

Do acquirers benefit from retaining target CEOs?*

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Abstract

Acquirers do not appear to benefit, in terms of merger announcement returns or long-run operating performance, from hiring the CEOs of firms they acquire. This is especially true when the CEO that is retained is of inferior quality (as proxied by educational aptitude, target firm industrial efficiency, the CEO's pay slice, or the number of outside directorships held). Higher quality target CEOs are more likely to be retained in the merged firm, but only when acquirers exhibit characteristics consistent with good corporate governance. We find no evidence that premiums paid in M&A deals are related to the decision to hire the target CEO.

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“Explaining the thin 5% premium [Duke Energy, the acquirer] had negotiated, Rogers [Duke’s CEO] said, ‘I effectively gave up the CEO job to pay a lower premium. I thought it was better for [Duke] shareholders.’” – Businessweek 9/20/2012

1. Introduction

We examine the decision made by the acquiring firm to retain (hire) the target firm’s Chief Executive Officer (CEO) in the merged company. We find that target CEOs are retained in about half the acquisitions we study. Optimally, acquirers should retain target managers where a) the managers are skilled (i.e., of high quality); and b) their skills can add the most value. Using proxies for target managerial quality, we investigate whether more optimal retention decisions are related to the corporate governance of the acquirers. We also examine whether acquirers that make the off-equilibrium choice to retain lower-ability target managers are penalized in the capital markets for doing so.

Our interest in these issues stems from anecdotal and academic evidence suggesting that, in some circumstances, CEOs of target firms trade premiums for personal benefits (such as a job in the merged firm).¹ As suggested by the quote at the top of this page, such a trade would take the form of the target CEO agreeing to sell the target firm at a lower premium in exchange for a managerial position (potentially as the CEO) in the merged firm. Therefore, if during merger negotiations target CEOs secure a job in the acquirer as a reward for consenting to the deal, then it is not necessarily the case that these executives are retained due to their superior skills. Under such a scenario, it is unclear whether retaining the target CEOs enhances the managerial quality of the merged company. Alternatively, it is also possible that

¹ Indeed, Wulf (2004) examines “mergers of equals” and finds that target shareholder gains in such deals (proxied by abnormal announcement returns) are negatively associated with the extent to which target boards members participate in the (post-merger) governance of the merged firm. Hartzell, Ofek, and Yermack (2004) also find some, relatively weak, evidence consistent with the power-for-premium trade: premiums for target shareholders are lower when the target CEO receives an unusual bundle of benefits from the deal (which may include, among other benefits, employment in the merged firm).

in some acquisitions high-quality (or specialized) target managers are retained to ensure that the merged firm fully realizes the synergistic gains from the deal.

To measure managerial quality we use two different proxies. Both of our measures are motivated by the view that managerial skills are of first-order importance in determining the retention of high quality individuals to serve as top managers (Murphy and Zábojník, 2004). The first proxy for managerial ability is the average Scholastic Aptitude Test (SAT) score reported for the latest entering class at the (university) educational institution that the target CEO graduated from. Several studies use average entering SAT scores as a proxy to measure managerial ability (see, for example, Chevalier and Ellison, 1999, and, more recently, Duchin and Sosyura, 2013). We classify target CEOs to be of high quality if they obtained an undergraduate degree from an institution where the latest entering class has an average SAT score higher than 1800 (out of 2400 possible points), the sample median. Target CEOs of lower quality are those who graduated from academic institutions with below median SAT-scores.

Our second proxy of managerial quality relies on Data Envelopment Analysis (DEA) techniques (Habib and Ljungqvist, 2005) to estimate how far a firm operates from its efficient frontier. This proxy is motivated by the arguments in Martin and McConnell (1991) and Brickley, Linck, and Coles (1999) that the corporate labor market relies on the performance of managers' firms to identify executives with superior skills. We consider a target firm to be efficient (and therefore infer that the target CEO is a high-ability manager) if its distance from the frontier is above the industry median. Inefficient target firms (and lower-ability CEOs), therefore, correspond to cases where the distance is below the median.

We examine the retention of the target CEO in a sample of 355 completed mergers and acquisitions announced between 1999 and 2008. We first use hand-collected data to document whether the target CEOs obtain employment in the merged firm, and which role in

that organization they fill. To inform our research questions, we investigate whether the ability of the targets' CEOs (ex ante) and the choice to retain them in the merged firm (ex post) affects: (i) the abnormal returns accruing to the acquirer shareholders around the announcement of the deal, (ii) the long-term operating performance of the merged firm, and (iii) the premium received by target shareholders.

Our results reveal that the retention of the target CEO in the merged firm is a non-trivial occurrence during acquisitions: this phenomenon occurs in about 50% of the deals we examine. In terms of the determinants of whether the target CEO is retained in the merged firm, our tests generate several economically sensible results. High-quality target CEOs (as proxied by the SAT requirement of their undergraduate institution or the efficiency of their firm) are significantly and substantially more likely to be retained by the acquirer following completion of the merger. The economic magnitude of this effect is large: the retention rate jumps by 16 to 18 percentage points for high-quality target CEOs (relative to the unconditional average of about 50%). Moreover, high-ability target CEOs are more likely to be retained by acquirer firms exhibiting good corporate governance. This finding, which is similar to that in Wulf and Singh (2011), supports the notion that better-governed acquirers hire better managers because their skills can enhance the value of the target to their firms.

We find surprisingly robust evidence that *acquirer* gains from acquisitions are substantially and significantly *lower* when the target CEO is retained in the merged firm. This effect does not appear to be affected by the inclusion of a wide variety of control variables in multivariate regressions. Hiring a lower-ability CEO is associated with about 3% lower acquirer abnormal announcement returns. In contrast, our regression analyses indicate that retaining higher-ability target CEOs does not affect the acquirers' gains. According to our tests, therefore, the lower returns to the acquirers obtain only when they retain lower-ability target CEOs.

Our next tests examine acquisition-related value creation in the merged firm (i.e., synergies). Using combined post-merger changes in operating performance (Healy, Palepu, and Ruback, 1992) we find that deals in which the target CEO is retained in the merged firm result in significantly *lower* operating performance relative to other deals. This substantially lower post-merger operating performance in deals where the target CEO is retained does explain the market's (rational) announcement period assessment of the deal (lower acquirer announcement returns). In fact, as with our acquirer announcement return tests, we find that the *more negative* (and only significant) post-merger operating performance we uncover coincides with the hiring of lower-ability target CEOs.

We interpret the evidence from our retention determinants, acquirer return tests, and post-merger operating performance analyses as support for the idea that the performance of the merged firm declines when lower-quality managers are retained. Nonetheless, we consider alternative explanations. Under a hard bargaining hypothesis it is possible, for example, that in deals in which the target CEO is hired, target shareholders capture *additional* rents from shareholders of the acquirer (contrary to the premium-for-power hypothesis discussed in the literature). That is, it could be the case that in transactions where the target CEO is retained acquirers *overpay* for the targets.

To investigate the hard bargaining hypothesis we analyze the premiums paid for the target firms. These tests reveal that premiums paid for targets are not statistically related to the retention of their CEO by the acquirer. This finding, which does not support the hard bargaining alternative, matches those in Bargeron, Schlingemann, Stulz, and Zutter (2010) and in Hartzell, Ofek, and Yermack (2004) and mitigates the concern that bidders overpay for the target in deals in which they retain the target CEO. Moreover, this result does not support the power-for-premium hypothesis which posits that target CEOs accept lower premiums in lieu of a job in the merged firm.

Another alternative explanation to account for our findings is that lower-quality managers seek jobs in (poorly performing) firms in which they could become entrenched. This scenario could explain the positive correlation between the retention of these managers and acquirers that exhibit inferior corporate governance (i.e.: classified boards and more anti-takeover provisions). Throughout the paper, we address this possibility by using the selection correction (Heckman, 1979) in our multivariate tests. Moreover, based on the retention determinants, we estimate an instrumental retention variable, which we then use in our acquirer return tests. The parameter estimate for the instrumented target CEO retention variable in the acquirer return regression is still negative and statistically significant. This finding provides some assurance against the alternative of causality running in the opposite direction due to self-selection by some managers.

Despite our selection controls and instrumental variables tests, we are acutely aware that our analyses could be vulnerable to endogeneity concerns stemming from omitted variables or from correlation between our retention instrument and the error term in the acquirer return second stage regression. We try to alleviate these concerns by sharpening our identification using two different econometric techniques. First, as in Custódio and Metzger (2013), we use merger waves a quasi-natural experiment to distinguish the acquirer returns in deals in which the target CEOs are retained. Second, we use propensity score matching methods to estimate an average treatment effect of target CEO retention on acquirer performance. The results using these different econometric tools also show that acquirer returns decrease in deals in which target CEOs are hired in the merged firm.

To further assess the robustness of our findings, we use two alternative procedures to measure the target CEO's quality. Instead of using SAT scores and DEA techniques, we follow Bebchuk, Cremers, and Peyer (2011) and divide target CEOs according to the "pay slice" they get relative to the five highest paid executives in their respective firms. The idea

here, which is discussed in the literature, is that the larger the pay slice the more important the CEO is to the firm (see, for example, Gabaix and Landier, 2008 and Graham, Li, and Qiu, 2012). Additionally, based on the arguments in Fama (1980) and Fama and Jensen (1983) that higher-quality managers are more likely to be sought for board service by other firms, we split the target CEOs by whether they have at least one external directorship.² The results using these alternative managerial quality classifications indicate that acquirer returns are lower when they hire lower-ability target CEOs (those with below the median pay slices and those with no external board seats), confirming our main tests.

In sum, our results indicate that higher-quality target CEOs are hired by acquirer firms with better corporate governance, but it is unclear that this is because their skills can add the most value as their retention is not associated with improved performance at the merged firm. Therefore, it is possible that these results (a) illustrate ex-post settling up (Fama, 1980) whereby well-performing target CEOs are rewarded with a position in the merged firm, or (b) obtain because the marginal benefits of retaining high-quality CEOs are negligible. In contrast, we find that acquirer firms that retain lower-quality managers are penalized for doing so: they exhibit lower announcement returns and worse long-run operating performance.

Our results contribute to the literature in several ways. We show that the retention and managerial quality of the target CEO affects the gains from mergers for acquirer shareholders. These results complement those in Wang and Xie (2009) showing that the target's governance affects the gains from mergers. In addition, existing studies on the retention of the target CEO in the merged firm consider the impact of this benefit on the performance of the target firms (i.e.: Hartzell, Ofek, and Yermack, 2004 and Bargaron,

² Several papers also follow Fama (1980) and Fama and Jensen (1983) and use the number of external directorships by an individual as a proxy for reputation and skill (for a recent example, see Field, Lowry, and Mkrtychyan, 2013). However, using directorships to measure managerial ability has the caveat that too many directorships can render an executive busy and, therefore, unable to enhance firm performance (Fich and Shivdasani, 2006).

Schlingemann, Stulz, and Zutter, 2010). We advance this literature by also examining the potential effect of such retention on the return to shareholders in the acquiring firm.

This paper also adds to the literature considering (i) whether managerial quality is correlated to firm performance (see, for example, Kaplan, Klebanov, and Sorensen, 2012, for evidence on venture capital firms; Chemmanur and Paeglis, 2005, for evidence on IPO firms; and Chevalier and Ellison, 1999, for evidence on mutual fund companies) and (ii) whether the retention of individuals with experience as CEOs improves firm value (see, for example, Fich, 2005; and Fahlenbrach, Low, and Stulz, 2010). Our work is also relevant to the ongoing public policy debate regarding best practices in corporate governance and the shareholder wealth effects related to rules approved by the Securities and Exchange Commission (SEC) regulating extra benefits target managers can obtain during merger negotiations.³

The rest of the paper is organized as follows. Section 2 describes our data and the retention of target CEOs by the acquiring firm. Section 3 presents our empirical analyses. Section 4 provides additional tests. Section 5 contains our conclusions.

2. Data and descriptive statistics

We assemble a sample of 355 completed mergers and acquisitions announced between 1999 and 2008. These deals consist of acquisitions of U.S. targets by U.S. bidders and are drawn from the Securities Data Corporation's (SDC) Mergers and Acquisitions (M&A) database. Our sample selection is similar to that in Barger, Schlingemann, Stulz, and Zutter (2010) and Masulis, Wang, and Xie (2007). Specifically, the transactions we study meet the

³ On October 18, 2006, the SEC unanimously approved amendments to Rule 14d-10(a) (2) (commonly known as the "best price" rule) applicable to tender offers for securities registered under the Securities Exchange Act of 1934. This rule was originally written to ensure equal treatment among target shareholders by requiring the highest consideration paid to any one security holder in a class be the consideration paid to all security holders in the same class. The new amendments expressly state that the best price rule does not apply to benefits to top managers, directors, or other employees of a target company entered into in connection with an acquisition of the target. The amendments now enable the target's board of directors to approve several employee benefit arrangements for its executives during merger negotiations.

following criteria. (1) The deal is completed; (2) The bidder controls less than 50% of the shares of the target prior to the announcement and owns more than 50% of the target after the transaction; (3) All spinoffs, recapitalizations, exchange offers, repurchases, self-tenders, privatizations, and acquisitions of remaining interest, partial interests or assets are excluded; (4) The disclosed deal value is at least \$10 million and at least 1% of the acquirer's market capitalization measured at the end of the fiscal year before the deal announcement date; (5) Both acquirer and target firms have stock market, accounting, and governance data available from the Center for Research in Security Prices (CRSP), Compustat, and RiskMetrics, respectively; (6) Deal background and target CEO exit pay and retention data must be available from SEC proxy filings or from Lexis/Nexis news searches.

Panel A of Table 1 shows the temporal and industrial distribution of the sample targets and acquirers. The number of transactions is greater during the 1999-2001 period of economic expansion when the stock market valuation is higher. The annual number of deals declines during the economic contraction periods of 2002 and 2008. The temporal distribution of our sample is in line with the merger activity reported in most prior studies. Panel A shows the industrial distribution of our sample targets and acquirers using the 12 Fama-French groups. Our target firms appear well scattered across several industries with some clustering in the Business and the Finance sectors (25% and 19% of the sample, respectively).

Descriptive statistics for various deal, acquirer, and target characteristics are reported in Panel B of Table 1. To conserve space and avoid repetition, all these variables are defined in Appendix A. Our sample characteristics are similar in most important respects to the samples used elsewhere in the M&A literature. About 17% of the deals we study are tender offers. This incidence compares favorably to that in Wang and Xie (2009). Their sample of 396 acquisitions during 1990-2004 consists of 16% tender offers. Just over 96% of transactions in

our sample consist of friendly mergers. This frequency also resembles that of 93% in Moeller's (2005) study of 354 mergers during 1990-1999. Over 36% of the deals in our sample are paid in cash. This occurrence is comparable to that of 37% in Boone and Mulherin (2007). In 31% of our transactions, both the target and the bidder operate in different industries and exhibit a mean relative size of about 30%. These statistics are comparable to those in Moeller (2005). He reports an incidence of 29% of transactions in which the parties to the deal operate in different industries and a mean relative size of 32%.

Panel B of Table 1 also reports key characteristics for the acquirers and targets in our sample. The average acquirer has a market capitalization of \$34.7 billion, which is comparable to \$29.5 reported in Grinstein and Hribar (2004). Targets in our sample have an average market value of equity of \$4.9 billion. Cai and Vijh (2007) report an average market value of equity of \$4.3 billion for them 250 targets they study. The average deal size in our sample is \$4.9 billion, which is also close to \$4.7 billion reported in Grinstein and Hribar (2004) for a sample of 327 transactions that occur during 1993-1999.

Summary statistics for the target managerial quality proxies we use are also presented in Panel B of Table 1. We begin by identifying the CEO of each target firm in our sample using SEC proxy filings (S-4, DEFM 14, SC 14D9, SC TO, DEF 14). We then read the bio sketch for each CEO provided by the target firm (or by other firms in which the executive holds a board seat) in order to identify his or her undergraduate institution. For each undergraduate institution, we then search the "what does it take for admission?" section in the Princeton Review website for the average SAT score for the latest entering class. In a few instances, undergraduate institutions in our sample merged with another college or changed names. In these situations, we use the reported average SAT score for the surviving institution.

For example, General Motors Institute and GMI Engineering and Management Institute (which are no longer listed) became Kettering University in 1982. In addition, some target

CEOs graduated from foreign schools (i.e., Indian Institute of Technology, The University of Waterloo, or Technion). In these cases, we identify the foreign institution in the Worldwide Ranking Guide of Universities and use the average required SAT for the U.S. institution that ranks closest to the foreign school.⁴ The colleges or universities that award undergraduate degrees to our target CEOs exhibit a mean (median) SAT score of 1805 (1800). This average is roughly centered on the values of 1716 and 1963, which correspond to the implied SAT means reported by Chevalier and Ellison (1999) and by Li, Zhang, and Zhao (2011), respectively.⁵

The second proxy we use to measure the ability of the target CEO is based on the operational efficiency of the target firm. In economic theory, a firm's input and output combinations are represented using a production function. With this function one can determine the maximum output that can be generated with different combination of inputs, that is, one can construct an efficient production frontier (Varian, 1984). More talented firm managers are more likely to implement a more profitable mix of inputs and outputs that is close to the frontier. To empirically analyze the productive efficiency of decision making units, economists often use data envelopment analysis (DEA) to estimate production frontiers (Seiford and Thrall 1990). As such, DEA techniques can be applied to measure the managerial ability of top managers.

Following Habib and Ljungqvist (2005), for every industry-year combination, we use DEA methods to calculate an efficient frontier.⁶ Each year, a firm is considered to be efficient if its distance from the frontier efficiency (the efficiency measure) is equal or above its industry median. According to our Data Envelopment Analysis (see summary calculations in

⁴ See: <http://www.arwu.org/>

⁵ The means reported in those papers are based on SAT tests in which the achievable maximum score is 1600.

⁶ In our case, the DEA's output is revenue and the inputs include (1) net property, plant and equipment, (2) capitalized operating leases, (3) five year capitalization of R&D expenses, (4) purchased goodwill, (5) other acquired and capitalized intangibles, (6) cost of goods sold, and (7) selling, general, and administrative costs. This output-input specification is similar to that in Demerjian, Lev, and McVay (2012).

Appendix B), we find that 52% of targets in our sample are considered operationally efficient.⁷

We note that many target CEOs temporarily join the merger company but leave before the one year anniversary of the deal's completion. To ensure that the target CEO is not briefly retained just to assist with the transition of the merger, we check whether the executive remains employed by the acquiring firm 12 months after the completion of the deal. For this purpose we collect data from the first two annual proxies filed (following the completion of the merger) by the acquirer with the SEC, from searches in Lexis/Nexis and from other sources (such as Forbes, Bloomberg's BusinessWeek, and Wikipedia) that provide the CEOs' extended profile or employment history.

Panel A of Table 2 reports that 182 target CEOs (or 51.3%) are retained in the merged firm. This is consistent with the findings on corporate control activity in previous studies. Hartzell, Ofek, and Yermack (2004), for example, find that just over half of the 290 target CEOs in their sample initially remain with the buyer in some capacity. Similarly, Agrawal and Walkling (1994) find that about 45% of target CEOs are still retained in the merged company one year after successful takeover bids. Martin and McConnell (1991) report a comparable retention incidence.

The breakdown and description of the different jobs held by the 182 target CEOs in the merged company appear in Panel B of Table 2. Only 3.3% of these individuals hold the office of CEO in the entire merged firm while 17% become Divisional CEOs. Of the target CEOs that are retained, 5.5% become Chairman and over 11% are named Vice Chairman. Approximately 19.4% are given a directorship in the merged firm. The remaining target CEOs occupy a wide variety of positions listed in the table.

⁷ Appendix B reports a mean efficiency level of 58% for all Compustat firms during 1998-2007 fiscal years, which is close to 57% reported by Demerjian, Lev, and McVay (2012) during 1980-2009. The predicted level of efficiency for our sample targets and acquirers is about 62% to 64%.

3. Empirical analyses

In this section we first examine the characteristics associated with the hiring of the target CEO in the merged company. We then investigate the retention-related wealth effects accruing to shareholders of the acquirer firm.

3.1 Determinants of CEO retention

Table 3 reports ten logistic regressions that we estimate to study the characteristics associated with the retention of target CEOs in our sample. In all tests, the dependent variable is equal to one if the target CEO is retained by the acquirer, and equal to zero otherwise. The key independent variable in all tests measures the quality of the target CEOs. In models (1)-(5), we proxy for CEO quality using the average SAT score required for admission to the CEO's undergraduate institution. Models (6)-(10) use the target firm's operational efficiency (0,1) indicator to proxy for CEO quality. This indicator is set to one (zero) for targets with operating efficiency above (below) their industry median according to our DEA analyses. All of the tests in Table 3 include year and industry fixed effects.

We split our analyses in various sub-groups to assess the role of corporate governance in the retention decision. These splits are based on the idea that companies with lower Gompers, Ishii, and Metrick (2003) G-indices are associated with better corporate governance as are firms without classified boards (Becher, Bates and Lemmon, 2008). In models (2) and (7), our tests analyze a sample of acquirers with a G-index below ten (which Gompers et al. define as "democracy" firms) and in (3) and (8) an index of 10 or higher (which they define as "dictatorship" companies). Similarly, in regressions (4) and (9) we evaluate acquirers without classified boards and in (5) and (10) we study those with classified boards.

According to models (1) and (6) in Table 3, whether measured by SAT scores or target firm efficiency, acquirers are more likely to retain high quality target CEOs. Looking at the other regressions in the table, it appears that this result is driven by well governed acquirers (democracy firms and bidders without classified boards). That is, acquirers with better corporate governance are more likely to successfully retain higher quality target CEOs. The marginal effects from model (4) indicate that raising the target CEO's SAT score by 100 points from the mean, increases the likelihood of employment by about 17 percentage points when the acquirer does not have a classified board.

The results in Table 3 showing that higher quality CEOs are more likely to be hired by acquirers with better corporate governance are robust to the inclusion of several control variables in our tests. Some of these controls (which include various target CEO, target firm, acquirer company, and deal characteristics) generate intuitive results. For instance, using the marginal effects drawn from model (6), acquirers are 45.6% less likely to retain target CEOs in deals characterized as hostile but almost 30% more likely to do so when the parties to the deal share a business relationship.

We consider the possibility that some acquirers retain the target CEO to stop them from competing against the merged company. To address this issue, in untabulated tests, we control for the level of enforceability of non-compete agreements (Garmaise, 2011) in retention tests specified as those reported in Table 3. Coefficient estimates for this variable are positive, suggesting that target CEOs are more likely to be hired in jurisdictions in which non-compete agreements are difficult to enforce. However, none of the estimates attain statistical significance at conventional levels.

3.2. Short-term acquirer returns

To test whether retaining the target CEO affects the returns to the acquirers, in Panel A of Table 4, we run six ordinary least squares (OLS) regressions of the three-day merger announcement cumulative abnormal return (CAR) meeting the bidders in our sample. This CAR is centered on the acquisition announcement day. We follow the M&A literature in order to correctly specify our acquirer return regressions. Therefore, all models in Panel A control for variables similar to those in the acquirer return tests regressions reported by Moeller, Schlingemann, and Stulz (2005) and by Masulis, Wang, and Xie (2007). In our acquirer return tests, we expand the specification in those studies by including our target CEO (0,1) retention indicator variable. Additionally, our previous analyses show that the hiring of the target CEO in the merged firm has its own determinants. Moreover, those tests indicate that the acquirer's governance and the deal's attitude are significantly related to the hiring decision. This situation introduces the possibility of selectivity bias in our empirical analyses. To address it, we employ the Heckman (1979) procedure to estimate an inverse Mill's ratio (from model (1) of Table 3) which we then use as an additional control variable in all of the models in Panel A of Table 4 (except for model (2)).

The coefficients in model (1) of Panel A indicate that acquirer CARs are 1.76% lower when the target CEO is hired. This estimate implies a market value of equity decline of over \$622 million for the average bidder in our sample. This result is robust to numerous control variables including the acquirer firms' own operating efficiency.

A potential concern with model (1) of Panel A in Table 4 is that the estimates are biased and inconsistent because the dependent variable causes at least one of the explanatory variables.⁸ In fact, since better governed acquirers are more likely to hire higher ability CEOs, the results in model (1) are especially susceptible to selection issues given the endogenous nature of governance and firm value (Schoar and Washington, 2011). To address

⁸ Other potential culprits for such correlation are omitted variables and measurement error. See Roberts and Whited (2012) for a discussion and appropriate methods to address these issues.

this issue, in model (2) of Panel A, we use the fitted value drawn from model 1 in Table 3 to instrument for target CEO retention. The results in model (2), which also document an inverse and significant association between acquirer CARs and the retention instrument, mitigate endogeneity concerns.⁹

The remaining models in Panel A of Table 4 test subsamples according to our proxies for target CEO quality. Specifically, in model (3) we analyze the 174 transactions involving a target CEO with high SAT score (above the 1800 median) and in model (4) we study the 181 transactions where the score is low (below the median). Likewise, in model (5) we examine deals that include the 184 targets classified as efficient by the DEA procedure and in model (6) we consider 171 mergers involving inefficient targets.¹⁰ Overall, the results indicate that retention from the cohort of low SAT CEOs or inefficient targets are related to lower acquirer returns. Our estimates indicate that hiring a target CEO from an inefficient target is associated with a 2.6% lower announcement CAR, which translates into a drop in market value of equity of about \$782 million for the average acquirer company buying an inefficient target firm.

3.2.1. Quasi-natural experiment: M&A wave activity

The results in Panel A of Table 4 show that acquirer M&A announcement CARs are lower when the target CEO is retained in the merged firm. Moreover, the results in Panel A (models (4) and (6)) indicate that CARs are even lower when acquirers retain a target CEO of

⁹ Another potential concern is that our sample overlaps with that in Moeller *et al* (2005). To distinguish the negative acquirer returns we estimate from the massive value destruction they show, we remove the 31 transactions in our sample that would be classified as large loss deals according to Moeller *et al* (2005). Our results are unaffected when these observations are excluded.

¹⁰ In untabulated analyses, we use the percentage change in efficiency (measured in the year prior to the acquisition) instead of the level. Using this criteria, 165 targets are coded as inefficient because their percentage change in efficiency is less than zero. The results using this alternative specification produce qualitatively similar inferences. In an acquirer return regression for the sample of 165 inefficient targets (similar to Model 6 in Panel A of Table 4), the retention dummy coefficient is -0.0242 ($p=0.0286$).

inferior quality. However, it is possible that in some circumstances the market reaction to the acquirers would be even lower if the target CEO is not retained. This could happen if target CEOs are hired by the merged firm because they are identified by the acquirer's board of directors as individuals expected to contribute valuable skills. Thus, this endogenous assignment alternative could explain some of our results or bias our findings.

Using the incidence of merger waves as a quasi-natural experiment we address identification concerns related to endogenous assignment. The idea is that mergers occur in industry-clustered waves (Harford, 2005) often prompted by technological or supply shocks. These shocks and the necessity (and ability) to acquire during an M&A wave are less likely to be anticipated by a board of directors. Hence, under the endogenous assignment hypothesis, one would expect that the retention of the target CEO could lead to better acquirer returns during unexpected (within waves) acquisitions. Custódio and Metzger (2013) use merger wave activity as a quasi-natural experiment in a study of acquiring CEOs with target-industry experience. They find that such experience is more valuable in potentially unplanned transactions.

Harford (2005) provides a measure of clustered merger activity that specifies the year, month, and industry of a merger wave. In our sample, we define a merger to be part of a wave if the acquirer belongs to the affected industry and the deal is announced any time during the six months before (or after) the date identified by Harford (2005). With this measure, the six regressions reported in Panel B in Table 4 expand the tests in Panel A. Specifically, in Panel B we interact our retention indicator with outside- and within-wave dummy variables, respectively. The results in Panel B show that deals with target CEO retentions generate (negative and significant) acquirer returns regardless of whether the transactions take place outside or within a merger wave. Importantly, the acquirer returns that occur within waves are statistically indistinguishable from those that occur outside merger waves. These results

cast doubt on the endogenous assignment view that target CEOs deliver valuable skills to the acquirers (particularly in unanticipated situations).

3.3. Long-term acquirer returns

To complement the short term evidence provided by the bidder return tests in Table 4, we analyze their long term performance over the three years following the acquisition. Table 5 reports the result for five regressions of post-merger operating performance. These tests follow those in Healy, Palepu, and Ruback (1992) and in Harford, Humphrey-Jenner, and Powell (2012) and control, among other things, for pre-merger industry-adjusted ROA which we estimate as the combined acquirer-target industry-adjusted ROA for the fiscal year before the takeover. We augment the specification in those previous studies by including our target CEO retention indicator as the main explanatory variable. In addition, our Table 5 tests analyze all of our sample deals as well as subsamples based on CEO quality. All of the tests in Table 5 include year and industry fixed effects and the Heckman selection control.

As in Harford et al. (2012), the coefficient estimate for pre-merger industry-adjusted ROA is positive and significant. More importantly, according to the retention indicator in model (1), over the three years following the deal, the industry-adjusted operating performance of the merged firm declines by 2.19% relative to deals without a target CEO retention. Regression estimates in the other models suggest that this result is driven by low quality target CEOs. Model (3), for example, shows that operating performance declines by about 2.71% for retentions from the low SAT target CEO group. Likewise, retentions of CEOs coming from inefficient targets (model (5)) are associated with a decline in operating performance of almost 3%.

Together, the bidder M&A CAR analyses and the post-acquisition operating return tests in Table 5 show that acquirers that grant employment to low quality CEOs experience a substantial decline in their short- and long-term performance.

4. Additional tests

In this section we perform a number of tests in order to complement the previous findings, consider an alternative hypothesis, and probe the robustness of our results.

4.1. *Alternative hypothesis: hard bargaining*

According to our evidence, acquirer firms that retain target CEOs exhibit a decline in their short- and long-term performance. Moreover, our tests indicate that such decline is essentially driven by the retention of CEOs of inferior quality. It is possible; however, that the inferior acquirer performance is the consequence of hard bargaining by the target firms. Under this possibility, some acquirers overpay for their targets and also agree to hire the targets' CEOs. A byproduct of the hard bargaining hypothesis is, therefore, a transfer of additional rents from shareholders of the acquirer to shareholders of the target. To study this possibility, we examine whether the premiums collected by targets with CEOs that are hired by the acquirer are higher than those paid to other targets.

Table 6 reports the results of seven OLS regressions of the target premiums similar to those in Barger, Schlingemann, Stulz, and Zutter (2010). In model (1) the dependent variable is the 3-day merger announcement CAR meeting the targets whereas in model (2) it is the target's CAR during the window (-42, +126) proposed by Schwert (1996). The remaining models in Table 6 use the four-week premium reported by SDC as the dependent variable.¹¹ The independent variable of interest is our target CEO retention indicator. Because such retention has its own determinants, all models control for self-selection using the Heckman (1979) correction.

¹¹ Following Officer (2003) we restrict this premium measure to 2 (or 200%) to avoid extreme outliers.

Regression estimates for several control variables in Table 6 are in agreement with the results in prior work. For example, according to model (1), we find acquisition premiums to be higher when the transaction includes a target termination fee (Bates and Lemmon, 2003, and Officer, 2003) and when there are competing bids (Gaspar, Massa and Matos, 2005). In contrast, most of the tests in Table 6 show that acquisition premiums are inversely related to the size of the target firm and to the targets' prior year excess return (Bargeron, Schlingemann, Stulz, and Zutter, 2010).

In all tests, the estimates for our key independent variable in Table 6 are also consistent with the existing M&A literature. As in Hartzell, Ofek, and Yermack (2004) and Bargeron, Schlingemann, Stulz, and Zutter (2010), we do not find an association between the premium paid for the target firm and whether the target CEO gets a job in the merged firm. Moreover, this result holds even when the analysis accounts for the target CEO's quality (models 4-7). These findings do not support the hard bargaining hypothesis to rationalize the inferior returns earned by acquirers that retain the target CEOs.

4.2. Endogeneity

Our instrumental variables analyses document a negative association between the retention of the target CEO in the merged firm and the merger announcement return accruing to the acquirers. Yet, because the exclusion restriction cannot be tested we cannot rule out that certain target CEO characteristics (e.g.: age, tenure, or founder status) may correlate with the residuals in the second stage acquirer return regression (model (2) in Panel A of Table 4). Such correlation, however, is unlikely to be present in the tests that use merger waves as a quasi-natural experiment (reported in Panel B of Table 4). Nevertheless, to address this concern in a different way, in Table 7 we use a propensity score matching procedure to estimate an average treatment effect (ATE) of target CEO retention on acquirer returns. A

useful attribute of the propensity score matching technique is that it allows us to make causal interpretations from the analysis because it circumvents the fact that the retention decision is a function of the target CEO's own characteristics.¹²

The first column of Panel A in Table 7 reports a logit regression of the probability of being in the treatment group (i.e., of retention) as a function of observable characteristics. From this model, we use the estimated ex ante probability of retention to form matched samples of treatment and control acquirer firms where both groups display a similar estimated ex ante probability of being in the treatment group but different ex post realizations of the treatment. Put differently, our method estimates the counterfactual outcomes of acquirer firms by using the outcomes from a subsample of matched firms from the other group (treatment or control).

Following Abadie and Imbens (2008), we obtain confidence intervals with a matching estimator that uses a Gaussian kernel with 500 bootstrap repetitions. Since we are matching jointly on multiple variables, treatment and control samples may not have the same size or similar characteristics in all matched dimensions. Nonetheless, our results do not change if we employ different subsets of these matching characteristics, or we use neighborhood matching instead of Gaussian kernel.

The last three columns in Panel A of Table 7 contrast the treatment and the control group and document no significant differences in the mean values related to several characteristics that determine target CEO retention. The ATE reported in Panel B of Table 7 shows that in transactions where the target CEO is hired in the merged firm: (i) the market reaction to the M&A announcement meeting the acquirers is about 1.68 percentage points lower, (ii) the

¹² Rosenbaum and Rubin (1983) define treatment assignment to be strongly ignorable if two conditions are met. The first (also known as unconfoundedness) states that treatment assignment is independent of the potential outcomes conditional on the observed baseline covariates. The second condition (also known as overlap) requires every subject to have a nonzero probability to receive either treatment. Rosenbaum and Rubin (1983) show that if treatment assignment is strongly ignorable, then conditioning on the propensity score leads to unbiased estimates of the ATE.

post-acquisition operating performance of the deal is 2.44 percentage points lower, and (iii) the premiums paid for target firms whose CEO is hired in the merged firm are not different from those received by targets whose CEO is not hired.

4.3. Additional robustness tests

The key results in this paper show an inverse association between acquirer returns and the retention of the target CEO – particularly when that executive is of low quality. In Table 8 we use alternative return windows to estimate the acquirers’ return as well as two different proxies to measure managerial quality in order to evaluate the robustness of our main findings.

4.3.1. Alternative measurement windows for acquirer CARs

In earlier tests we use the acquirer’s 3-day CAR centered on the merger announcement date as our dependent variable. Following Masulis Wang, and Xie (2007) we replace the acquirer’s 3–day CAR with the M&A announcement CAR accruing to the bidders during the (-2, +2) and (-5, +5) windows. Looking at Panel A of Table 8, we note that the estimates during these alternative windows produce results that yield inferences similar to those presented earlier. Coefficients for the CEO retention variable are still negatively related to the acquirer’s return. This result holds for both our regular CEO retention (0,1) indicator and for the instrument of this variable (which we use to address endogeneity concerns described earlier). Moreover, as in our preceding analyses, the lower acquirer returns we document in Panel A of Table 8 are even lower when the hired target CEOs graduate from low SAT schools or head inefficient targets.

4.3.2. *Alternative proxies of managerial quality*

We re-estimate the acquirer return regressions using two different proxies for the target CEO's ability. We first use the target CEO's pay slice (PS) defined by Bebchuk, Cremers, and Peyer (2011) as the fraction of the aggregate compensation of the top-five executive team captured by the Chief Executive Officer.¹³ In Panel B of Table 8 we split our sample by whether the target CEO has a low or high PS (below or above the median for all CEOs in the Execucomp database during the year of the merger).¹⁴ Our use of the PS is motivated by the idea that higher ability managers should command a higher level of pay (Gabaix and Landier, 2008 and Graham, Li, and Qiu, 2012). The results in Panel B indicate that the retention of lower ability target CEOs (as measure by their PS) is associated with 2.86% lower acquirer returns.

In Panel C of Table 8, we split our sample using our second measure of CEO quality: whether the target CEO has at least one external directorship. This proxy is based on the arguments in Fama (1980) and Fama and Jensen (1983) that higher ability managers will be pursued to fill board seats. We note that eighty percent of the target CEOs in our sample do not have an external board seat. The results in Panel C of Table 8 indicate that target CEOs retained from this group are associated with 2.14% lower acquirer returns.

In sum, the robustness tests presented in Table 8 using alternative calculations to measure the acquirers' return and different ways to proxy for the managerial quality of the target CEOs yield results that are consistent with our earlier findings. Acquirer returns are generally

¹³ Our results also hold when we use the targets' industry adjusted return on assets as a proxy for efficiency.

¹⁴ In untabulated analyses, we alter this procedure as follows. For each target, we create a sample of matching firms (using firm size, industry, and pre-event performance to identify matching companies as suggested by Barber and Lyon (1996)). We then construct an indicator which is set to one (zero) if the target CEO's pay slice is higher (lower) than the average pay slice of the matching CEOs. All of the findings continue to obtain under this alternative specification. Moreover, our results also obtain if we use the median pay slice (instead of the average) for the matching firms to code the indicator variable.

lower when target CEOs remain employed in the merged firm and worse when these executives are of inferior quality.

5. Conclusions

In this paper we examine the retention of the target CEO in a sample of completed mergers and acquisitions. We first document whether the target CEOs obtain employment in the merged firm, and which role in that organization they fill: the results reveal that the target CEO is retained in the merged firm in approximately 50% of deals (most frequently as a director). High-quality target CEOs (by several metrics) are significantly and substantially more likely to be retained by the acquirer, especially when the acquirer exhibits good corporate governance. We find robust evidence that acquirer gains from acquisitions, using both announcement returns and long-run operating performance, are substantially and significantly lower when the target CEO is retained in the merged firm, in particular when the target CEO is of low quality. According to investor reactions around merger announcements, hiring a lower-quality target CEO is associated with about 2.5% - 3% lower acquirer abnormal returns. However, the premiums paid to targets are not statistically related to the retention of the target CEO by the acquirer. Our results are robust to controlling for numerous target, acquirer, and deal characteristics, and to alternate definitions for many of our main constructs of interest. In addition, our conclusions are not affected by several econometric methods we use to account for potential endogeneity.

We are left with the conclusion that retention of low-quality target CEOs is not a good outcome for acquirer firms and their shareholders. While target firms disappear from the capital market, many low-quality target CEOs do not disappear from the labor market. Our findings suggest that weak corporate governance in some acquirer firms allows this suboptimal practice to continue.

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Table 1: Sample characteristics

This table describes our sample which consists of 355 completed mergers and acquisitions (M&As) of majority interest by US bidders for US targets announced during 1999-2008 and tracked in the Securities Data Company's (SDC) merger and acquisition database. We require that both acquirer and target firms have stock market, accounting, governance, and deal background data available from the Center for Research in Security Prices (CRSP), Compustat, RiskMetrics, and proxy filings/Lexis Nexis search, respectively. In Panel A, we report the temporal and industrial distribution of the sample targets and acquirers. In Panel B, we report deal status, mode of acquisition, method of payment, deal attitude, deal value, and financial characteristics of both acquirers and targets. Same industry deals are those in which the target and the acquirer belong to the same Fama and French (1997) 48 industrial classification group. All other deal characteristics are obtained from SDC. All financial variables are measured at the end of the fiscal year before the merger public announcement date. All variables are defined in Appendix A.

Panel A: Temporal and industrial distribution										
Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Deal count	59	56	31	14	23	39	37	42	38	16
Percent	16.62	15.77	8.73	3.94	6.48	10.99	10.42	11.83	10.7	4.51
Industry	Target					Acquirer				
	Count		Percent		Count		Percent			
Nondurable consumer goods	16		4.51		16		4.51			
Durable consumer goods	6		1.69		6		1.69			
Manufacturing	42		11.83		38		10.70			
Energy	17		4.79		17		4.79			
Chemical	10		2.82		12		3.38			
Business equipment	90		25.35		89		25.07			
Telecommunication	7		1.97		9		2.54			
Utilities	16		4.51		14		3.94			
Shops	22		6.20		22		6.20			
Health	26		7.32		27		7.61			
Finance	66		18.59		67		18.87			
Other	37		10.42		38		10.70			
Panel B: Key characteristics										
	Proportion of sample		Mean		Median					
<i>Deal characteristics</i>										
Tender offer	0.1746									
Stock only	0.1972									
Cash only	0.3634									
Friendly attitude	0.9634									
Same industry	0.6873									
Deal value (US\$ billion)			4.8609		1.6592					
Relative size (Target/Acquirer)			0.3009		0.1465					
<i>Acquirer characteristics</i>										
Market value of equity (US\$ billion)			34.7101		8.9686					
Q			2.3367		1.6340					
Leverage			0.2234		0.2099					
<i>Target characteristics</i>										
Market value of equity (US\$ billion)			3.5059		1.0822					
Q			1.8805		1.4949					
Leverage			0.2407		0.2242					
<i>Target CEO quality proxies</i>										
CEO's SAT score			1805.10		1800.00					
Operating efficiency (0,1)	0.5183									
CEO pay slice			0.3768		0.3662					
CEO outside directorships			0.3493		0.0000					

Table 2: Positions of target CEOs in the combined firm

The sample consists of 355 mergers and acquisitions announced during 1999-2008 described in Table 1. Panel A provides a breakdown of our sample deals based on whether the target CEO obtains a position in the combined firm. Panel B shows the number of cases for different job titles of the target CEO in the combined firm. We obtain this information by reading the merger related proxies, the first annual proxy filed by the acquirer with the SEC, and news search from Lexis/Nexis. We group these job titles on whether the position is (1) in the acquiring firm only, (2) in both the acquirer and its divisions/subsidiaries, or (3) in the divisions/subsidiaries only. We present these titles in the following order: Chief Executive Officer (CEO), Chairman, Vice Chairman, President, Vice President, Chief Operating Officer (COO), Chief Technology Officer (CTO), Chief Strategy Officer (CSO), Director, and divisional titles in the same order.

Panel A: Deal level information			<i>N</i>	<i>%</i>
Full sample			355	100.00
Deals in which the target CEO obtains a position in the combined firm after deal completion			182	51.29

Panel B: Positions of the target CEO in the combined firm					
	<i>N</i>	<i>%</i>		<i>N</i>	<i>%</i>
<i>Positions in the acquirer only</i>			<i>Positions in both the acquirer and its divisions/subsidiaries</i>		
CEO	1	0.55	Chairman & divisional CEO	1	0.55
CEO & Chairman	2	1.10	President & divisional CEO & Chairman	1	0.55
CEO, President & Director	2	1.10	Vice Chairman & divisional CEO	1	0.55
CEO & Director	1	0.55	Vice Chairman & div. CEO, Chairman & President	1	0.55
Chairman	10	5.49	Vice Chairman & divisional CEO & President	1	0.55
Vice Chairman	18	9.89	Vice President, Director & divisional Chairman	1	0.55
Vice Chairman & President	1	0.55	Vice President & divisional CEO	2	1.10
Vice Chairman, President & COO	1	0.55	Vice President & divisional CEO & Chairman	1	0.55
Vice Chairman & COO	2	1.10	Vice President & divisional Chairman	1	0.55
President	6	3.30	Vice President & divisional President	4	2.20
President & COO	6	3.30	Director & divisional CEO	1	0.55
President, COO & Director	1	0.55	Director & divisional Chairman	2	1.10
President & Director	1	0.55	Director & divisional President	2	1.10
Vice President	23	12.64			
Vice President & COO	1	0.55			
Vice President & CTO	1	0.55			
Vice President & CSO	1	0.55			
COO	1	0.55			
COO & President	1	0.55			
COO & Director	1	0.55			
CTO	1	0.55			
Director	31	17.03			
			Unspecified executive positions	3	1.65
			Total	182	100.00

Table 3: Determinants of target CEO retention

The sample consists of 355 mergers and acquisitions announced during 1999-2008 described in Table 1. We run logit models of target CEO retention similar to those in Barger, Schlingemann, Stulz, and Zutter (2010). The dependent variable equals one if the target CEO obtains a job in the combined firm after the deal completion and zero otherwise. In both panels, Models (1) and (6) use the full sample. Models (2)-(5) and (7)-(10) use subsamples based on the acquirer's governance characteristics including the G index and the classified board status. Target CEO quality is the average SAT score for the latest entering class at the CEO's undergraduate institution (a continuous variable) in Models (1)-(5) and the target's operational efficiency (a binary variable) variable in Models (6)-(10). All other variables are defined in Appendix A. We report *p*-values in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable = Target CEO retention (0,1)	<i>Full sample</i>	<i>Acquirer G index < 10</i>	<i>Acquirer G index ≥ 10</i>	<i>Acquirer classified board = 0</i>	<i>Acquirer classified board = 1</i>	<i>Full sample</i>	<i>Acquirer G index < 10</i>	<i>Acquirer G index ≥ 10</i>	<i>Acquirer classified board = 0</i>	<i>Acquirer classified board = 1</i>
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)	Model (9)	Model (10)
<i>Target CEO characteristics</i>										
CEO quality	0.8059** (0.0192)	4.7950*** (0.0002)	-0.7449 (0.2985)	1.8730** (0.0384)	1.2096 (0.1152)	0.8627** (0.0118)	2.6777*** (0.0036)	-0.3099 (0.6450)	2.1863** (0.0423)	-1.4385 (0.5176)
Age	-0.0490** (0.0433)	-0.1822** (0.0147)	-0.0307 (0.5350)	-0.1063 (0.1351)	-0.0689 (0.2333)	-0.0540** (0.0329)	-0.1424** (0.0251)	-0.0478 (0.3293)	-0.1519** (0.0462)	-0.0529 (0.3718)
Tenure	0.0417 (0.1248)	-0.0423 (0.6165)	0.1430** (0.0153)	-0.0563 (0.6052)	0.0861 (0.1489)	0.0393 (0.1614)	-0.0575 (0.4415)	0.1594*** (0.0072)	-0.1060 (0.3764)	0.0772 (0.2390)
Chairman (0,1)	0.1060 (0.7519)	0.3047 (0.7659)	-0.6008 (0.3816)	0.4860 (0.5491)	-0.4105 (0.6264)	0.1762 (0.6075)	0.8787 (0.3269)	-0.7496 (0.2899)	2.2985** (0.0484)	-0.8556 (0.3581)
Founder (0,1)	-0.7524 (0.1369)	-1.9932 (0.1965)	-0.9160 (0.3865)	2.3975 (0.1315)	-1.0445 (0.3458)	-0.7019 (0.1852)	-1.0858 (0.4025)	-0.8948 (0.4049)	1.9174 (0.1885)	-0.4955 (0.7010)
Equity ownership	0.0133 (0.4765)	-0.0072 (0.8714)	0.0260 (0.3432)	-0.3576*** (0.0045)	0.0924 (0.2167)	0.0171 (0.4355)	0.0450 (0.3759)	0.0293 (0.3173)	-0.1692* (0.0524)	0.1051 (0.2360)
Side payment	0.0672 (0.7739)	-1.2675* (0.0651)	0.3973 (0.3568)	-0.8207 (0.1548)	0.8600 (0.1073)	0.0511 (0.8308)	-0.9561* (0.0973)	0.3655 (0.4088)	-0.8933 (0.1586)	0.8439 (0.1598)
<i>Target characteristics</i>										
Size	0.1587 (0.3412)	-0.4909 (0.2131)	0.1701 (0.6470)	-0.0832 (0.8763)	-0.3671 (0.4097)	0.1207 (0.4782)	-0.3998 (0.2489)	0.3500 (0.3651)	0.5030 (0.2681)	-1.0280** (0.0459)
Q	0.0166 (0.1943)	0.3613* (0.0702)	0.0864 (0.4269)	0.2379 (0.2170)	0.1000 (0.2308)	0.0144 (0.2706)	0.2385 (0.1381)	0.1033 (0.3603)	0.1527 (0.3403)	0.1158 (0.1869)
Leverage	-2.9862*** (0.0040)	-9.1593*** (0.0032)	-1.9765 (0.4182)	1.0162 (0.7023)	-8.1111*** (0.0052)	-3.2032*** (0.0026)	-9.2301*** (0.0015)	-2.4644 (0.3035)	-4.2267 (0.1928)	-10.0366*** (0.0029)
Prior year excess return	0.3620 (0.2742)	1.8236 (0.1373)	0.6609 (0.4324)	1.4936 (0.1225)	2.2022** (0.0482)	0.5310 (0.1244)	1.4066 (0.1378)	0.6959 (0.3951)	2.1744* (0.0635)	2.1110* (0.0513)
G index	0.0738 (0.2296)	1.0095 (0.2932)	0.5410 (0.5177)	0.5770 (0.5282)	1.9120* (0.0623)	0.0828 (0.1847)	0.4078*** (0.0081)	0.0779 (0.5793)	0.4263** (0.0332)	0.2062 (0.1753)
Number of segments	-0.1776* (0.0934)	0.3794 (0.3484)	-0.0791 (0.7737)	1.5328*** (0.0098)	0.2336 (0.4525)	-0.2011* (0.0618)	-0.3363 (0.2603)	-0.0097 (0.9647)	-0.3936 (0.2529)	-1.0679*** (0.0010)
Business relationship (0,1)	1.2113** (0.0159)	-0.3453 (0.2355)	-0.1008 (0.6313)	-0.2021 (0.4788)	-0.8839*** (0.0026)	1.2361** (0.0148)	2.9194** (0.0150)	1.1701 (0.2811)	2.9018 (0.1588)	3.3394*** (0.0058)
Unique industry (0,1)	-0.3520 (0.5351)	-1.9911 (0.2414)	-0.4483 (0.6960)	1.1285 (0.5102)	-1.1339 (0.4018)	-0.3321 (0.5717)	-2.1500 (0.1779)	-0.4180 (0.7205)	-1.1914 (0.5219)	-0.5311 (0.7102)

New economy industry (0,1)	-0.7032 (0.2371)	-5.0394*** (0.0034)	2.3220 (0.1283)	0.5658 (0.6470)	-4.1324** (0.0250)	-0.5380 (0.3748)	-2.0246 (0.1361)	2.3719 (0.1279)	2.4538* (0.0994)	-5.5600*** (0.0086)
<i>Acquirer characteristics</i>										
Size	-0.0006 (0.9966)	0.9111*** (0.0087)	-0.1348 (0.7247)	1.2310** (0.0267)	0.4038 (0.3750)	-0.0113 (0.9397)	0.4222 (0.1956)	-0.4513 (0.2778)	0.4515 (0.2448)	1.2031** (0.0333)
Q	0.0310 (0.5662)	-0.0672 (0.5554)	0.2400** (0.0447)	0.2488* (0.0722)	-0.0915 (0.5253)	0.0474 (0.3546)	-0.2172** (0.0470)	0.2486** (0.0390)	0.0964 (0.4443)	-0.2209 (0.1576)
Leverage	-0.9313 (0.4165)	-5.8608 (0.1124)	1.9804 (0.4366)	-12.6925** (0.0152)	-3.1982 (0.2818)	-0.5887 (0.6091)	-3.6641 (0.2288)	2.2180 (0.3738)	-5.4461 (0.1671)	-3.1542 (0.2883)
Prior year excess return	-0.2887 (0.1529)	-0.3350 (0.4584)	-3.0247*** (0.0028)	-1.4641** (0.0248)	-2.7519*** (0.0044)	-1.0604*** (0.0034)	-0.9804 (0.1239)	-3.1509*** (0.0023)	-3.9179*** (0.0037)	-3.1232*** (0.0044)
G index	0.0495 (0.3885)	-0.3943 (0.1284)	0.4077* (0.0883)	-0.7014*** (0.0060)	0.1529 (0.3116)	0.0598 (0.3081)	-0.3347 (0.1824)	0.4046 (0.1126)	-0.6472** (0.0214)	0.1145 (0.4882)
Board size	-0.0253 (0.7050)	0.0337 (0.8611)	0.1413 (0.3825)	0.1112 (0.5248)	-0.2208 (0.2214)	-0.0187 (0.7821)	0.0034 (0.9822)	0.1007 (0.5286)	-0.0001 (0.9996)	-0.3169 (0.1150)
<i>Deal & market characteristics</i>										
Relative size (Target/Acquirer)	0.3898 (0.2895)	1.0816 (0.4541)	-0.0791 (0.9371)	1.5867 (0.5504)	1.2389 (0.4404)	0.4144 (0.2867)	0.6009 (0.5185)	-0.8047 (0.4814)	0.7947 (0.2709)	3.8043** (0.0317)
Tender offer (0,1)	-2.1483* (0.0826)	-5.0626** (0.0101)	1.2191 (0.1762)	1.2520 (0.3552)	-0.0687 (0.9548)	0.5743 (0.2690)	-2.3278** (0.0192)	0.1185 (0.8968)	-5.5495*** (0.0004)	-1.6441* (0.0834)
Cash only payment (0,1)	0.5711 (0.2714)	-2.2423* (0.0514)	-0.1390 (0.8739)	-7.9637*** (0.0003)	-1.2612 (0.1675)	-1.3066*** (0.0015)	-2.0749* (0.0548)	2.0870 (0.1040)	-1.3090 (0.2702)	2.9263** (0.0339)
Stock only payment (0,1)	-1.2504*** (0.0021)	-2.9660** (0.0367)	2.2497* (0.0834)	-0.3326 (0.7752)	2.6210** (0.0341)	0.0379 (0.9334)	-5.5508 (0.9483)	-3.9168 (0.1825)	-12.8861 (0.9393)	-1.6643 (0.6409)
Hostile (0,1)	-0.2007 (0.6556)	-2.8939 (0.9806)	-4.6622 (0.1115)	-5.6847 (0.9335)	-0.3858 (0.8943)	-2.4559* (0.0604)	-2.3822* (0.0850)	1.3011 (0.1635)	1.4817 (0.3516)	0.0272 (0.9840)
Target termination fee (0,1)	-0.0652 (0.8986)	-0.6830 (0.6082)	-0.2763 (0.8000)	2.5097* (0.0983)	-1.5901 (0.1766)	0.0302 (0.9533)	0.6061 (0.6095)	-0.2976 (0.7854)	1.7317 (0.2504)	-2.3126* (0.0843)
Acquirer termination fee (0,1)	0.4351 (0.2796)	0.9802 (0.3471)	2.0639** (0.0263)	5.8508*** (0.0054)	1.5835* (0.0947)	0.3597 (0.3774)	0.1002 (0.9070)	2.3264** (0.0156)	5.2010*** (0.0156)	1.7463* (0.0679)
Same industry (0,1)	-0.1744 (0.6549)	0.1115 (0.9084)	0.8759 (0.2727)	-1.7869 (0.1454)	1.0867 (0.2234)	-0.2154 (0.5909)	-0.4580 (0.6358)	1.0166 (0.1965)	-2.1076* (0.0957)	1.2860 (0.1567)
Target industry liquidity	0.0420 (0.9697)	-0.3824 (0.9196)	-0.5924 (0.8037)	4.6481 (0.3372)	1.1760 (0.6504)	-0.3901 (0.7301)	-0.8125 (0.7782)	-0.1490 (0.9513)	1.8034 (0.6289)	0.0852 (0.9746)
Macroeconomic change	0.0053 (0.9531)	-0.0979 (0.6714)	0.3907** (0.0487)	-0.0817 (0.6987)	0.5217** (0.0310)	0.0066 (0.9423)	0.1089 (0.6309)	0.3785* (0.0655)	-0.2663 (0.2881)	0.6490** (0.0234)
Constant	-1.6435 (0.6590)	-3.7985 (0.9844)	3.2480 (0.9905)	-14.4484 (0.8853)	7.8631 (0.9769)	1.1404 (0.7621)	3.9345 (0.9841)	1.7516 (0.9949)	-3.6243 (0.9894)	9.2199 (0.9729)
Year and industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	355	180	175	163	192	355	180	175	163	192
Regression's p-value	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Table 4: Target CEO retention and acquirer announcement returns

The sample consists of 355 mergers and acquisitions announced during 1999-2008 described in Table 1. In Panel A, models (1) and (2) use the full sample. Models (3) and (4) use subsamples of whether the target CEO's SAT score is above the sample median. Models (5) and (6) use subsamples of whether the target's operation is efficient. We run OLS regressions of acquirer announcement returns similar to those in Moeller, Schlingemann, and Stulz (2005) and Masulis, Wang, and Xie (2007). The dependent variable is the acquirer's cumulative abnormal return over the three days around the merger announcement date. The main independent variable is a retention indicator that is one if the target CEO obtains a job in the combined firm after the deal completion. The target CEO retention instrument is the fitted value obtained from the first-stage determinant of target CEO retention regression in Table 3 Panel A Model (1). In Panel B, the target CEO retention indicator is interacted with a merger wave indicator. Harford (2005) provides a measure of clustered merger activity that specifies year, month, and industry of a merger wave. A merger is part of a merger wave if it the acquirer belongs to the affected industry and the merger was announced any time between six months before or after the date that is identified by Harford (2005). All other variables are defined in Appendix A. We report *p*-values in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Target CEO managerial ability and target efficiency

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Dependent variable = Acquirer CAR [-1,+1]	<i>All</i> <i>targets</i>	<i>All</i> <i>targets</i>	<i>High SAT</i> <i>target CEOs</i>	<i>Low SAT</i> <i>target CEOs</i>	<i>Efficient</i> <i>targets</i>	<i>Inefficient</i> <i>targets</i>
Target CEO retention (0,1)	-0.0176** (0.0170)		0.0009 (0.9474)	-0.0279*** (0.0067)	-0.0133 (0.2654)	-0.0256** (0.0328)
Target CEO retention instrument		-0.0546*** (0.0032)				
<i>Deal and market characteristics</i>						
Relative size (Target/Acquirer)	0.0029 (0.6887)	0.0050 (0.4930)	-0.0582** (0.0127)	0.0084 (0.3185)	-0.0008 (0.9211)	-0.0384 (0.1438)
Cash only payment (0,1)	0.0175* (0.0564)	0.0189** (0.0367)	0.0101 (0.5230)	0.0391*** (0.0039)	0.0213** (0.0142)	0.0267*** (0.0069)
Stock only payment (0,1)	-0.0029 (0.7668)	-0.0023 (0.8102)	-0.0067 (0.7110)	0.0072 (0.6372)	0.0076 (0.6073)	-0.0015 (0.9319)
Tender offer (0,1)	0.0030 (0.7899)	0.0054 (0.6264)	0.0162 (0.4393)	-0.0195 (0.2988)	0.0091 (0.6013)	0.0037 (0.8562)
Hostile deal (0,1)	0.0082 (0.7172)	-0.0059 (0.8006)	-0.0118 (0.8190)	-0.0090 (0.7714)	0.0218 (0.4918)	0.0284 (0.5250)
Competed deal (0,1)	-0.0133 (0.3325)	-0.0085 (0.5345)	0.0199 (0.5409)	0.0248 (0.1754)	-0.0277 (0.1989)	0.0016 (0.9478)
Toehold (0,1)	0.0154 (0.5667)	0.0146 (0.5840)	-0.0073 (0.8753)	-0.0312 (0.4200)	-0.0262 (0.4970)	0.0084 (0.8624)
Rumor (0,1)	0.0427*** (0.0038)	0.0433*** (0.0032)	0.0824*** (0.0004)	-0.0242 (0.3484)	0.0651*** (0.0008)	0.0454 (0.1744)
Same industry (0,1)	-0.0001 (0.9884)	-0.0024 (0.7843)	0.0248 (0.1014)	-0.0080 (0.5142)	0.0031 (0.7928)	-0.0118 (0.5057)
Target industry liquidity	-0.0184 (0.3479)	-0.0178 (0.3619)	-0.0181 (0.5658)	-0.0126 (0.7023)	-0.0286 (0.2180)	-0.0552 (0.1913)
Macroeconomic change	0.0033 (0.1121)	0.0031 (0.1423)	0.0045 (0.2488)	0.0035 (0.2136)	0.0028 (0.3378)	0.0079** (0.0439)
<i>Acquirer characteristics</i>						
Size	-0.0135*** (0.0001)	-0.0138*** (0.0001)	0.0083 (0.1472)	0.0161*** (0.0015)	-0.0088* (0.0523)	-0.0017 (0.7987)
Q	-0.0027 (0.1458)	-0.0028 (0.1249)	-0.0055 (0.1517)	-0.0100** (0.0361)	-0.0021 (0.5549)	-0.0001 (0.9865)
Leverage	0.0062 (0.7984)	-0.0024 (0.9207)	-0.0456 (0.2387)	0.0056 (0.8971)	-0.0113 (0.7390)	0.0437 (0.3503)
Operating efficiency (0,1)	-0.0094 (0.2026)	-0.0130* (0.0850)	-0.0082 (0.5635)	-0.0034 (0.7495)	-0.0315*** (0.0095)	-0.0042 (0.7233)
OCF	0.0297 (0.1789)	0.0247 (0.2616)	0.0375 (0.2995)	0.0631 (0.1371)	0.0619* (0.0912)	0.0000 (0.9993)

G index	-0.0002 (0.8777)	0.0000 (0.9703)	0.0014 (0.4830)	0.0008 (0.6992)	0.0010 (0.6004)	-0.0023 (0.3573)
Prior year excess return	0.0108 (0.1567)	0.0072 (0.3538)	0.0069 (0.4731)	0.0248** (0.0265)	0.0067 (0.4997)	0.0045 (0.7706)
Acquirer competitive ind. (0,1)	0.0180* (0.0520)	0.0173* (0.0596)	-0.0004 (0.9887)	0.0388*** (0.0045)	0.0535** (0.0277)	0.0198 (0.2071)
Acquirer unique ind. (0,1)	-0.0091 (0.3906)	-0.0085 (0.4197)	-0.0177 (0.4998)	0.0146 (0.3731)	-0.0125 (0.5612)	-0.0094 (0.6546)
<i>Target characteristics</i>						
Size	-0.0147*** (0.0001)	-0.0145*** (0.0001)	-0.0049 (0.4695)	-0.0166*** (0.0012)	-0.0093* (0.0847)	-0.0102 (0.1398)
Q	-0.0086** (0.0162)	-0.0072** (0.0453)	-0.0164*** (0.0056)	-0.0039 (0.5343)	-0.0093** (0.0471)	-0.0025 (0.7741)
Leverage	0.0014 (0.9435)	-0.0158 (0.4642)	-0.0175 (0.5992)	0.0034 (0.9162)	-0.0255 (0.4050)	-0.0412 (0.2899)
Operating efficiency (0,1)	0.0041 (0.5751)	0.0045 (0.5345)	0.0168 (0.2339)	-0.0070 (0.5779)		
OCF	-0.0412* (0.0667)	-0.0390* (0.0797)	0.0119 (0.7709)	-0.0608* (0.0579)	0.0089 (0.8152)	-0.0586 (0.1093)
G index	-0.0018 (0.1811)	-0.0014 (0.3251)	-0.0027 (0.2731)	-0.0007 (0.7423)	-0.0007 (0.7275)	-0.0036 (0.1715)
Prior year excess return	0.0026 (0.6343)	0.0034 (0.5256)	-0.0031 (0.7408)	0.0050 (0.5369)	0.0056 (0.4948)	-0.0010 (0.9247)
Number of segments	0.0001 (0.9691)	-0.0007 (0.7687)	-0.0012 (0.8128)	-0.0018 (0.5519)	0.0065* (0.0872)	-0.0025 (0.5308)
Business relationship (0,1)	-0.0058 (0.5821)	-0.0038 (0.7174)	0.0181 (0.3626)	-0.0065 (0.6987)	-0.0187 (0.2155)	-0.0153 (0.4578)
Constant	-0.0468 (0.5500)	-0.0223 (0.7768)	0.0604 (0.5071)	-0.0200 (0.7654)	0.0332 (0.6570)	0.2152** (0.0276)
Heckman self-selectivity	Yes	No	Yes	Yes	Yes	Yes
Year and industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	355	355	174	181	184	171
Regression's p-value	0.0001	0.0001	0.0044	0.0056	0.0051	0.0037

Panel B: Target CEO retention within and outside merger waves

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Dependent variable = Acquirer CAR [-1,+1]	<i>All targets</i>	<i>All targets</i>	<i>High SAT target CEOs</i>	<i>Low SAT target CEOs</i>	<i>Efficient targets</i>	<i>Inefficient targets</i>
Within wave × Retention (0,1)	-0.0186* (0.0587)		0.0002 (0.8910)	-0.0359** (0.0336)	-0.0286 (0.1083)	-0.0411* (0.0588)
Outside wave × Retention (0,1)	-0.0172** (0.0133)		-0.0055 (0.5888)	-0.0253** (0.0116)	-0.0111 (0.2910)	-0.0225** (0.0448)
Within wave × Retention instrument		-0.0488*** (0.0025)				
Outside wave × Retention instrument		-0.0578*** (0.0002)				
p-value for the difference between within and outside wave	0.9078	0.5054	0.7859	0.5688	0.3230	0.4398
Other controls as in Panel A	Yes	Yes	Yes	Yes	Yes	Yes
N	355	355	174	181	184	171
Regression's p-value	0.0001	0.0001	0.0148	0.0031	0.0060	0.0058

Table 5: Target CEO retention and post-merger operating performance

The sample consists of 355 mergers and acquisitions announced during 1999-2008 described in Table 1. Model (1) uses the full sample. Models (2) and (3) use subsamples of whether the target CEO's SAT score is above the sample median. Models (4) and (5) use subsamples of whether the target's operation is efficient. We run OLS regressions of post-merger operating performance similar to those in Healy, Palepu and Ruback (1992) and Harford, Humphrey-Jenner, and Powell (2012). The mean industry-adjusted ROA over the 3-year post-merger period is regressed on the combined acquirer-target industry-adjusted ROA for the fiscal year before the acquisition and other controls. The industry-adjusted ROA for each fiscal year before the merger is a weighted average of the industry-adjusted ROAs of the acquirer and target, with the weights being their relative total market value of assets of that fiscal year. The main independent variable is a retention indicator that is one if the target CEO obtains a job in the combined firm after the deal completion. All other variables are defined in Appendix A. We report *p*-values in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Dependent variable = Post merger operating performance	<i>All targets</i>	<i>High SAT target CEOs</i>	<i>Low SAT target CEOs</i>	<i>Efficient targets</i>	<i>Inefficient targets</i>
Target CEO retention (0,1)	-0.0219** (0.0436)	-0.0153 (0.3814)	-0.0271** (0.0440)	-0.0070 (0.7197)	-0.0295** (0.0174)
Pre-merger industry-adj ROA	0.3833*** (0.0001)	0.3532*** (0.0001)	0.4926*** (0.0001)	0.3931*** (0.0001)	0.3333*** (0.0001)
<i>Deal and market characteristics</i>					
Relative size (Target / Acquirer)	0.0441*** (0.0059)	0.0124 (0.5467)	0.0475* (0.0569)	0.0791*** (0.0015)	-0.0016 (0.9425)
Cash only payment (0,1)	0.0018 (0.8584)	0.0057 (0.6982)	-0.0053 (0.6865)	-0.0297* (0.0769)	0.0023 (0.8421)
Stock only payment (0,1)	0.0027 (0.7904)	0.0018 (0.9072)	0.0260* (0.0834)	-0.0233 (0.1806)	0.0268** (0.0399)
Tender offer (0,1)	0.0089 (0.4505)	-0.0036 (0.8394)	0.0368* (0.0211)	0.0054 (0.7801)	0.0219 (0.1671)
Hostile deal (0,1)	0.0183 (0.4448)	0.1164** (0.0306)	0.0512* (0.0807)	0.0230 (0.5534)	0.0104 (0.7698)
Competed deal (0,1)	0.0146 (0.3199)	0.0424 (0.1162)	-0.0284* (0.0998)	0.0585** (0.0139)	-0.0151 (0.4322)
Toehold (0,1)	-0.0588** (0.0380)	-0.1494** (0.0272)	-0.0593 (0.1164)	-0.0758* (0.0945)	-0.0021 (0.9552)
Rumor (0,1)	0.0097 (0.5358)	0.0248 (0.2357)	0.0088 (0.7136)	0.0059 (0.7715)	0.0080 (0.7497)
Same industry (0,1)	0.0007 (0.9410)	-0.0117 (0.3876)	0.0107 (0.3488)	0.0185 (0.1681)	-0.0073 (0.5925)
Target industry liquidity	0.0043 (0.8360)	-0.0032 (0.9286)	0.0188 (0.4627)	0.0331 (0.3418)	0.0404 (0.1728)
Macroeconomic change	0.0035* (0.0665)	0.0035 (0.1909)	0.0073*** (0.0089)	0.0056** (0.0251)	0.0029 (0.3240)
<i>Acquirer characteristics</i>					
Size	0.0098** (0.0180)	0.0067 (0.2372)	0.0076 (0.1952)	0.0214*** (0.0018)	0.0030 (0.5809)
Q	0.0027*** (0.0086)	0.0030* (0.0645)	0.0008 (0.5374)	0.0034 (0.1158)	0.0013 (0.2268)
Leverage	-0.0205 (0.4292)	-0.0223 (0.5379)	0.0075 (0.8667)	-0.0603 (0.1441)	0.0374 (0.2897)
Operating efficiency (0,1)	0.0198** (0.0122)	0.0222* (0.0680)	0.0076 (0.4713)	0.0377*** (0.0048)	0.0057 (0.5265)
OCF	0.0581** (0.0225)	0.0557* (0.0999)	0.0399 (0.2777)	0.0233 (0.5570)	0.0293 (0.4005)
G index	0.0020 (0.1489)	0.0037* (0.0643)	0.0014 (0.4886)	0.0017 (0.4331)	0.0025 (0.1997)
Acquirer competitive ind. (0,1)	-0.0059 (0.5588)	0.0021 (0.8919)	0.0184 (0.4020)	-0.0171 (0.2938)	0.0073 (0.5607)

Acquirer unique industry (0,1)	0.0074 (0.5230)	0.0204 (0.2075)	-0.0114 (0.6411)	0.0315* (0.0720)	-0.0043 (0.8012)
<i>Target characteristics</i>					
Size	-0.0033 (0.4503)	0.0010 (0.8726)	-0.0064 (0.2882)	-0.0099 (0.1738)	-0.0027 (0.6192)
Q	0.0003 (0.2512)	0.0001 (0.7604)	-0.0009 (0.2413)	-0.0003 (0.4123)	-0.0008 (0.3535)
Leverage	0.0096 (0.6553)	0.0257 (0.3970)	-0.0305 (0.3058)	0.0369 (0.3165)	0.0131 (0.6482)
Operating efficiency (0,1)	-0.0002 (0.9836)	0.0031 (0.8134)	0.0004 (0.9732)		
OCF	0.0062 (0.7931)	0.0379 (0.3316)	-0.0092 (0.7456)	0.0901* (0.0591)	-0.0311 (0.2380)
G index	-0.0015 (0.2850)	-0.0013 (0.5286)	-0.0033 (0.1086)	-0.0026 (0.2489)	-0.0033 (0.1044)
Number of segments	-0.0063** (0.0116)	-0.0047 (0.2740)	-0.0020 (0.5373)	-0.0079* (0.0675)	-0.0029 (0.3391)
Business relationship (0,1)	0.0004 (0.9728)	-0.0072 (0.6717)	0.0092 (0.5711)	0.0213 (0.2246)	-0.0015 (0.9240)
Constant	-0.0768 (0.3740)	-0.0921 (0.3976)	-0.0159 (0.7904)	-0.3410*** (0.0041)	-0.0075 (0.9138)
Heckman self-selectivity	Yes	Yes	Yes	Yes	Yes
Year and industry fixed effects	Yes	Yes	Yes	Yes	Yes
N	355	174	181	184	171
Regression's p-value	0.0001	0.0001	0.0001	0.0001	0.0001

Table 6: Target CEO retention and acquisition premiums

The sample consists of 355 mergers and acquisitions announced during 1999-2008 described in Table 1. Models (1)-(3) use the full sample. Models (4) and (5) use subsamples of whether the target CEO's SAT score is above the sample median. Models (6) and (7) use subsamples of whether the target's operation is efficient. We run OLS regressions of acquisition premiums similar to those in Barger, Schlingemann, Stulz, and Zutter (2010). The dependent variable in Model (1) and Model (2) is the target's cumulative abnormal return over the three days [-1,+1] around the merger announcement date and over the period [-42,+126] around the merger announcement date, respectively. The dependent variable in Models (3)-(7) is the acquisition premium reported by SDC, calculated as the offer price divided by the target's stock price four weeks before the merger announcement date. The main independent variable is a retention indicator that is one if the target CEO obtains a job in the combined firm after the deal completion. All other variables are defined in Appendix A. We report *p*-values in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable =	<i>CAR</i> [-1,1]	<i>CAR</i> [-42,126]	SDC four-week final offer premium				
	Model (1) <i>All targets</i>	Model (2) <i>All targets</i>	Model (3) <i>All Targets</i>	Model (4) <i>High SAT target CEOs</i>	Model (5) <i>Low SAT target CEOs</i>	Model (6) <i>Efficient targets</i>	Model (7) <i>Inefficient targets</i>
Target CEO retention (0,1)	-0.0017 (0.9585)	-0.0723 (0.3013)	0.0471 (0.3057)	0.1456 (0.2466)	-0.0099 (0.9484)	0.0916 (0.2637)	0.0825 (0.2140)
<i>Target characteristics</i>							
Size	-0.0324*** (0.0060)	-0.0280 (0.2552)	-0.0442*** (0.0065)	-0.0428 (0.1147)	-0.0548** (0.0194)	-0.0546** (0.0397)	-0.0207 (0.4484)
Q	-0.0191* (0.0956)	-0.0638*** (0.0082)	-0.0036 (0.8214)	-0.0145 (0.4883)	0.0219 (0.4611)	0.0167 (0.4281)	0.0066 (0.8369)
Leverage	0.0221 (0.7371)	-0.0951 (0.4912)	0.0895 (0.3243)	0.1308 (0.3175)	-0.0110 (0.9475)	-0.0228 (0.8736)	0.2254 (0.1505)
Operating efficiency (0,1)	0.0101 (0.6767)	-0.0334 (0.5100)	-0.0127 (0.7023)	0.0721 (0.1916)	0.0340 (0.5822)		
OCF	-0.0595 (0.4156)	-0.1547 (0.3139)	-0.0938 (0.3528)	0.3846** (0.0196)	-0.4339*** (0.0041)	-0.0143 (0.9398)	-0.1655 (0.2376)
G index	0.0040 (0.3775)	0.0040 (0.6711)	-0.0055 (0.3778)	-0.0086 (0.3733)	-0.0146 (0.1496)	-0.0088 (0.3656)	-0.0145 (0.1763)
Prior year excess return	0.0046 (0.8584)	-0.1430*** (0.0090)	-0.1023*** (0.0045)	-0.2248*** (0.0001)	-0.1059* (0.0570)	-0.1874*** (0.0032)	-0.1065* (0.0580)
Number of segments	-0.0027 (0.7231)	0.0069 (0.6675)	-0.0026 (0.8052)	0.0004 (0.9833)	-0.0139 (0.3234)	-0.0044 (0.8078)	0.0002 (0.9877)
Business relationship (0,1)	0.0496 (0.1407)	0.0368 (0.6021)	0.0625 (0.1784)	-0.0637 (0.3856)	0.1945*** (0.0088)	0.0392 (0.5819)	0.0843 (0.2839)
<i>Acquirer characteristics</i>							
Size	0.0227** (0.0278)	-0.0001 (0.9957)	0.0201 (0.1579)	0.0304 (0.1745)	0.0212 (0.3618)	0.0446** (0.0450)	0.0305 (0.2612)
Q	0.0087 (0.1490)	-0.0045 (0.7205)	-0.0009 (0.9141)	-0.0478*** (0.0022)	0.0182 (0.4143)	-0.0481*** (0.0068)	0.0142 (0.2653)
Leverage	0.0324 (0.6846)	0.1366 (0.4149)	0.1010 (0.3588)	0.0375 (0.8117)	0.4206** (0.0450)	-0.1148 (0.5015)	0.0871 (0.6359)

Operating efficiency (0,1)	0.0081 (0.7365)	0.0573 (0.2551)	0.0551* (0.0963)	0.1014* (0.0535)	0.0142 (0.7902)	0.0631 (0.2489)	0.0156 (0.7471)
OCF	0.0425 (0.5518)	0.2635* (0.0800)	0.0412 (0.6762)	-0.0870 (0.5140)	0.2775 (0.1597)	0.0305 (0.8354)	0.1573 (0.3570)
G index	-0.0019 (0.6526)	0.0030 (0.7325)	-0.0021 (0.7162)	0.0077 (0.3646)	-0.0067 (0.4859)	0.0041 (0.6569)	-0.0135 (0.1871)
Prior year excess return	0.0439* (0.0930)	0.0002 (0.9972)	0.0441 (0.2208)	0.0577 (0.1741)	0.0047 (0.9310)	0.0879* (0.0796)	0.0449 (0.4938)
<i>Deal and market characteristics</i>							
Relative size (Target / Acquirer)	-0.0000 (0.9986)	-0.0239 (0.6304)	-0.0005 (0.9870)	-0.0018 (0.9836)	0.0099 (0.8106)	-0.0054 (0.8909)	-0.0440 (0.6802)
Cash only payment (0,1)	0.0408 (0.1780)	0.0189 (0.7658)	0.0464 (0.2669)	-0.0914 (0.2027)	0.0877 (0.2068)	0.0543 (0.4418)	0.0337 (0.5773)
Stock only payment (0,1)	-0.0208 (0.5212)	-0.0467 (0.4926)	-0.0104 (0.8157)	-0.0970 (0.1444)	0.0323 (0.6572)	-0.0234 (0.7370)	-0.0143 (0.8423)
Tender offer (0,1)	0.0310 (0.3925)	0.0190 (0.8034)	0.0623 (0.2135)	0.0746 (0.3160)	-0.0034 (0.9692)	0.0247 (0.7592)	0.1903** (0.0231)
Hostile deal (0,1)	0.0600 (0.4170)	0.0149 (0.9236)	0.1997* (0.0510)	0.2656 (0.2006)	0.2489 (0.1061)	0.2331 (0.1415)	0.2186 (0.2336)
Competed deal (0,1)	0.1359*** (0.0026)	0.0742 (0.4303)	0.0754 (0.2228)	0.2392* (0.0505)	-0.0083 (0.9224)	0.0385 (0.6965)	0.2230** (0.0255)
Toehold (0,1)	0.0599 (0.5165)	0.1744 (0.3689)	0.1165 (0.3609)	-1.0562*** (0.0017)	0.2129 (0.2457)	-0.2207 (0.2807)	0.2473 (0.2164)
Target termination fee (0,1)	0.0622* (0.0653)	0.0245 (0.7289)	0.0301 (0.5168)	-0.0526 (0.4327)	0.0950 (0.1842)	0.0270 (0.6789)	0.0986 (0.2218)
Lockup (0,1)	0.0151 (0.9153)	-0.0841 (0.7773)	-0.0496 (0.7996)	-0.0269 (0.9199)	-0.0344 (0.9075)	-0.0520 (0.4553)	0.0211 (0.9188)
Same industry (0,1)	-0.0003 (0.9915)	-0.0631 (0.2868)	-0.0256 (0.5100)	-0.0733 (0.2254)	-0.0327 (0.5737)	0.0389 (0.4809)	-0.1378* (0.0599)
Litigation (0,1)	-0.0535 (0.8102)	-0.3671 (0.4328)	-0.1465 (0.6336)	0.3090 (0.3734)	0.1902 (0.7134)	-0.0341 (0.9194)	-0.0678 (0.7687)
Target industry liquidity index	0.0275 (0.6695)	0.1205 (0.3741)	0.0457 (0.6075)	0.0057 (0.9703)	-0.0454 (0.7720)	-0.0091 (0.9504)	0.1820 (0.2884)
One year macroeconomic change	0.0023 (0.7461)	0.0211 (0.1501)	0.0093 (0.3340)	-0.0056 (0.7183)	0.0145 (0.2846)	0.0132 (0.3440)	0.0013 (0.9370)
Constant	0.0488 (0.8541)	-0.1686 (0.7621)	0.4030 (0.2714)	0.7453 (0.1014)	0.6947** (0.0316)	0.5760 (0.2226)	0.1134 (0.7738)
Heckman self-selectivity	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year and industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	355	355	355	174	181	184	171
Regression's p-value	0.0001	0.0003	0.0001	0.0001	0.0014	0.0025	0.0003

Table 7: Propensity score matching estimates

In Panel A, we report the propensity score matching estimates based on Table 3 Model (1), the sample means of the treatment and control samples, and the p -values of the difference in means. In Panel B, we report the average treatment effects on premiums and acquirer performance where the treatment is defined as situations in which the target CEO is retained in the combined firm after the deal completion. Matching estimates use the Gaussian kernel with a fixed bandwidth of 0.10. We report the p -value of the treatment effects using 500 bootstrap repetitions in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Propensity score model estimates for target CEO retention				
	Dependent variable = Retention (0,1)	Treatment sample mean	Control sample mean	p -value for difference
<i>Target CEO characteristics</i>				
CEO quality	0.8059**	1851.9011	1783.1500	0.1236
Age	-0.0490**	54.2473	54.8286	0.4830
Tenure	0.0417	7.5845	6.5139	0.1732
Chairman (0,1)	0.1060	0.5714	0.5857	0.7977
Founder (0,1)	-0.7524	0.1209	0.1357	0.6933
Equity ownership	0.0133	5.8594	4.0314	0.3322
Side payment	0.0672	0.5769	0.5357	0.5704
<i>Target characteristics</i>				
Size	0.1587	7.9818	7.5310	0.1171
Q	0.0166	3.5136	3.9904	0.7676
Leverage	-2.9862***	0.2088	0.2369	0.1770
Prior year excess return	0.3620	0.0437	0.0102	0.5609
G index	0.0738	8.9341	8.8643	0.8150
Number of segments	-0.1776*	1.6264	2.0429	0.1255
Business relationship (0,1)	1.2113**	0.3407	0.3786	0.4831
Unique industry (0,1)	-0.3520	0.4670	0.4357	0.5771
New economy industry (0,1)	-0.7032	0.2198	0.2143	0.9060
<i>Acquirer characteristics</i>				
Size	-0.0006	10.0938	9.8132	0.1616
Q	0.0310	4.1719	4.1415	0.9484
Leverage	-0.9313	0.2115	0.2157	0.8085
Prior year excess return	-0.2887	0.1877	0.2260	0.7167
G index	0.0495	9.2143	9.2643	0.8690
Board size	-0.0253	9.3187	8.7286	0.0989
<i>Deal & market characteristics</i>				
Relative size (Target/Acquirer)	0.3898	0.3265	0.2663	0.3609
Tender offer (0,1)	-2.1483*	0.1484	0.1857	0.3717
Cash only payment (0,1)	0.5711	0.2637	0.3929	0.1137
Stock only payment (0,1)	-1.2504***	0.2418	0.1786	0.1718
Hostile (0,1)	-0.2007	0.0055	0.0143	0.4172
Target termination fee (0,1)	-0.0652	0.8297	0.8857	0.1589
Acquirer termination fee (0,1)	0.4351	0.2418	0.2214	0.6699
Same industry (0,1)	-0.1744	0.6758	0.6929	0.7456
Target industry liquidity	0.0420	0.4156	0.4286	0.7007
Macroeconomic change	0.0053	2.0387	2.1472	0.7174
Constant	-1.6435			
Year and industry fixed effects	Yes			
N		182	140	

Panel B: Average treatment effect for target CEO retention

Performance measures (Retention = 1 vs. Retention = 0)	Treatment <i>N</i>	Control <i>N</i>	Average treatment effect (<i>p</i> -value)
Acquirer CAR (-1,+1)	182	140	-0.0168** (0.0181)
Merged firm post-deal operating performance (yr-1,yr+3)	182	140	-0.0244** (0.0175)
Four week target premium	182	140	0.0088 (0.7666)

Table 8: Additional analyses on acquirer announcement returns

The sample consists of 355 mergers and acquisitions announced during 1999-2008 described in Table 1. All regressions follow those in Table 4. The dependent variable is the acquirer's cumulative abnormal return over different windows around the merger announcement date, calculated as the residual from the market model estimated during the one year window ending four weeks prior to the merger announcement. The main independent variable is a retention indicator that is one if the target CEO obtains a job in the combined firm after the deal completion. Panel A presents results using alternative measures of acquirer announcement returns during [-2,+2] and [-5,+5]. Panel B presents subsample regressions based on whether the target CEO's pay slice is above the median pay slice of all CEOs in the Execucomp database. Panel C presents subsample regressions based on whether the target CEO has at least one outside directorship. All other variables are defined in Appendix A. We report *p*-values in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Alternative measures of acquirer announcement returns						
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Dependent variable = Acquirer <i>CAR</i> [-2,+2]	<i>All targets</i>	<i>All targets</i>	<i>High SAT target CEOs</i>	<i>Low SAT target CEOs</i>	<i>Efficient targets</i>	<i>Inefficient targets</i>
Target CEO retention (0,1)	-0.0219** (0.0102)		0.0043 (0.7586)	-0.0363*** (0.0025)	-0.0201 (0.1599)	-0.0289** (0.0291)
Target CEO retention instrument		-0.0618*** (0.0036)				
Dependent variable = Acquirer <i>CAR</i> [-5,+5]	<i>All targets</i>	<i>All targets</i>	<i>High SAT target CEOs</i>	<i>Low SAT target CEOs</i>	<i>Efficient targets</i>	<i>Inefficient targets</i>
Target CEO retention (0,1)	-0.0368*** (0.0003)		-0.0195 (0.2277)	-0.0508*** (0.0011)	-0.0250 (0.1354)	-0.0343** (0.0388)
Target CEO retention instrument		-0.0546** (0.0324)				
Other controls as in Table 4	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	355	355	174	181	184	171
Panel B: Target CEO retention, pay slice, and acquirer announcement returns						
	Dependent variable = Acquirer <i>CAR</i> [-1,+1]					
	Model (1)					Model (2)
	<i>Target CEOs with high pay slice</i>					<i>Target CEOs with low pay slice</i>
Target CEO retention (0,1)	-0.0051 (0.6235)					-0.0286* (0.0764)
Other controls as in Table 4	Yes					Yes
<i>N</i>	194					161
Panel C: Target CEO retention, outside directorship, and acquirer announcement returns						
	Dependent variable = Acquirer <i>CAR</i> [-1,+1]					
	Model (1)					Model (2)
	<i>Target CEOs with outside directorship</i>					<i>Target CEOs without outside directorship</i>
Target CEO retention (0,1)	-0.0036 (0.9419)					-0.0214*** (0.0071)
Other controls as in Table 4	Yes					Yes
<i>N</i>	71					284

Appendix A: Variable definition

<u>Target CEO retention</u>	
Retention (0,1)	one if the target CEO obtains a job in the combined firm after the deal completion
Retention instrument	the fitted value obtained from the first-stage determinant of target CEO retention regression in Table 3 Panel A Model (1).

<u>Target CEO quality proxies</u>	
SAT score	the scholastic aptitude test score of the undergraduate institution the target CEO attended
Operating efficiency (0,1)	Following Habib and Ljungqvist (2005) and Demerjian, Lev, and McVay (2012), we estimate how far a firm operates from its efficient frontier using a Data Envelopment Analysis technique. Each year, a firm is considered efficient if its distance from frontier efficiency is above the industry median. More detailed description on operating efficiency is in Appendix B.
Pay slice	the proportion of the target CEO's total pay among the top five executives as in Bebchuk, Cremers, and Peyer (2011)
Outside directorships	the number of outside directorships by the target CEO

<u>Target CEO characteristics</u>	
Chairman (0,1)	one if the target CEO is also the chairman of the board
Founder (0,1)	one if the target CEO is among the firm's founders
Age	the target CEO's age
Tenure	the number of years the target CEO has been in the chief executive position
Equity ownership	the percentage of equity owned by the CEO as reported in the most recent annual proxy before the merger
Side payment	the sum of three dummy variables that indicate whether the target CEO receives a golden parachute augmentation, a special merger bonus, or unscheduled option grants during merger negotiations

<u>Deal characteristics</u>	
SDC's four week final offer premium	the offer price divided by the target's stock price four weeks before the merger announcement date, as reported by SDC and limited between 0% and 200%
Merger synergy	the three day <i>CAR</i> for a value-weighted portfolio of the acquirer and the target around the merger announcement date similar to the method of Bradley, Desai, and Kim (1988)
Target CAR	the target's cumulative abnormal return over the window around the merger announcement date, calculated as the residual from the market model estimated during the one year window ending four weeks prior to the merger announcement
Acquirer CAR	the acquirer's cumulative abnormal return over the window around the merger announcement date, calculated as the residual from the market model estimated during the one year window ending four weeks prior to the merger announcement
Completion (0,1)	one if the announced deal is completed
Relative size	the target's size divided by the acquirer's size
Target termination fee (0,1)	one if the target has a termination fee provision in the merger contract
Acquirer termination fee (0,1)	one if the acquirer has a termination fee provision in the merger contract
Lockup (0,1)	one if the deal includes a lockup of target or acquirer shares
Prior bidding (0,1)	one if the deal follows a prior bid within one year
Toehold (0,1)	one if the bidder owns a fraction of the target's shares

Cash payment (0,1)	one if the deal is paid entirely in cash
Stock payment (0,1)	one if the deal is paid entirely in stock
Tender offer (0,1)	one if the form of the deal is tender offer
Merger of equals (0,1)	one if the deal is classified by SDC as a merger of equals
Litigation (0,1)	one if the deal is involved in litigation reported by SDC
Same industry (0,1)	one if both the target and the acquirer belong to the same Fama and French (1997) 48 industrial classification group
<hr/> <i>Market characteristics</i>	
Target industry liquidity	the liquidity of the market for corporate control for the target firm's industry. This variable is defined as the value of all corporate control transactions for US\$1 million or more reported by SDC for each year and industry divided by the total book value of assets of all Compustat firms in the same industry and year, as in Schlingemann, Stulz and Walkling (2002)
Macroeconomic change	the difference in the industrial production index over one year period before the merger
<hr/> <i>Firm characteristics</i>	
Size	the natural logarithm of the market value of assets
Leverage	the book value of debt divided by the sum of book value of debt and market value of equity.
Q	the market value of assets divided by the book value of assets
Prior year excess return	the cumulative abnormal return during the one year window ending four weeks prior to the merger announcement, calculated as the residual from the market model estimated during the year before
Operating cash flow	the cash flow from operations scaled by the value of assets
Number of segments	the number of segments reported by the firm
Business relationship (0,1)	one if the target operates in an industry with sales of more than 1% of its output to the industry of the acquirer based on the input-output matrices produced by the U.S. Bureau of Economic Analysis
Competitive industry (0,1)	one if the firm's industry is in the bottom quartile of all industries sorted annually by the Herfindahl index. An industry's Herfindahl index is computed as the sum of squared market shares of all firms in the industry using data on sales (as in Masulis, Wang and Xie, 2007)
Unique industry (0,1)	one if the firm's industry is in the top quartile of all industries sorted annually by industry-median product uniqueness. Product uniqueness is defined as selling expenses scaled by sales (as in Masulis, Wang and Xie, 2007)
New economy industry (0,1)	one for firms with primary SIC codes of 3570, 3571, 3572, 3576, 3577, 3661, 3674, 4812, 4813, 5045, 5961, 7370, 7371, 7372, and 7373 as in Murphy (2003)
High tech industry (0,1)	one if acquirer and target are both from high tech industries defined by Loughran and Ritter (2004)
G index	the sum of the presence of 24 antitakeover provisions tracked by IRRC as in Gompers, Ishii, and Metrick (2003)
Board size	the number of directors on the board.
<hr/> <i>Other variables</i>	
Heckman self-selectivity	the Heckman (1981) lambda obtained from a two stage estimation process. In the first-stage, we estimate the probability of retention as in Table 3. In the second stage, the inverse Mill's ratio from the first stage model is included in the estimation as a variable to control for self-selection.

Appendix B: Firm's operating efficiency

Following Habib and Ljungqvist (2005) and Demerjian, Lev, and McVay (2012), we estimate how far a firm operates from its efficient frontier using the Data Envelopment Analysis (DEA) technique. The efficient frontier shows the optimal quantity of inputs needed to produce a given level of output. The DEA's output is revenue and its inputs include (1) net properties, plant and equipment, (2) capitalized operating leases, (3) five year capitalization of R&D expenses, (4) purchased goodwill, (5) other acquired and capitalized intangibles, (6) cost of goods sold, and (7) selling, general, and administrative costs. The DEA method identifies the most efficiently operating firms in each industry/year and assigns each firm an efficiency measure between 0 (inefficient) and 1 (fully efficient). Each year, a firm is considered efficient if its distance from the frontier efficiency (the efficiency measure) is equal or above the industry median.

	N	Mean	Q1	Median	Q3	Std
<u>Compustat firm-fiscal years 1998-2007</u>						
Efficiency	64715	0.5797	0.1975	0.6918	0.9132	0.3693
Efficient (0,1)	64715	0.5529				
<u>Sample targets</u>						
Efficiency	355	0.6249	0.3716	0.7399	0.9120	0.3476
Efficient (0,1)	355	0.5183				
<u>Sample acquirers</u>						
Efficiency	355	0.6428	0.4169	0.7554	0.9242	0.3408
Efficient (0,1)	355	0.5493				