquisition, acquirers with role duality make poorer quality layoff decisions and thereby achieve worse post-acquisition operating performance than bidders without role duality. More formally, we propose the following hypothesis:

H4: CEO duality negatively affects the association between workforce reductions and post-acquisition operating performance.

3. Data and research design

3.1. Data and sample

We derive our sample from M&A transactions involving UK publicly listed firms 3 years before and after acquisition years from the period 1987-2013. Data on takeover deals including the names of the acquirer and target, takeover announcement and completion dates, premiums, and payment mode are collected from Acquisitions Monthly and Thomson One sources. We obtain financial data from Datastream and corporate governance data from sample firms' annual reports downloaded from the Nexis database. We exclude acquisitions where acquirers and targets are not public firms or their domicile countries are not the UK. Following prior studies (e.g., Cosh et al., 2006; Kobeissi, Sun, & Wang, 2010; Krishnan et al., 2007), acquisitions by property, financial and utility firms are also excluded as they have different asset characteristics, financial reporting requirements or regulatory regimes that make them difficult to compare with other companies. Furthermore, we exclude acquisitions of less than 50 percent of target shares because in such M&A transactions acquirers do not have full control over target firm operations (e.g., Cho & Arthurs, 2018; Dessaint, Golubov, & Volpin, 2017; Kobeissi et al., 2010).³ Finally, we exclude acquisitions for which all relevant data are not available. Consequently, the final sample consists of 306 M&A transactions.

3.2. Dependent variable

Post-acquisition operating performance (*POST_ROS*), the dependent variable, is measured for the merged firm using second and third post-takeover years' ($t+2$ and $t+3$) average industry adjusted return on sales⁴ following Krishnan et al. (2007). Industry adjusted return on sales is

³ We drop 82 M&A transactions because of this criterion.

⁴ Return on sales is defined as operating income divided by total sales.

calculated as the difference between the acquirer's return on sales and the weighted average industry performance based on a company's level of sales in the industries in which the bidder operates. Return on sales is regarded as a more suitable performance measure to use in the context of acquisitions because large changes in assets or equity values often take place after such corporate events (Hitt, Harrison, & Ireland, 2001; Krishnan et al., 2007).

3.3. *Independent variables*

Our main independent variables comprise workforce reductions and corporate governance mechanisms related to board ownership, board size, board independence and CEO duality which are measured as follows.

Workforce reduction (W_REDUC) is calculated as the percentage reduction in the number of employees in the merged firm announced subsequent to the acquisition following prior work on acquisition-related employee layoffs (e.g., Krishnan & Park, 2002; Krishnan et al., 2007). This assessment of workforce reduction helps to capture the magnitude of employee layoffs and does not cause information loss in the data (De Meuse, Bergmann, Vanderheiden, & Roraff, 2004; Krishnan et al., 2007). Capturing the magnitude of layoffs is important in our research context because it is likely to have a direct relationship with the extent to which the board will monitor managerial decisions about layoffs; the greater the proportion of layoffs the more scrutiny and consideration by the board.⁵ To obtain data on workforce reductions, we screen national and

⁵ However, one could argue that this direct relationship between the size of layoffs and the scrutiny by the board may not hold when the level of downsizing is low. This is because a small number of layoffs might not attract the scrutiny of the directors unlike large number of layoffs. It is, however, not known at what level of layoffs directors would scrutinise the decision to make layoffs - this is likely to be rather arbitrary and may vary from firm to firm. Therefore, using a continuous variable for layoffs is preferable as it does not require arbitrarily determining the level of downsizing that attracts director scrutiny unlike a dummy variable. Nevertheless, we assess the robustness of the results and use a dummy variable instead of a continuous one for the workforce reduction as the former helps to capture large reductions in the number of employees. We find that our results are robust to the use of dichotomous measure for workforce reduction.

regional newspapers, downloaded through the Nexis database. In this media-search data collection process, following the methodology adopted by prior research (Hillier, Marshall, McColgan, & Werema, 2007; Krishnan et al., 2007), we first search a number of national and regional newspapers for a period of one year following the acquisition for acquisition-related layoffs announcement in either the bidder, target firm or merged firm. The screened newspapers include The Financial Times, Times and Sunday Times, Guardian, Daily Mail, Independent, Lloyd's List, Observer, and Evening Standard. We then calculate reduction in workforce as the announced number of employee layoffs in the merged firm divided by the total number of employees in the merged firm.

Board ownership (B_OWN) is measured as the total number of shares owned by the acquirer's executive and non-executive directors divided by the acquirer's total number of shares in issue at the end of the accounting year immediately prior to takeover. Board size (B_SIZE) is measured using a dummy variable⁶ that is equal to one if the number of directors on the bidder's board is more than 7 at the end of the accounting year immediately prior to takeover, and zero otherwise (Jensen, 1993). The cutoff size of 7⁷ is used to define larger vs. smaller boards in the spirit of Jensen (1993) who show that boards are considered to be oversized or large when they get beyond 7 or 8 directors. Board independence (B_IND) is defined as a dummy variable that is equal to one if over 50% of bidder directors are independent at the end of the accounting year immediately prior to

⁶ Our main results do not change if we measure board size using a continuous variable which is defined as the number of directors on the bidder's board or as the logarithm of them (Yermack, 1996). The reason why we use an indicator rather than a continuous variable for the board size in the main analysis is to avoid multicollinearity problem. When the board size is measured using either of the above continuous variables, variance inflation factors (VIFs) for some of our explanatory variables such as, workforce reduction (W_REDUC), become much higher than the acceptable threshold value of 10 (e.g., Freund, Wilson, & Sa, 2006). However, as can be seen in Table 2, we do not have the same problem when the board size is defined using an indicator variable.

⁷ The main results remain unchanged if the cutoff size of 8 is used instead of 7 where the former is equivalent to the median (mean) of the number of directors on our sampled firms' boards.

takeover, and zero otherwise (Masulis, Wang, & Xie, 2007).⁸ CEO duality (*DUAL*) is defined as a dummy variable that is equal to one if the bidder CEO is also chairman of the board at the end of the accounting year immediately prior to takeover, and zero otherwise.

3.4. Control variables

We use the following firm and deal related control variables similar to Krishnan et al. (2007) who show that they are the key factors that should be controlled for by studies examining the effect of employee layoffs on post-acquisition operating performance. Prior performance of bidder (*PRE_BROS*) is defined as the two-year average pre-takeover acquirer industry adjusted return on sales. Relative organizational size (*REL_SIZE*) is the ratio of the sales of the bidder to the sales of target firm at the time of the acquisition. Type of payment (*PAY*) is a dummy variable which is equal to one for pure cash transactions, and zero otherwise. Relatedness (*RELATE*) is a dummy variable that takes one if both the acquired and the acquirer firms are in the same Datastream Industrial Classification Level four (e.g., Cosh et al., 2006), and zero otherwise. Prior performance of target (*PRE_TROS*) is defined as the two-year average pre-takeover acquired firm industry adjusted return on sales. Multiple bidders (*MULT*) is a dummy variable that is equal to one for multiple bidders, and zero otherwise. Leverage (*LEV*) is the debt-to-equity ratio at the end of the takeover completion year. Premium (*PREM*) is measured as the excess amount of bid price over target share price one month prior to takeover announcement.

Similar to Krishnan et al. (2007) we also control for acquisition motives because takeovers occur for different reasons which can affect their outcome. We obtain data on takeover objectives from newspaper articles in The Financial Times and classify them into three types of motives - horizontal growth, horizontal efficiency and vertical integration – in the spirit of Kuvandikov et al.

⁸ Our main results do not change if the threshold level for board independence is set at 60% instead of 50%.

(2014). These takeover objectives are coded into three dummies which are defined as follows. Horizontal growth (*GROWTH*) is equal to one if acquisitions involve acquiring a rival firm and the bidder managers indicate business growth and expansion as the main objective of the takeover, and zero otherwise. Horizontal efficiency (*EFFIC*) is equal to one if the bidder managers specifically indicate rationalization, cost savings and other required improvements in the target firm as the main objective of the takeover, and zero otherwise. Vertical integration (*INTEG*) is equal to one if an acquisition involves two firms where there is some type of business relationship (e.g., customer or supplier) between them, and zero otherwise. Finally, we use year and industry dummies to control for timing and industry effects, respectively.

3.5. Research model

To test the effect of corporate governance mechanisms on the association between workforce reductions and post-acquisition operating performance (*H1-H4*), the following model is proposed and tested:

$$POST_ROS = a_0 + a_1W_REDUC + a_2B_OWN + a_3W_REDUC \times B_OWN + a_4B_SIZE + a_5W_REDUC \times B_SIZE \\ + a_6B_IND + a_7W_REDUC \times B_IND + a_8DUAL + a_9W_REDUC \times DUAL + a_jCONTS + \varepsilon$$

where: *POST_ROS* (post-acquisition operating performance) is the dependent variable; *W_REDUCE* (workforce reduction), *B_OWN* (board ownership), *B_SIZE* (board size), *B_IND* (board independence) and *DUAL* (CEO duality) are the main independent variables; and *CONTS* refers to the set of variables being controlled for. Our variables of interests are the coefficients on the interaction terms which enable the examination of the effect of corporate governance mechanisms on the link between workforce reductions and post-acquisition operating performance. We estimate our equation using ordinary least squares (OLS) regression. At this stage, variance inflation factors (VIFs) are examined to check the existence of multicollinearity in our regression model. We also

perform a Durbin-Wu-Hausman test (e.g., Maddala, 2001; Wooldridge, 2003) to ensure that our regression model does not suffer from a potential endogeneity bias which could be caused by factors influencing both post-acquisition operating performance and workforce reductions. Further details of this are provided in section 4.4.

4. Empirical results

4.1. Descriptive statistics and correlations

Table 1 presents descriptive statistics for our main variables. It shows that the average industry-adjusted post-acquisition operating performance (*POST_ROS*) for the sampled firms is -0.010. The average reduction in the workforce (*W_REDUCE*) is 4%. On average, board of directors (*B_OWN*) own 5.3% of the total outstanding shares. In terms of board size (*B_SIZE*) and board independence (*B_IND*), 57.5% of the sampled firms have more than 7 directors on their boards and 33% of the sampled firms have boards where over half of the directors are independent. For the role duality (*DUAL*) variable, we find that, on average, 24% of the CEOs of the bidder sampled firms are also chair of the board.

[Table 1 around here]

Table 2 shows Pearson correlation coefficients for the main variables. We observe that there is a significant and negative correlation between post-acquisition operating performance (*POST_ROS*) and workforce reduction (*W_REDUCE*). The table reveals that pre-acquisition operating performance of the bidder (*PRE_BROS*) is positively and negatively correlated with post-acquisition operating performance (*POST_ROS*) and workforce reduction (*W_REDUCE*), respectively. Furthermore, we observe significant and relatively high correlations between horizontal growth (*GROWTH*) and relatedness (*RELATE*) and horizontal efficiency (*EFFIC*)

variables.⁹ Multicollinearity, however, is unlikely to be a concern as variance inflation factors (VIFs) for our explanatory variables reported in Table 2 are much lower than the acceptable threshold value of 10 (e.g., Freund, Wilson, & Sa, 2006; Kennedy, 1999).

[Table 2 around here]

4.2. Main analysis

Table 3 shows the results for testing the effects of board ownership, board size, board independence and CEO duality on the relationship between workforce reductions and post-acquisition operating performance. Before investigating the results of these tests, we firstly examine the direct effect of workforce reductions on post-acquisition operating performance to compare the results with those of extant studies documenting that operating performance deteriorates following acquisition-related reduction in employment (Krishnan & Park, 2002; Krishnan et al., 2007). To test this, we estimate our main regression model without including the corporate governance variables and their interactions with workforce reductions to be consistent with studies that examine the effect of acquisition-related employment reduction on subsequent operating performance. The results are given in column (1). The coefficient on *W_REDUCE* is significantly negative at the 1% significance level. This indicates that the direct association between workforce reductions and post-acquisition operating performance is negative, which is in line with existing studies.

[Table 3 around here]

The results for the effects of corporate governance variables on the association between workforce reductions and post-acquisition operating performance are provided in column (2). The

⁹ Among explanatory variables, the highest VIF score is observed for the *GROWTH* indicator which is 4.91. Although the latter is far below the threshold value of 10, as a further robustness check, we estimate our main regression model by excluding this variable. We find that our main results remain unchanged.

coefficient on the $W_REDUC \times B_OWN$ interaction variable is significantly positive at the 1% significance level for post-acquisition operating performance. This indicates that board ownership has a positive effect on the relationship between workforce reductions and post-acquisition operating performance. The coefficient for W_REDUC is -2.285 and that of $W_REDUC \times B_OWN$ is 8.474; both are statistically significant. Therefore, the overall effect of workforce reductions for higher levels of board ownership is 6.189 (-2.285+8.474). This implies that the negative effect of workforce reductions on post-acquisition operating performance becomes positive when the board has a substantial equity ownership. Consequently, the results suggest that acquirers with higher levels of board ownership make better quality layoff decisions and thereby achieve operating performance improvement subsequent to workforce reductions, in line with *H1*.

Column (2) shows that the coefficient on the $W_REDUC \times B_SIZE$ interaction variable is significantly positive at the 1% significance level, implying that board size mitigates the negative relationship between workforce reduction and post-acquisition operating performance. The coefficient of W_REDUC is -2.285 for acquirers with smaller boards, and -0.902 (-2.285+1.383) for acquirers with larger boards. This indicates that employment reduction has a less negative impact on subsequent operating performance for acquirers with larger boards relative to their counterparts with smaller boards which lends empirical support for *H2*. We also find similar results for board independence as the coefficient on the $W_REDUC \times B_IND$ interaction variable is significantly positive at the 5% level in column (2). The implication is that greater board independence decreases the negative association between workforce reductions and post-acquisition operating performance which provides empirical support for *H3*.

Turning to CEO duality, column (2) shows that the coefficient on the $W_REDUC \times DUAL$ interaction variable is significantly negative at the 1% significance level. This indicates that CEO

duality has a negative effect on the association between employment reduction and post-acquisition operating performance. The coefficient on $W_REDUC \times DUAL$ is -1.775 which gives a net coefficient of -4.060 (-2.285-1.775) on employment reduction for acquirers in which the CEO is also the chairman of the board of directors. This result suggests that the negative relationship between workforce reductions and post-acquisition operating performance is stronger for acquirers in which the CEO is also the chairman of the board of directors than for bidders in which the CEO is not, in line with *H4*.

4.3. Further analysis

In the main analysis, we examine the effect of total board share ownership on the relationship between workforce reduction and post-acquisition operating performance. We now provide the detailed examination of board holdings by analyzing the separate impact of CEO ownership, executive ownership and non-executive ownership. To do so, we replace the board ownership (B_OWN) variable with the following three variables in our main regression model. CEO ownership (CEO_OWN) is measured as the number of shares owned by the acquirer's CEO divided by the acquirer's total number of shares in issue at the end of the accounting year immediately prior to takeover. Executive ownership (EXE_OWN) is measured as the number of shares owned by all of the acquirer's executive directors, except the CEO, divided by the acquirer's total number of shares in issue at the end of the accounting year immediately prior to takeover. Non-executive ownership (NON_EXE_OWN) is measured as the number of shares owned by all of the acquirer's non-executive directors divided by the acquirer's total number of shares in issue at the end of the accounting year immediately prior to takeover. Table 4 shows that the coefficient on $W_REDUC \times CEO_OWN$ is significantly positive, implying that CEO ownership has a positive effect on the association between workforce reductions and post-acquisition operating

performance. However, we do not find evidence that either executive ownership or non-executive ownership affects operating performance subsequent to acquisition-related workforce reduction as the coefficients on $W_REDUC \times EXE_OWN$ and $W_REDUC \times NON_EXE_OWN$ are insignificant. The results suggest that share ownership plays a more incentivizing role for CEOs and this is possibly due to the fact that the former typically hold larger ownership stakes than non-executive or other executive directors.¹⁰

[Table 4 around here]

4.4. Robustness checks

We perform several additional analyses to check the robustness of our main results. First, the arguments that we use in the paper to support our main analysis may be interpreted as suggesting that corporate governance serves not only as a moderator of employee layoffs but also as a predictor of employment reductions. To test this, we regress the workforce reductions (W_REDUC) variable on corporate governance and control variables that are used in our main regression model. The results are reported in Table 5. The coefficients on the corporate governance variables are insignificant. These results imply that board characteristics do not play a direct role in determining the total amount of layoffs.¹¹ Instead, our results suggest board characteristics play an important role in ensuring that layoff decisions and their monitoring are in those areas and situations where

¹⁰ For instance, we find in our sample that CEO ownership is significantly larger than other executive ownership or non-executive ownership.

¹¹ These findings differ from earlier studies that find corporate governance predicts layoff decisions but most studies, with the exception of Abor et al. (2011), are based on a non-acquisition sample. One explanation for this might be that extant studies like Abor et al. (2011) are based on US data which has a different corporate governance framework compared to the UK. Abor et al. (2011), however, acknowledge that as they only use US data their results might not be generalizable to other governance environments. Further explanations might be the different methodology used by Abor et al. (2011) who employ a binary approach to layoffs, that is, layoffs did or did not occur after an acquisition. In our study layoffs are a continuous variable comprising the amount, or quantity of the layoffs. This difference in approach is because the main aim of our study is different from that of Abor et al. (2011) as we are primarily interested in the relationship between corporate governance and operating performance for the level of layoffs that took place after the acquisition.

they are likely to result in an improvement in operating performance. Furthermore, we observe from the results in Table 5 that firm- and deal-related variables such as pre-acquisition operating performance of bidder and related acquisitions have significant effects on workforce reductions. These results suggest that workforce reductions might be an endogenous variable in our main regression model. To test this concern, we perform a Durbin-Wu-Hausman test (e.g., Maddala, 2001; Wooldridge, 2003). In particular, we estimate a residual from the workforce reductions regression model shown in Table 5 and use it as an additional regressor in our main regression model. We find that the coefficient on the estimated residual is not statistically significant ($p = 0.793$), indicating that our main regression model does not suffer from an endogeneity bias caused by factors influencing both post-acquisition operating performance and the decision to make workforce reductions.

[Table 5 around here]

Second, our sample spans the recent financial crisis period (2008-2010) and, therefore, the primary results might have been influenced by the lack of homogeneity in the sample. This is because acquirers may make more rational employee layoffs during the crisis period to cope with an economic downturn which lead to the improvement in post-acquisition operating performance. Alternatively, acquirers may make excessive workforce reductions in response to the recession which, in turn, is likely to worsen post-acquisition operating performance. To make sure that our results are not driven by acquisition-related employment reductions that are made during the crisis period, we re-run the main analysis by only including those sample firms in our analysis where the workforce downsizing took place during the non-financial crisis period. The findings are reported in Table 6, column (1) which suggest that the overall conclusion of our main results remains unchanged.

[Table 6 around here]

Third, our main results may be affected by the possibility that target firms make workforce reductions prior to an acquisition. They may engage in such activities either to improve poor performance in an attempt to attract acquirers or bidders make it a condition of the acquisition that the firm seeking to be acquired makes layoffs prior to the acquisition. These layoff actions taken by the target firm before the acquisition may, in turn, affect post-acquisition operating performance. To address this concern, we include the two-year average pre-takeover target firm employment change (*TEMPC*) in our main regression model. The results are given in Table 6, column (2) which suggest that our main findings are robust to the control for pre-takeover target firm employment change.

Finally, our measure of post-acquisition operating performance may not fully capture a true change in a firm's return on sales subsequent to takeovers. This is because we adjust the combined firm's post-acquisition operating performance only for the industry in which an acquirer operates. Therefore, in cases where a bidder acquires a firm that operates in a different industry for the purpose of diversifying their business our procedure for adjusting a combined firm's operating performance in the post-acquisition period may not be valid. To check the robustness of our main results, we use an alternative measure of post-acquisition operating performance where the latter is adjusted for both acquirer's and target firm's industries following Dargenidou, Gregory, and Hua (2016) and Martynova, Oosting, and Renneboog (2007). In particular, operating performance in the post-acquisition period is measured as the combined firm's raw post-acquisition operating performance minus the weighted average of bidder and target industry post-acquisition operating performance where the weights employed to calculate industry performance are the relative sales values of the acquiring and acquired firms in the pre-acquisition year. The findings are presented in Table 6, column (3) which suggest that our main results are robust to the alternative measure of post-acquisition operating performance.

5. Discussion and conclusion

The purpose of this study is to explore the impact of corporate governance on the association between workforce reductions and post-acquisition operating performance. Prior studies have focused their examination on the direct effect of workforce reductions on post-acquisition operating performance (Krishnan & Park, 2002; Krishnan et al., 2007). However, examining only the direct effect of reduction in employment on operating performance does not consider the corporate governance environment within which workforce reductions are monitored and supervised. The governance literature shows that managers make optimal or suboptimal corporate decisions depending on governance mechanisms such as board size (Adams & Ferreira, 2007; Kiel & Nicholson, 2003), board independence (Weisbach, 1988; Yoshikawa & McGuire, 2008), CEO duality (Jensen, 1993; Veprauskaitė & Adams, 2013) and board ownership (Cosh et al., 2006; Jensen & Meckling, 1976). We, thus, believe that investigating the role of corporate governance will provide a broader and more comprehensive understanding of operating performance consequences of workforce reductions.

As with previous studies, we find that the direct effect of workforce reductions on post-acquisition operating performance is negative. However, our results indicate that board ownership leads to a positive relationship between workforce reductions and post-acquisition operating performance. The results suggest that acquirers with higher levels of board ownership make better quality layoff decisions and thereby achieve operating performance improvement subsequent to workforce reductions. This is in line with agency theory. We also find that board size decreases the negative effect of workforce reductions on post-acquisition operating performance. This result implies that a large board size helps to mitigate the negative performance consequences of workforce reductions. One possible explanation for this result is that a large board size enhances the monitoring of workforce reduction decisions that a firm often makes following takeovers.

Our further results show that board independence mitigates the negative relationship between workforce reductions and post-acquisition operating performance. This result supports agency theory suggesting that having a greater number of independent directors on the board increases a board's ability to more effectively monitor workforce reductions. Finally, our main results indicate that CEO duality has a negative effect on the association between employment reduction and post-acquisition operating performance. This result can be explained by the fact that when the CEO is also the chairman of the board of directors, the effectiveness of the board's manager-monitoring activities diminishes which can result in poorer quality layoff decisions and their monitoring with, consequently, a deterioration in operating performance.

The findings of this paper have important implications for policymakers, shareholders and potential investors. The results suggest that policymakers and shareholders should consider: ensuring that boards have a substantial ownership interest, that boards are sufficiently large, that boards are dominated by independent directors, and have a separate chairperson and CEO if they want to achieve their main aim of ensuring that corporate governance is executed in the best interests of the stakeholders. Our results can also help potential investors by highlighting the corporate governance mechanisms that are important in moderating the effect of workforce reductions following acquisitions on operating performance.

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Table 1
Descriptive statistics

Variables	(1) Mean	(2) Median	(3) 25 th	(4) 75 th	(5) Std. Dev
<i>POST_ROS</i>	-0.010	0.009	-0.044	0.075	0.279
<i>W_REDUCE</i>	0.040	0.000	0.000	0.050	0.078
<i>B_OWN</i>	0.053	0.011	0.002	0.068	0.091
<i>B_SIZE</i>	0.575	1.000	0.000	1.000	0.495
<i>B_IND</i>	0.333	0.000	0.000	1.000	0.472
<i>DUAL</i>	0.242	0.000	0.000	0.000	0.429
<i>PRE_BROS</i>	-0.360	0.019	-0.020	0.086	4.458
<i>REL_SIZE</i>	23.44	3.344	1.363	8.623	106.6
<i>PAY</i>	0.314	0.000	0.000	1.000	0.465
<i>RELATE</i>	0.627	1.000	0.000	1.000	0.484
<i>PRE_TROS</i>	-0.573	-0.016	-0.056	0.049	4.687
<i>MULT</i>	0.092	0.000	0.000	0.000	0.289
<i>LEV</i>	0.229	0.219	0.127	0.321	0.150
<i>PREM</i>	0.389	0.358	0.170	0.535	0.389
<i>GROWTH</i>	0.461	0.000	0.000	1.000	0.499
<i>EFFIC</i>	0.255	0.000	0.000	1.000	0.437
<i>INTEG</i>	0.163	0.000	0.000	0.000	0.370
Observations	306	306	306	306	306

Notes

This table shows descriptive statistics of the variables used in the study. *POST_ROS* denotes post-acquisition operating performance; *W_REDUCE* denotes workforce reductions in the merged firm subsequent to the acquisition; *B_OWN* denotes board ownership at the end of the accounting year immediately prior to takeover; *B_SIZE* denotes board size at the end of the accounting year immediately prior to takeover; *B_IND* denotes board independence at the end of the accounting year immediately prior to takeover; *DUAL* denotes CEO duality at the end of the accounting year immediately prior to takeover; *PRE_BROS* denotes pre-acquisition operating performance of bidder; *REL_SIZE* denotes relative organizational size at the time of the acquisition; *PAY* denotes pure cash transactions; *RELATE* denotes related acquisitions; *PRE_TROS* denotes pre-acquisition operating performance of target firm; *MULT* denotes multiple bidders; *LEV* denotes debt-to-equity ratio at the end of the takeover completion year; *PREM* denotes premium; *GROWTH* denotes horizontal growth; *EFFIC* denotes horizontal efficiency; *INTEG* denotes vertical integration.

Table 2
Pairwise correlations

Variables	VIFs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	
(1) <i>POST_ROS</i>	-	1.00																	
(2) <i>W_REDUCE</i>	4.38	-0.35	1.00																
(3) <i>B_OWN</i>	1.60	-0.15	-0.08	1.00															
(4) <i>B_SIZE</i>	1.76	0.10	0.08	-0.23	1.00														
(5) <i>B_IND</i>	1.80	0.12	0.04	-0.17	0.02	1.00													
(6) <i>DUAL</i>	1.58	-0.01	-0.08	0.20	-0.10	-0.19	1.00												
(7) <i>PRE_BROS</i>	2.10	0.38	-0.39	-0.00	-0.01	0.06	0.02	1.00											
(8) <i>REL_SIZE</i>	1.77	-0.01	-0.04	-0.01	0.08	0.06	-0.07	0.03	1.00										
(9) <i>PAY</i>	1.30	0.13	0.01	-0.03	0.13	0.09	-0.09	0.05	0.16	1.00									
(10) <i>RELATE</i>	2.12	0.01	0.01	-0.03	-0.01	0.12	0.01	-0.02	-0.02	-0.02	1.00								
(11) <i>PRE_TROS</i>	2.37	0.18	0.05	-0.19	0.02	0.05	0.02	0.03	-0.35	0.05	0.04	1.00							
(12) <i>MULT</i>	1.28	-0.01	-0.03	0.01	-0.00	-0.03	0.06	0.03	-0.04	-0.02	0.06	0.02	1.00						
(13) <i>LEV</i>	1.50	0.22	0.04	-0.17	0.12	0.12	-0.08	0.13	-0.01	0.04	0.05	0.13	-0.01	1.00					
(14) <i>PREM</i>	1.38	0.05	-0.06	0.05	0.09	-0.01	-0.05	0.14	-0.01	0.03	-0.01	-0.08	0.12	0.06	1.00				
(15) <i>GROWTH</i>	4.91	0.01	-0.21	0.18	-0.16	-0.04	-0.02	-0.05	-0.00	-0.12	0.48	0.01	0.03	-0.04	0.04	1.00			
(16) <i>EFFIC</i>	3.66	-0.03	0.23	-0.19	0.12	0.11	0.07	0.03	-0.06	0.04	0.06	0.06	-0.03	0.12	-0.06	-0.54	1.00		
(17) <i>INTEG</i>	2.57	-0.01	-0.05	-0.03	0.04	-0.11	-0.04	0.03	0.10	0.03	-0.37	0.04	-0.02	-0.13	-0.04	-0.41	-0.26	1.00	

Notes

This table shows the Pearson correlations among regression variables used in the study. *POST_ROS* denotes post-acquisition operating performance; *W_REDUCE* denotes workforce reductions in the merged firm subsequent to the acquisition; *B_OWN* denotes board ownership at the end of the accounting year immediately prior to takeover; *B_SIZE* denotes board size at the end of the accounting year immediately prior to takeover; *B_IND* denotes board independence at the end of the accounting year immediately prior to takeover; *DUAL* denotes CEO duality at the end of the accounting year immediately prior to takeover; *PRE_BROS* denotes pre-acquisition operating performance of bidder; *REL_SIZE* denotes relative organizational size at the time of the acquisition; *PAY* denotes pure cash transactions; *RELATE* denotes related acquisitions; *PRE_TROS* denotes pre-acquisition operating performance of target firm; *MULT* denotes multiple bidders; *LEV* denotes debt-to-equity ratio at the end of the takeover completion year; *PREM* denotes premium; *GROWTH* denotes horizontal growth; *EFFIC* denotes horizontal efficiency; *INTEG* denotes vertical integration. Amounts in bold are significant at 0.05 level.

Table 3
Corporate governance, workforce reductions and post-acquisition operating performance

Variables	(1) <i>POST_ROS</i>	(2) <i>POST_ROS</i>
<i>W_REDUCE</i>	-1.235*** (-5.441)	-2.285*** (-6.907)
<i>B_OWN</i>		-0.548*** (-3.177)
<i>W_REDUCE</i> × <i>B_OWN</i>		8.474*** (3.632)
<i>B_SIZE</i>		-0.003 (-0.080)
<i>W_REDUCE</i> × <i>B_SIZE</i>		1.383*** (3.612)
<i>B_IND</i>		-0.012 (-0.343)
<i>W_REDUCE</i> × <i>B_IND</i>		0.907** (2.175)
<i>DUAL</i>		0.092** (2.548)
<i>W_REDUCE</i> × <i>DUAL</i>		-1.775*** (-3.376)
<i>PRE_BROS</i>	0.018*** (4.845)	0.020*** (4.891)
<i>REL_SIZE</i>	0.000 (1.071)	0.000 (1.313)
<i>PAY</i>	0.041 (1.261)	0.050* (1.659)
<i>RELATE</i>	-0.010 (-0.256)	-0.023 (-0.614)
<i>PRE_TROS</i>	0.006 (1.358)	0.004 (0.906)
<i>MULT</i>	-0.023 (-0.433)	-0.005 (-0.096)
<i>LEV</i>	0.310*** (2.900)	0.353*** (3.485)
<i>PREM</i>	0.024 (0.597)	0.047 (1.267)
<i>GROWTH</i>	-0.026 (-0.444)	0.018 (0.334)
<i>EFFIC</i>	-0.020 (-0.349)	-0.014 (-0.264)
<i>INTEG</i>	-0.051 (-0.887)	-0.011 (-0.201)
Constant	-0.037 (-0.362)	-0.063 (-0.636)
Industry effect	Yes	Yes
Year effect	Yes	Yes
Observations	306	306
Adjusted R ²	0.296	0.400

Notes

This table shows regression results for examining whether board ownership, board size, board independence and CEO duality affect the relationship between workforce reductions and post-acquisition operating performance. *POST_ROS* denotes post-acquisition operating performance; *W_REDUCE* denotes workforce reductions in the merged firm subsequent to the acquisition; *B_OWN* denotes board ownership at the end of the accounting year immediately prior to takeover; *B_SIZE* denotes board size at the end of the accounting year immediately prior to takeover; *B_IND* denotes board independence at the end of the accounting year immediately prior to takeover; *DUAL* denotes CEO duality at the end of the accounting year immediately prior to takeover; *PRE_BROS* denotes pre-acquisition operating performance of bidder; *REL_SIZE* denotes relative organizational size at the time of the acquisition; *PAY* denotes pure cash transactions; *RELATE* denotes related acquisitions; *PRE_TROS* denotes pre-acquisition operating performance of target firm; *MULT* denotes multiple bidders; *LEV* denotes debt-to-equity ratio at the end of the takeover completion year; *PREM* denotes premium; *GROWTH* denotes horizontal growth; *EFFIC* denotes horizontal efficiency; *INTEG* denotes vertical integration. *t*-statistics are reported in parentheses. ***/**/* indicate significance at 1%/5%/10% (two tailed) levels, respectively.

Table 4
Composition of board ownership - CEO, executive and non-executive ownership

Variables	<i>POST_ROS</i>
<i>W_REDUCE</i>	-2.276*** (-6.766)
<i>CEO_OWN</i>	-0.479 (-1.647)
<i>W_REDUCE</i> × <i>CEO_OWN</i>	8.629*** (2.832)
<i>EXE_OWN</i>	-0.787* (-1.884)
<i>W_REDUCE</i> × <i>EXE_OWN</i>	7.361 (0.564)
<i>NON_EXE_OWN</i>	-0.144 (-0.229)
<i>W_REDUCE</i> × <i>NON_EXE_OWN</i>	5.393 (0.657)
<i>B_SIZE</i>	-0.004 (-0.113)
<i>W_REDUCE</i> × <i>B_SIZE</i>	1.427*** (3.396)
<i>B_IND</i>	-0.013 (-0.369)
<i>W_REDUCE</i> × <i>B_IND</i>	0.888** (2.012)
<i>DUAL</i>	0.089** (2.404)
<i>W_REDUCE</i> × <i>DUAL</i>	-1.783*** (-3.288)
<i>PRE_BROS</i>	0.020*** (4.717)
<i>REL_SIZE</i>	0.000 (1.304)
<i>PAY</i>	0.048 (1.552)
<i>RELATE</i>	-0.024 (-0.652)
<i>PRE_TROS</i>	0.003 (0.845)
<i>MULT</i>	-0.011 (-0.223)
<i>LEV</i>	0.349*** (3.399)
<i>PREM</i>	0.050 (1.303)
<i>GROWTH</i>	0.020 (0.353)
<i>EFFIC</i>	-0.012 (-0.226)
<i>INTEG</i>	-0.012 (-0.214)
Constant	-0.052 (-0.513)
Industry effect	Yes
Year effect	Yes
Observations	306
Adjusted R ²	0.391

Notes

This table shows regression results for our main analysis using the composition of board ownership - CEO, executive and non-executive ownership. *POST_ROS* denotes post-acquisition operating performance; *W_REDUCE* denotes workforce reductions in the merged firm subsequent to the acquisition; *CEO_OWN* denotes CEO ownership at the end of the accounting year immediately prior to takeover; *EXE_OWN* denotes executive ownership at the end of the accounting year immediately prior to takeover; *NON_EXE_OWN* denotes non-executive ownership at the end of the accounting year immediately prior to takeover; *B_SIZE* denotes board size at the end of the accounting year immediately prior to takeover; *B_IND* denotes board independence at the end of the accounting year immediately prior to takeover; *DUAL* denotes CEO duality at the end of the accounting year immediately prior to takeover; *PRE_BROS* denotes pre-acquisition operating performance of bidder; *REL_SIZE* denotes relative organizational size at the time of the acquisition; *PAY* denotes pure cash transactions; *RELATE* denotes related acquisitions; *PRE_TROS* denotes pre-acquisition operating performance of target firm; *MULT* denotes multiple bidders; *LEV* denotes debt-to-equity ratio at the end of the takeover completion year; *PREM* denotes premium; *GROWTH* denotes horizontal growth; *EFFIC* denotes horizontal efficiency; *INTEG* denotes vertical integration. *t*-statistics are reported in parentheses. ****/**/* indicate significance at 1%/5%/10% (two tailed) levels, respectively.

Table 5
Corporate governance and workforce reductions

Variables	<i>W_REDU</i> C
<i>B_OWN</i>	0.031 (0.618)
<i>B_SIZE</i>	0.008 (0.890)
<i>B_IND</i>	-0.010 (-1.033)
<i>DUAL</i>	-0.009 (-0.878)
<i>PRE_BROS</i>	-0.005*** (-5.486)
<i>REL_SIZE</i>	-0.000** (-2.244)
<i>PAY</i>	-0.004 (-0.475)
<i>RELATE</i>	0.021* (1.883)
<i>PRE_TROS</i>	0.000 (0.047)
<i>MULT</i>	-0.005 (-0.368)
<i>LEV</i>	0.029 (0.949)
<i>PREM</i>	-0.001 (-0.084)
<i>GROWTH</i>	-0.044*** (-2.709)
<i>EFFIC</i>	0.019 (1.140)
<i>INTEG</i>	-0.025 (-1.580)
Constant	0.016 (0.547)
Industry effect	Yes
Year effect	Yes
Observations	306
Adjusted R ²	0.302

Notes

This table shows regression results for examining whether board ownership, board size, board independence and CEO duality serve as predictors of workforce reductions. *W_REDU*C denotes workforce reductions in the merged firm subsequent to the acquisition; *B_OWN* denotes board ownership at the end of the accounting year immediately prior to takeover; *B_SIZE* denotes board size at the end of the accounting year immediately prior to takeover; *B_IND* denotes board independence at the end of the accounting year immediately prior to takeover; *DUAL* denotes CEO duality at the end of the accounting year immediately prior to takeover; *PRE_BROS* denotes pre-acquisition operating

performance of bidder; *REL_SIZE* denotes relative organizational size at the time of the acquisition; *PAY* denotes pure cash transactions; *RELATE* denotes related acquisitions; *PRE_TROS* denotes pre-acquisition operating performance of target firm; *MULT* denotes multiple bidders; *LEV* denotes debt-to-equity ratio at the end of the takeover completion year; *PREM* denotes premium; *GROWTH* denotes horizontal growth; *EFFIC* denotes horizontal efficiency; *INTEG* denotes vertical integration. *t*-statistics are reported in parentheses. ***/**/* indicate significance at 1%/5%/10% (two tailed) levels, respectively.

Table 6
Robustness checks

Variables	(1) <i>POST_ROS</i>	(2) <i>POST_ROS</i>	(3) <i>POST_ROS</i>
<i>W_REDUCE</i>	-2.431*** (-7.325)	-2.285*** (-6.884)	-2.347*** (-5.852)
<i>B_OWN</i>	-0.563*** (-3.160)	-0.535*** (-3.071)	-0.518** (-2.479)
<i>W_REDUCE</i> × <i>B_OWN</i>	11.130*** (2.762)	8.500*** (3.627)	8.870*** (3.137)
<i>B_SIZE</i>	-0.012 (-0.334)	-0.003 (-0.082)	-0.009 (-0.227)
<i>W_REDUCE</i> × <i>B_SIZE</i>	1.388*** (3.425)	1.389*** (3.613)	1.370*** (2.952)
<i>B_IND</i>	-0.016 (-0.432)	-0.010 (-0.269)	-0.023 (-0.539)
<i>W_REDUCE</i> × <i>B_IND</i>	0.981** (2.203)	0.902** (2.158)	0.830* (1.643)
<i>DUAL</i>	0.074** (1.979)	0.091** (2.516)	0.086* (1.952)
<i>W_REDUCE</i> × <i>DUAL</i>	-1.727*** (-3.167)	-1.768*** (-3.351)	-1.728*** (-2.712)
<i>TEMPC</i>		0.012 (0.316)	
<i>PRE_BROS</i>	0.020*** (4.905)	0.020*** (4.868)	0.019*** (3.967)
<i>REL_SIZE</i>	0.000 (1.199)	0.000 (1.338)	0.000 (0.848)
<i>PAY</i>	0.031 (0.952)	0.048 (1.562)	0.072* (1.947)
<i>RELATE</i>	-0.026 (-0.686)	-0.020 (-0.522)	-0.020 (-0.452)
<i>PRE_TROS</i>	0.046 (1.510)	0.004 (0.950)	0.008* (1.700)
<i>MULT</i>	0.018 (0.369)	-0.004 (-0.090)	0.014 (0.240)
<i>LEV</i>	0.242** (2.256)	0.358*** (3.515)	0.375*** (3.054)
<i>PREM</i>	-0.019 (-0.469)	0.046 (1.200)	0.022 (0.476)
<i>GROWTH</i>	0.017 (0.293)	0.016 (0.287)	0.036 (0.536)
<i>EFFIC</i>	-0.005 (-0.084)	-0.015 (-0.283)	-0.009 (-0.143)
<i>INTEG</i>	-0.002 (-0.036)	-0.007 (-0.126)	-0.007 (-0.101)
Constant	0.001 (0.008)	-0.077 (-0.735)	-0.075 (-0.621)
Industry effect	Yes	Yes	Yes
Year effect	Yes	Yes	Yes
Observations	279	305	306
Adjusted R ²	0.394	0.398	0.310

Notes

Column (1) indicates regression results for our main analysis after excluding financial crisis period. Column (2) presents regression results for our main analysis after controlling for pre-acquisition target firm employment change. Column (3) shows regression results for our main analysis using an alternative measure of post-acquisition operating performance. *POST_ROS* denotes post-acquisition operating performance; *W_REDUCE* denotes workforce reductions in the merged firm subsequent to the acquisition; *B_OWN* denotes board ownership at the end of the accounting year immediately prior to takeover; *B_SIZE* denotes board size at the end of the accounting year immediately prior to takeover; *B_IND* denotes board independence at the end of the accounting year immediately prior to takeover; *DUAL* denotes CEO duality at the end of the accounting year immediately prior to takeover; *TEMPC* denotes pre-acquisition target firm employment change; *PRE_BROS* denotes pre-acquisition operating performance of bidder; *REL_SIZE* denotes relative organizational size at the time of the acquisition; *PAY* denotes pure cash transactions; *RELATE* denotes related acquisitions; *PRE_TROS* denotes pre-acquisition operating performance of target firm; *MULT* denotes multiple bidders; *LEV* denotes debt-to-equity ratio at the end of the takeover completion year; *PREM* denotes premium; *GROWTH* denotes horizontal growth; *EFFIC* denotes horizontal efficiency; *INTEG* denotes vertical integration. *t*-statistics are reported in parentheses. ***/**/* indicate significance at 1%/5%/10% (two tailed) levels, respectively.

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