

See the Gap: Firm Returns and Shareholder Incentives

Finance Working Paper N° 1018/2024

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Abstract

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Abstract

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Keywords: Institutional investors, mergers and acquisitions, trading, incentives.

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1 Introduction

Many studies evaluate shareholder incentives by analyzing firm stock returns associated with major corporate events such as mergers and acquisitions (M&A), investment announcements, R&D activities, leverage changes, and external financing decisions. The logic appears straightforward: shareholders are presumed to support corporate events that generate positive firm returns and oppose those that lead to negative returns. However, this approach implicitly relies on a critical, often overlooked assumption: that incumbent shareholders experience the same return as the firm only if they passively hold the firm's shares throughout the event window. In practice, this assumption rarely holds, especially for institutional investors who actively manage their positions and are widely regarded as "smart money." Large corporate events typically introduce substantial uncertainty in firm value, creating fertile ground for informed investors to leverage their information advantage and trading skills. This leads to two important consequences. First, the returns realized by these investors can deviate significantly from firm returns, creating a return gap that renders firm return a misleading proxy for their actual incentives during such events. Second, when institutional investors can profit from the uncertainty created in these events, they may become incentivized to support pursuing such events even if they destroy firm value in expectation. This creates a tension between maximizing firm value and exploiting their private benefits. In this paper, we aim to quantify this return gap and examine the resulting distortion in governance incentives.

While such gaps can arise in many corporate settings, we focus our study on M&A as a particularly salient example. M&A represent significant corporate decisions that can greatly impact firm value and introduce substantial uncertainty, providing informed investors with opportunities to leverage their information advantage and trading skills. Moreover, the M&A literature has predominantly relied on firm return, measured both in the short run and long run, to gauge acquirer shareholders' interests in pursuing mergers (see e.g., [Andrade et al.](#),

2001; [Betton et al., 2008](#) and references therein).¹

Two examples illustrate this concept. When Dow Chemical announced its takeover bid for Union Carbide in August 1999, institutional investors including Putnam Investments, Wellington Management, Vanguard, and T. Rowe Price collectively held 11% of Dow Chemical’s shares. During the public negotiation period, they purchased an additional 8% of outstanding shares, raising total ownership to 19% post-merger. Dow Chemical realized a BHAR of 18% over the following year; had these investors remained passive, they would have earned approximately 593 million dollars, but their active trading produced an additional profit of 418 million dollars (an additional return of 13%). The pattern works in reverse for bad deals. When Sealed Air Corp announced its acquisition of Diversey in June 2011, twenty investment company institutional investors held 42% of its shares (the institution type we focus on in our analysis). During the negotiation period, they sold off 27% of outstanding shares before deal close. Sealed Air subsequently lost 15% over the following year relative to its matched firm. By actively reducing their holdings, these investors limited their losses to 73 million dollars (a return of -5%), compared to the 262 million dollar loss (a return of -15%) they would have incurred by remaining passive. In both cases, the firm return is a poor proxy for what institutional investors actually earned.

Building on these examples, we first quantify the prevalence of the gap between the return to acquiring firms and the return to their institutional shareholders, and we assess whether this gap is substantial enough to distort the institutional investors’ incentives to maximize firm value. Second, we examine how M&A deal characteristics and institutional

¹If this gap is significant, it suggests a complementary explanation for the long-standing puzzle of why acquirer shareholders allow management to pursue M&As when the average gain to the acquiring firm is small or even negative. Previous studies offer plausible explanations based on the conflict of interest between the manager and shareholders ([Jensen, 1986](#), [Harford, 1999](#), and [Roll, 1986](#)), information asymmetry between corporate insiders and outsiders ([Shleifer and Vishny, 2003](#); [Rhodes-Kropf and Viswanathan, 2004](#); [Rhodes-Kropf et al., 2005](#), [Cai et al., 2011](#); [Bhagat et al., 2005](#), and [Wang, 2018](#)), and institutional cross-holding of acquirer and target stocks in their portfolios ([Matvos and Ostrovsky, 2008](#), and [Harford et al., 2011](#)). Demonstrating the existence of a return gap for informed institutional investors provides a corporate governance based rationale for why these investors may choose to embrace acquisitive firms rather than restrict them from pursuing M&As.

investor traits influence the size of this gap, emphasizing the empirical contexts in which using firm returns as a proxy for institutional investors’ incentives can be particularly misleading. Finally, we demonstrate how the return gap undermines institutional investors’ governance role in M&As, revealing that institutions with a high return gap are associated with weak governance in preventing or rectifying value-destroying mergers.

We conduct our analysis by constructing a sample of M&A deals with US acquirers and targets, and we match this sample to the 13F dataset to obtain institutional holdings of acquirers. We examine institutional investors’ trading of acquirer stocks during the public negotiation period and relate it to the post-merger deal performance, measured by the buy-and-hold abnormal return (BHAR) over different horizons. We focus on the post-merger BHAR as our measure of long-term merger performance because the ultimate success of a merger critically depends on post-merger integration and the realization of expected synergies, and the market may learn about this only after deal completion. For this reason, BHAR has also been used in previous studies to examine shareholder behavior and deal quality in the long-run.²

Our analysis yields several key findings. First, institutional trading during the public negotiation period is strongly and positively correlated with ex post deal performance. For every one-standard deviation increase in 12-month BHAR, institutional investors increase their holdings of acquirer stocks by 60% on average during the public negotiation period. We estimate that in an average M&A deal, these investors achieve returns 3.3 percentage points higher than the acquirer’s stock return, which averages only -0.9%. In other words, institutional investors earn on average 2.4% from M&A even as the acquiring firm loses 0.9%. This return gap is economically significant, demonstrating that even when M&A deals destroy firm value on average, they can still be profitable for informed institutional

²For example, [Lyon et al. \(1999\)](#); [Mitchell and Stafford \(2000\)](#); [Ben-David et al. \(2015\)](#); [Chen et al. \(2007\)](#). Also, the widely used measure, cumulative announcement abnormal return (CAR) is known to be contaminated by bid anticipation and information revelation, and only weakly correlated with the true deal quality (see e.g., [Barraclough et al., 2013](#); [Jacobsen, 2014](#); [Ben-David et al., 2025](#)).

investors.

We extend our analyses to examine how the return gap varies cross-sectionally with various deal characteristics and institutional investor attributes that influence their trading incentives and capabilities. We investigate five key factors: deal size, stock market liquidity, short-sale constraints and initial holdings, portfolio weight, and investor trading ability.

First, large deals create greater uncertainty about the future value of the combined firms, providing institutional investors with a stronger incentive to collect information and trade. We find a more pronounced positive association between institutional trading and post-merger performance in larger deals. The return gap expands from 1.2 percentage points for small deals to 4.7 percentage points for large deals, confirming the importance of deal size in determining institutional investors' ability to capitalize on their information advantage.

Second, we examine the impact of stock market liquidity, an important determinant of trading profits. As suggested by [Kyle \(1985\)](#), high liquidity allows informed traders to better camouflage their trades and earn higher profits from their private information. Using the bid-ask spread as a proxy for (il)liquidity, we document stronger results for acquirers with high liquidity. The return gap reaches 6.1 percentage points in the high-liquidity subsample, compared to a negligible gap in the low-liquidity subsample.

Third, we consider the effect of short-sale constraints and initial holdings. Many institutional investors are subject to short-sale constraints, which limit their ability to profit from trading on negative news. Consistent with this, the trading-performance association is almost three times stronger for good deals than for bad deals. Additionally, motivated by previous studies (e.g., [Edmans, 2014](#) and references therein) arguing that larger initial holdings induce more information collection and mitigate short-sale constraints, we find more pronounced results for deals where institutional investors hold a large fraction of acquirers' shares before bid announcements. The return gap reaches 4.6 percentage points for high initial holdings, compared to 0.5 percentage points for low initial holdings.

Fourth, we analyze how the weight of acquirer stock in institutional investors' portfolios affects their trading behavior. This factor shapes investors' incentive to collect information and trade. We find that investors trade more aggressively and gain greater profits from M&A deals where their holdings of acquirer stock represent a significant component of their portfolios. The return gap is 6.2 percentage points when acquirer stock accounts for a greater fraction of institutions' portfolios, reducing to 1.7 percentage points when it does not carry significant weight.

Fifth, we examine how trading ability affects institutional investors' performance, given its central importance to our research. We sort institutional investors by their past trading ability, measured by their performance in previous M&A deals, assuming this is a persistent skill. We find that the association between trading and ex post deal performance is much stronger for high-ability investors. High-ability institutions earn returns 7.4 percentage points higher than the firm's return, compared to a negligible gap for low-ability institutions, highlighting the crucial role of trading skill in leveraging information advantages in M&A contexts.

We then turn to examining how the return gap relates to institutional investors' governance role in the M&A market, a critical question in our study. The return gap arises because institutional investors can exploit their information advantage and trading ability when deal quality is uncertain ex ante. By increasing their exposure to acquisitions that turn out to be good and reducing their exposure to those that turn out to be bad, they capture a disproportionate share of the upside while largely avoiding the downside. Their *expected* payoff from an M&A therefore becomes convex in deal quality: they benefit strongly from favorable realizations but limit losses from unfavorable ones. As a result, even when an acquisition has a negative expected value for the firm, institutional investors' expected return from the firm pursuing the deal can remain positive because of their informed trading.

Guided by this mechanism, we hypothesize that institutional investors who expect to earn a high return gap (hereafter, high-gap institutions) exhibit weaker *preemptive governance*.

That is, they are more inclined to support, or less inclined to restrain, acquisitive policies even if such policies reduce expected firm value. We first estimate the return gap separately for each institutional investor and define high-gap institutions as those whose estimated return gap is above the median. We find that firms held by high-gap institutions are more likely to engage in acquisitions in the subsequent year and that their deals exhibit significantly worse performance. These patterns suggest that high-gap institutions tolerate or even encourage excessive takeover activity because they benefit from the trading opportunities created by M&A events. Although such acquisitions reduce firm value in expectation, high-gap investors are compensated by their trading profits, so their total expected gains remain positive. This evidence indicates that the return gap weakens institutional investors’ preemptive governance by shifting their incentives away from firm value maximization.

Relatedly, we investigate how the return gap affects institutional investors’ *corrective governance*. Luo (2005) documents a possible mechanism of corrective governance by showing that acquirers are more likely to cancel deals in the face of unfavorable market reactions to M&A announcements. We build on Luo (2005) and show that the negative association between acquirer announcement returns and the likelihood of deal cancellation is present only when acquirers are held by low-gap institutional investors, and is largely absent when acquirers are held by high-gap institutions. Low-gap investors face a negligible return gap, so their interests remain closely aligned with firm value maximization; as a result, they are more likely to pressure managers to abandon deals that are poorly received by the market. In contrast, high-gap institutions may prefer that deals proceed as long as their private information is not fully revealed at announcement, because deal cancellation prevents them from realizing the trading profits that generate the return gap.³

³Our governance analyses do not use shareholder voting data. The *ex ante* governance we study operates through private engagement or strategic pressure before any specific deal is proposed, rather than through formal votes on specific merger proposals. This is also consistent with recent theory of shareholder engagement as advising management (Kakhbod et al., 2023; McCahery et al., 2015). Even setting this aside, acquirer shareholder approval is rarely triggered: under stock exchange rules, it is required only when the acquirer issues more than 20 percent of outstanding equity, and prior studies show that acquirers frequently structure deals to remain below this threshold (Li et al., 2018), introducing selection concerns.

We conduct several robustness checks to validate our main findings and address potential identification concerns. One concern is reverse causality: institutional trading may move prices through price pressure, generating a mechanical correlation with post-merger BHAR. We address this by decomposing the post-merger period into subperiods and finding that the correlation is concentrated at 6–12 months post-merger and absent in the first six months, when price-pressure effects would be most immediate. A second concern is that the results reflect general stock-picking skill rather than M&A-specific information, as institutions may simply hold better-managed firms that happen to pursue better acquisitions. A placebo test shows that institutional trading does not predict BHAR outside M&A event windows, confirming that the predictive relationship is specific to the informational uncertainty created by deal activity. A third concern is that institutions trade on pre-existing firm-level knowledge, such as awareness of acquirer agency problems, rather than information acquired during the public negotiation period. Publicly available knowledge should be impounded into prices quickly around the announcement, generating an early-month correlation rather than the 6–12 month pattern we find. Furthermore, if such awareness instead reflects private information, it is precisely an instance of our mechanism rather than an alternative to it. Beyond these identification concerns, we show that the main results hold under alternative sample selection criteria for excluding serial acquirers and when we use accounting-based measures of post-merger operating performance in place of BHAR, which provides reassurance that our findings are not driven by the particular return measure we adopt. We also verify that the results are not driven by the Big Three institutional investors (BlackRock, Vanguard, and State Street) and are pervasive across a wide range of investors in the data. Finally, we extend the analysis to examine acquirer shareholders’ trading of target stocks and find evidence consistent with the same underlying mechanism.

While it is well understood that institutional investors can profit from their information advantage, including during M&A activity (see e.g., [Nain and Yao, 2013](#); [Ashraf and Jayaraman, 2014](#); [Daniel et al., 2024](#)), our contribution lies in examining the broader governance

implications of these trading gains. We argue that the return gap is not merely evidence of informed trading, but instead reflects a potential distortion in governance incentives. Rather than simply confirming that institutions trade profitably, a point well established in the literature, we emphasize how their ability to capture private gains introduces new tensions with their role as monitors. In doing so, our study shifts the focus from trading skill to governance distortion.

Our paper also contributes to the M&A literature, which has debated between using the market reaction around bid announcements (e.g., 3-day CAR) and the long-run post-merger performance (e.g., BHAR and operating performance) to gauge the value implications of M&A on acquiring and target firms. Several previous studies demonstrate the pros and cons of different measures and investigate how they relate to the causes and consequences of M&A (Kaplan and Weisbach, 1992; Healy et al., 1992; Li, 2013; Ben-David et al., 2015; Hoberg and Phillips, 2018; Dasgupta et al., 2023; Ben-David et al., 2025; Golubov et al., 2015, 2016; Golubov, 2025). We acknowledge that the long-run deal performance may not be fully incorporated into the announcement return, and this gives rise to the information advantage institutional investors can exploit through trading during the public negotiation period. Our paper stresses that firm return can be a misleading measure of shareholder incentives in M&A and proposes to gauge those incentives by accounting for investors' expected trading profits. This point complements recent theory showing that once trading reshapes the shareholder base, stock prices need not move with shareholder welfare because the marginal trader setting the price need not coincide with the shareholders determining governance outcomes (Levit et al., 2024).

Our paper further contributes to the large empirical literature on the governance value of institutional investors. Prior work examines how institutions affect executive compensation (e.g., Hartzell and Starks, 2003) and anti-takeover provisions (e.g., Brickley et al., 1988). A more closely related stream focuses on acquisition outcomes: long-term institutions improve acquirer performance (Gaspar et al., 2005; Chen et al., 2007), cross-holdings of acquirer

and target stocks can dampen governance incentives in M&A (Matvos and Ostrovsky, 2008; Harford et al., 2011), stock-picking ability predicts better deal selection (Nain and Yao, 2013), and poor governance is associated with more value-destroying mergers (Bae et al., 2002; Masulis et al., 2007; Golubov et al., 2019). Our paper differs from these studies by showing that institutional investors may benefit from firms pursuing M&A that create significant uncertainty, because they capture the option value generated by such events, and as a result their governance incentive to curtail M&A activity can be compromised by their trading incentive. More broadly, this perspective is distinct from recent work linking governance and trading. Levit et al. (2024) show theoretically that trading and voting interact because trading alters who holds the shares, while Li et al. (2022) show empirically that disagreement over governance outcomes induces shareholder trading and reshapes the shareholder base. Relative to this literature and the broader literature on shareholder governance through voice or exit (e.g., Maug, 1998; Edmans, 2009, 2014; McCahery et al., 2015 and references therein), our paper instead focuses on *ex ante* governance in the context of M&A, that is, how institutional investors influence corporate decisions that may destroy value in expectation, while their realizations are still uncertain. Our results neither conflict with the *ex post* governance literature nor imply that institutional investors would support *ex post* bad deals. Instead, we show that return gaps can impair institutional investors’ incentives to discourage *ex ante* bad deals,⁴ revealing a distinct form of governance failure that arises before deal quality is fully revealed.

2 A Thought Experiment

To build intuition, we present a simple thought experiment illustrating how institutional investors’ returns can diverge from the firm’s when trading around M&A events, and how

⁴An *ex ante* bad deal has a negative expected return but its realization is still uncertain (i.e., it may create value in some states of the world and destroy value in others). By contrast, an *ex post* bad deal has a realized negative return.

this return gap distorts governance incentives. Figure 1 illustrates the setting.

Suppose a firm is considering an acquisition, but deal quality is uncertain *ex ante*: with a 50% chance, the deal is good and increases the acquirer's value by 20%; with a 50% chance, the deal is bad and destroys 30% of firm value.

The process unfolds in two stages. The first is the *governance stage*, where institutional investors decide whether to support or oppose the firm's pursuit of M&A, based on expected payoffs from the next stage. At this point, deal quality is unknown, although its distribution is common knowledge.

The second stage represents the *trading stage*, where deal quality is realized and observed only by institutional investors, giving them an information advantage. Other market participants remain uninformed. Institutional investors can adjust their holdings accordingly: if the deal is good, they can retain or expand their positions to benefit from the expected gains; if the deal is bad, they can sell their shares, fully or partly, ahead of the value decline. By the end of this stage, the deal completes, information becomes public, and the acquirer's stock price fully reflects the value impact of the transaction.

In this example, the firm's (or a passive shareholder's) *ex post* return is +20% in a good deal and -30% in a bad deal, implying an expected return of -5% from M&A, a value-destroying policy on average. Institutional investors, however, earn +20% in good deals (assuming they hold all their shares) and -5% in bad deals (assuming they exit fully without short-selling) *ex post*.⁵ Their expected return is thus +7.5% (the average of 20% and -5%). The result is a 12.5-percentage-point return gap between the firm and the informed investors. This gap arises from the informational advantage and active trading ability of institutional investors. Crucially, it turns a value-destroying project for the firm into a profitable opportunity for investors, creating incentives for them to support value-destroying M&A in the first stage, simply because it offers them private trading gains. As a result,

⁵Institutional investors learn about deal quality after M&A announcement, and thus they can sell only after experiencing the -5% announcement return in bad deals. In good deals, firm value increases by 20% post-merger, reverting the -5% announcement return.

their governance decisions may reflect private benefits rather than firm value maximization.

We now map this thought experiment to the typical timeline of an M&A transaction to clarify the key variables in our analysis. The *governance stage* corresponds to institutional investors' stance on the firm's general M&A strategy, such as whether to support a more acquisitive growth approach. We refer to this as *ex ante governance*, in contrast to *ex post governance*, which involves shareholder approval or rejection of a specific deal after it is announced. Our focus on ex ante governance reflects two features of institutional investor behavior. First, institutional influence is often exercised before any formal vote, through private engagement and communication with management (Kakhbod et al., 2023; McCahery et al., 2015). Second, deal quality is generally unobserved when these decisions are made.

The *trading stage* corresponds to the public deal negotiation period (i.e., the period that starts right after bid announcement and ends at deal closure), during which institutional investors can acquire information about deal quality ahead of other market participants. This informational advantage enables them to trade strategically and earn profits before the deal's full implications are reflected in prices.

To keep the intuition transparent, the thought experiment abstracts from several market features. First, we assume that investors are able to sell all shares in bad deals. In reality, even partial exits still distort ex ante incentives as long as institutions earn higher expected returns than passive shareholders. Second, we abstract from price impact of informed trading. As long as private information is not fully incorporated into prices immediately, institutional investors still earn higher expected returns than the firm, preserving the return gap and its implications. Third, we ignore the possibility of ex post governance. While institutional investors may try to prevent bad deals after observing their quality, such ex post intervention is often insufficient to outweigh the distortions induced by ex ante governance, so the return gap persists and informed investors may still support value-destroying deals.⁶

⁶For a formal model that incorporates these features and reaches conclusions consistent with the insights here, see Goldman and Wang (2021).

3 Sample Formation and Variable Construction

3.1 Data

We collect M&A transactions announced between 1980 and 2017 from the Thomson Reuters SDC Platinum database. Our M&A sample stops at 2017, because we need two-year post-merger performance data for our main analyses and we exclude the pandemic period to mitigate confounding effects. We require publicly traded U.S. acquirers with available return data, acquirer ownership below 50 percent of target shares pre-bid, deal value above \$1 million and above 1 percent of acquirer market cap, and clear completion or withdrawal dates. We also exclude acquirers that made any preceding bids within three years to avoid confounding deal effects.

Stock holdings by institutional investors come from the Thomson Reuters Institutional Holdings 13F database (formerly known as CDA/Spectrum). The database includes stock holding data by banks, insurance companies, parents of mutual funds, pension funds, university endowments, and numerous other types of professional investment advisers. We classify institutional investors based on their CDA type codes and focus on investment companies such as mutual funds, hedge funds, and other asset management firms. This database has been widely used in previous studies (e.g., [Parrino et al. 2003](#); [Chen et al. 2007](#); [Matvos and Ostrovsky 2008](#); [Harford et al. 2011](#)), and it reports holdings information for institutional investors at a quarterly frequency and thus can be used to estimate institutional trading in different stages of M&A. We follow [Chen et al. \(2007\)](#) and correct the mapping error of the post-1998 CDA type classification. We focus on investment companies given their well-documented information advantages and governance role.⁷

We conduct our analyses at the level of institutional investors (e.g. fund families) rather than individual funds, because most governance decisions are made by institutional investors

⁷Results for other institution types, including banks, insurance companies, independent investment advisers, and pension funds, are reported in Internet Appendix Table [A.8](#).

instead of individual holding funds (e.g., mutual funds in the same fund family usually cast the same vote as one entity) and therefore institutional investors' incentives are determined by their aggregate trading profits from all funds they manage.⁸

3.2 Measuring Merger Performance

To measure merger performance, we follow [Lyon et al. \(1999\)](#) and [Chen et al. \(2007\)](#) and compute the acquirers' long-run post-merger buy-and-hold abnormal return (BHAR). As [Lyon et al. \(1999\)](#) suggest, this measure controls for size, book-to-market, and pre-acquisition return. Specifically, we first sort all firms in CRSP into NYSE size deciles each month and further partition the bottom decile into quintiles. This procedure generates 14 size groups in total. We simultaneously sort firms into book-to-market (B/M) deciles. The combination of partitioning on size and on B/M creates 140 cells (14 size $\times$ 10 B/M groups) for each month.

For each acquirer in our sample, we identify the cell to which it belongs based on its size and B/M one month before the bid announcement. We then choose from that cell the control firm that is the closest match on prior year stock return and is not involved in any significant acquisition activity in the prior three years. Buy-and-hold returns (BHR) are then calculated for each acquirer and its control firm over the event window which starts from n -th quarters post bid completion and ends at m -th quarters post bid completion, $[n, m]$. Finally, an acquirer's buy-and-hold abnormal return (BHAR) in this event window is defined as the difference between the acquirer's buy-and-hold return and its matched firm's contemporaneous buy-and-hold return:

$$\begin{aligned} BHR_{j;(n,m)} &= \prod_{\tau=n}^m (1 + r_{j,\tau}) - 1; \quad j \in \{acq, match\} \\ BHAR_{i;(n,m)} &= BHR_{acq;(n,m)} - BHR_{match;(n,m)} \end{aligned}$$

⁸Prior studies consistently find that funds within the same family vote nearly identically, with cross-fund disagreement rates below 3% ([Iliev and Lowry, 2015](#); [Cai and Walkling, 2011](#); [Morgan et al., 2011](#)).

where $BHR_{j;(n,m)}$ is the buy-and-hold return for acquirer, *acq*, or its matched firm, *match*; $r_{j,\tau}$ is the return in the τ th quarter post bid completion; $BHAR_{i;(n,m)}$ is acquirer i 's buy-and-hold abnormal return from n quarters to m quarters post bid completion.

To capture merger performance over different horizons, we compute acquirer BHAR over a one-year and two-year period post acquisition. We further break down the one-year BHAR into the first two-quarter BHAR and the second two-quarter BHAR. Figure 2 illustrates different horizons over which BHARs are computed.⁹

The acquirer's 3-day abnormal announcement-period return (i.e., 3-day CAR) is computed using the market model and the value-weighted CRSP index, and the estimation window for market beta is (-252, -46) days prior to the bid announcement.

3.3 Measuring Institutional Trading

To measure institutional trading of acquirer stock over different stages of the merger, we link institutional holdings data to the merger and acquisition transactions. Because institutional holdings are reported quarterly, we match the holdings data at the nearest date to the bid announcement or the bid closure. Thus, for each bid in our sample, we obtain the quarter-end holdings at four points of time: $Hldg_{i;-5}$ is the quarter-end holdings of acquirer i 's shares five quarters before the bid announcement quarter; $Hldg_{i;-1}$ is the quarter-end holdings of the quarter right before the bid announcement quarter; $Hldg_{i;0}$ is the holdings at the end of bid announcement quarter; and $Hldg_{i;cls}$ is the holdings at the end of bid closure quarter (completion or withdrawal). These holdings are scaled by the total number of shares outstanding, and with this normalization, our measure of holdings represents the percent of total acquirer shares held by institutional investors. We then further divide these holdings by the number of institutions holding acquirer i and obtain the average holdings.

⁹Our measure window of BHARs excludes the public bid negotiation period, because any returns realized in this period can be driven by institutional trading (e.g., through price pressure), causing reverse causality concerns. Instead, we include the return during the bid negotiation period as control variables in our empirical analysis below.

The average institutional trading of acquirer stock in different stages of each merger is then measured as the change in holdings:

$$\begin{aligned}\Delta Hldg_{i;(-5,-1)} &= \frac{Hldg_{i;-1} - Hldg_{i;-5}}{N_{i;(-5,-1)}} \\ \Delta Hldg_{i;(0,cls)} &= \frac{Hldg_{i;cls} - Hldg_{i;0}}{N_{i;(0,cls)}}\end{aligned}$$

where $N_{i;(t_1,t_2)}$ is the average number of institutions that hold acquirer i 's shares during the period (t_1, t_2) . Figure 2 illustrates the periods over which the above trading is computed.

The use of an *average* trading measure across all institutions has two empirical advantages. First, the *total* trading volume is affected by the acquiring firms' institutional ownership: acquirers held by more institutions are likely to experience larger total trading volume. Using the *average* trading measure controls for this cross-sectional difference in acquirers' institutional ownership and makes the institutional trading more comparable across different acquisitions. Second, using the *average* trading measure captures the net trading across all institutions and therefore reflects their collective views.

After merging the institutional holdings and trading data with the merger and acquisition data, we exclude from our sample all bids for which institutional holdings and trading data is not available. We also exclude the bids whose announcement date and closure date fall into the same quarter, because we cannot observe any trading within quarter. Our final sample includes 1,594 bids, with 1,504 completed and 90 withdrawn transactions.

3.4 Empirical Design

To investigate how institutional investors trade during M&A transactions, we start by examining the correlation between institutional investors' trading of acquirer stock during the public negotiation period and the post-merger deal performance measured by the acquiring firm's BHAR over different horizons. To do so, we follow the specification in [Chen et al.](#)

(2007) and run the following regression:

$$\begin{aligned} \Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i \end{aligned} \quad (1)$$

The dependent variable, $\Delta Hldg_{i;(0,cls)}$ denotes the average trading of acquirer i 's stock by institutional investors during the public negotiation period; $BHAR_i$ is the acquirer's *post-merger* performance measured over different horizons. Control variables follow Parrino et al. (2003) who study the determinants of changes in institutional holdings: $Return_{i;(0,cls)}$ denotes the acquirer's cumulative return during the public negotiation period; $FirmSize_{i,-1yr}$ and $FirmMB_{i,-1yr}$ denote the acquirer's size (i.e., the logarithm of market value) and market-to-book ratio measured one year before the bid announcement; $Turnover_{i;(0,cls)}$ denotes the aggregate trading volume during the public negotiation period normalized by the number of shares outstanding; EOY_i denotes the year-end dummy, which takes the value of one if the public negotiation period contains the fourth quarter. We also include the industry fixed effect and year fixed effect in some specifications to make sure that our results are not driven by industry-level shocks or business cycle fluctuations. Since the control variables in Equation 1 are used to explain normal changes in institutional holdings, we interpret a significant and positive coefficient on acquirer post-merger performance as evidence that institutional investors are able to forecast merger performance and make their trading decisions accordingly.

After obtaining the coefficient of interest, β_1 , from the regression, we then transform it to an estimate of the expected return gap. Intuitively, a significant, positive estimate of β_1 implies that institutional investors on average trade in the right direction regarding the long-run deal performance and their trading profits equal the quantity they trade times the BHAR they earn from the trade ex post. Specifically, informed institutional investors earn a return of $\frac{\Delta Hldg_{i;(0,cls)}}{Hldg_{i;-1}} \times BHAR_i$ per share due to their trading, where $\frac{\Delta Hldg_{i;(0,cls)}}{Hldg_{i;-1}}$ is the

fraction of shares actively traded. For example, suppose an institution holds 1% of acquirer shares before the bid ($Hldg_{i,-1} = 0.01$), buys another 0.5% during the negotiation period ($\Delta Hldg_{i;(0,cls)} = 0.005$), and the deal realizes a $BHAR_i$ of 10%. The institution earns 15% in total: 10% from passive holding and 5% from active trading, yielding a return gap of 5 percentage points.

Our focus on the expected gap is motivated by two considerations. First, institutional investors form governance decisions before post-merger BHAR is realized, so what matters for their incentives is the expected gap. Second, trading quantity is driven by many factors beyond BHAR, so we isolate the BHAR-driven component via β_1 in Equation 1. We therefore propose a measure of *expected* gap as:

$$\begin{aligned}
E(Gap_i) &= E\left(\frac{\Delta Hldg_{i|BHAR}}{Hldg_{i,-1}} \times BHAR_i\right) \\
&= \frac{1}{Hldg_{i,-1}} E(\Delta Hldg_{i|BHAR} \times BHAR_i) \\
&= \frac{1}{Hldg_{i,-1}} \left(Cov(\Delta Hldg_{i|BHAR}, BHAR_i) + E(\Delta Hldg_{i|BHAR})E(BHAR_i) \right) \\
&= \frac{1}{Hldg_{i,-1}} \left(\beta_1 Var(BHAR_i) + E(\Delta Hldg_{i|BHAR})E(BHAR_i) \right) \tag{2}
\end{aligned}$$

where $\Delta Hldg_{i|BHAR}$ is the component of institutional investor trading that is explained by BHAR, after purging out the effect of other covariates, and $Hldg_{i,-1}$ is the institutional investor's pre-announcement holding that is known when computing the expected gap. Notice that a larger, positive coefficient β_1 increases the expected gap. While we focus on the expected gap throughout the paper, we also verify that it closely aligns with the realized gap calculated from our sample, confirming that the expected return gap perceived by institutional investors is fully fulfilled ex post.

3.5 Sample Overview

Table 1 presents summary statistics of our sample of 1,594 bids with deal level characteristics and institutional holdings and trading of acquirer stock. Panel A describes the full sample statistics while Panel B provides subsample information.

From Panel A of Table 1, we find that the acquirer 3-day CAR around bid announcement and the long-run post-merger BHARs are both slightly negative on average. This is consistent with previous studies and is indicative of the fact that acquiring firm value drops, on average, due to M&A events. Interestingly, deal performance is also highly dispersed, as indicated by the large standard deviation of CAR and BHAR. Specifically, the annualized standard deviation of BHARs over different horizons is about 50%; the top 10% of deal performance generates an annualized BHAR of about 61% while the bottom 10% of deals lose more than 58%. These large variations in BHARs provide a strong incentive for institutional investors to actively collect information regarding deal quality and trade the acquirer stock accordingly.

In our analysis, we examine the institutional trading of acquirer stock before bid announcement and during the public negotiation period. Panel A of Table 1 shows that acquirers are held, on average, by 14 institutions prior to an acquisition. The average public negotiation period, starting from the date of bid announcement and ending at the date of bid closure, lasts for 139 days.

Considering investment companies we study in this paper, their institutional ownership of acquirer stock before bid announcements is, on average, 1.26 percent of the total shares outstanding of the acquiring firm for *each* institution. Given that there are on average 14 holding institutions, the aggregate institutional ownership by these investment companies is around 20% across all acquiring firms throughout the sample period. During the public negotiation period, the average trading volume by each institution (i.e., the absolute value of its changes in holdings) is 0.32 percent. The net trading by each institution averages 0.15 percent because some institutions buy while others sell. The trading volume appears larger

for the pre-acquisition period, but this is driven by the fact that the pre-acquisition period contains four quarters while the average public negotiation period lasts only 139 days. After adjusting for this duration difference, the institutional trading during public negotiation period is much more active than that in the pre-announcement period.

Panel B of Table 1 provides more guidance to our subsample tests. We first divide the sample based on the institutions' initial holdings of acquirer stock at the beginning of the public negotiation period. Institutions with large initial holdings (i.e., the top half) on average hold 2.09% of acquirer stock. They trade more actively than institutions with small initial holdings, evident by the trading volume of 0.41 versus 0.22. Even though the average net trading quantity is similar between institutions with large and small initial holdings, the standard deviation of net trading quantity for institutions with large initial holdings is much higher. This is consistent with large initial positions enabling two-directional trading based on private information, while institutions with small initial holdings are constrained in their ability to sell due to short sale restrictions.

Panel B of Table 1 also shows that trading activity is much more pronounced for deals with a large transaction value relative to the acquirers' size, for acquiring firms whose stocks are more liquid, and for acquirers held more by high-ability institutional investors. We explore these patterns formally in the next section.

4 Empirical Results

We document a strong positive correlation between institutional trading and deal quality, and show how it varies with deal and institution characteristics, identifying scenarios where the return gap is large. Our empirical specifications follow Section 3.4.

4.1 Institutional Trading and Merger Performance

4.1.1 Baseline Results

Table 2 presents baseline results. Institutional trading during the public negotiation period is positively correlated with acquirers' long-run BHARs up to two years after bid closure. The magnitude is economically large. For example, the coefficient estimate in column 1 suggests that a one-standard deviation increase in the one-year BHAR predicts about a 60% increase in the institutions' net purchase of acquirer stocks on average.¹⁰

One possible concern is reverse causality: a positive correlation between institutional trading and post-merger BHARs may reflect price pressure from large trades rather than informed trading. To address this, we break down the post-merger period into subperiods. As columns 3 to 5 and 8 to 10 show, the positive correlation is only economically large and statistically significant for BHARs accumulated from 6 months to 12 months post-merger, while the coefficient for the first 6 months is insignificant. Since price pressure and the effect of publicly disclosed institutional holdings would both manifest within the first few months, this term structure is more consistent with the gradual revelation of information about post-merger integration and synergy realization — information that institutional investors already possessed as private knowledge at the time of trading, but that becomes public only gradually after the merger closes.

Employing the baseline regression coefficient of 0.176 from column 1 and the estimated unconditional variance of 12-month BHAR of 0.25 at the full sample, our estimate of the expected gap is 3.3%.¹¹ Given the average return to the firm in M&A events is -0.9%, informed institutional shareholders' return from the M&A is significantly positive. As mentioned

¹⁰The magnitude is computed as $\frac{Stdev(BHAR_{1yr}) \times \beta_1}{\Delta Hldg(0,cls)} = \frac{0.50 \times 0.176}{0.15} = 0.59$

¹¹We use the average initial holdings of 1.26% per institution, unconditional variance of BHAR 24.6%, the average trading quantity of institutional investors around M&A of 0.15% of shares outstanding, and the average BHAR of -0.9% in Equation 2. It suggests that $E(gap) = \frac{1}{holdings-1} (\beta \times var(BHAR) + E(Trade)E(BHAR)) = \frac{1}{1.26} \times (0.176 \times 0.246 + 0.15 \times (-0.009)) \approx 0.033$.

above, we also compute the realized return gap using the observed institutional investors' trading and BHAR directly, and the realized return gap averages 3.5% for the full sample, fully aligned with the expected return gap we calculate based on Equation 2.

4.1.2 Subsample Evidence

We next explore how results vary across subsamples defined by deal and institution characteristics that shape trading incentives and ability, identifying where the return gap is particularly large.

Deal size

We start by exploring cross-sectional variation related to deal size. Intuitively, a larger deal will have a greater impact (either positive or negative) on the acquirer's post-merger value, which induces institutional investors to gather more information and trade more aggressively. To test this, we divide the full sample of deals into two subsamples based on the relative deal size, which we measure as the transaction value divided by the acquirer's market value 22 trading days before the bid announcement. We then run our baseline regression separately for the two subsamples. We report the results in Table 3. In the subsample of large deals, the coefficient of interest is statistically significant and economically large. For example, the coefficient on 12-month BHAR in the large deal subsample is 0.298, which is 57% higher than that in the full sample. The coefficient on 24-month BHAR is almost 80% larger than that in the full sample and remains highly significant despite the smaller sample size. In the small deal subsample, we observe much weaker results with an insignificant loading of tiny magnitude. These findings suggest that, when the deal has a potentially larger impact on firm value, institutions trade more aggressively and their trading correlates more positively with deal quality.

According to our measure of the expected gap, institutional investors are expected to

generate a 4.7% higher return in larger deals, but they can earn only 1.2% more in small deals. Nevertheless, given that average 12-month BHAR are -0.94% and -0.84% for large and small deals respectively, the returns to these institutional investors remain positive while the return to the firm is strictly negative.

Stock liquidity

As demonstrated in [Kyle \(1985\)](#), the expected trading profits of informed investors increase with stock liquidity, because informed trades generate small price impacts in a liquid market. We measure the stock (il)liquidity for each acquirer in our sample using its average bid-ask spread, expressed as a percentage of the mid-price, over the one year period prior to the bid announcement. We then sort acquirers into two subsamples based on their liquidity ranks among all their peers in the same year. We rerun our baseline regression and report the results for the two subsamples in [Table 4](#). The findings suggest that institutions trade more aggressively in accordance with the deal performance when acquirer stocks are more liquid (low bid-ask spread). Specifically, the coefficient on 12-month BHAR is 0.362 for the subsample of high liquidity acquirers, which almost doubles that in the full sample. This finding suggests that a one-standard deviation increase in the ex post merger performance more than doubles the institutional trading of acquirer stock if acquirer stocks are liquid.¹² In contrast, the coefficient is slightly negative for less liquid acquirers and is largely insignificant statistically. The difference between the estimates in the two subsamples is highly significant. Further note that, in the subsample of liquid acquirers, the average 12-month BHAR is -1.4%. However, our measure suggests that institutional investors are expected to generate a 6.1% higher return than the return to the firm because of their trading. Institutional investors therefore earn an average return of 4.7%, which is significantly higher than the return to the acquiring firm.

¹²The increase is computed as $\frac{Stddev(BHAR_{1yr}) \times \hat{\beta}_1}{\Delta Hldg(0,cls)} = \frac{0.50 \times 0.362}{0.15} = 120\%$

Short sale constraints

A large number of institutions in our sample are mutual funds that are subject to short-sale constraints. Since in theory an informed investor can make profits by trading in both good and bad mergers, constraints from short selling imply that investors may trade more aggressively in good deals and less so in bad deals when short sale constraints are likely to bind. To test this prediction, we follow [Chen et al. \(2007\)](#) and define a new variable $[BHAR]^+$ ($[BHAR]^-$) which equals $BHAR$ when $BHAR$ is positive (negative) and zero otherwise. Replacing the regressor $BHAR$ in Equation 1 with either $[BHAR]^+$ or $[BHAR]^-$, we repeat our analysis and report our results in Panel A of Table 5. The table shows that the coefficients on $[BHAR]^+$ and $[BHAR]^-$ are both positive and statistically significant, indicating that institutions trade in the right direction in both good and bad deals. In addition, the coefficient is much larger and more statistically significant for deals with good performance. This implies that institutions purchase acquirer stocks more aggressively in good deals than they sell shares in bad deals. This is indicative of the potential short sale constraints that they face.

Meanwhile, institutions' initial holding of the acquirer's stock plays an important role in determining whether short sale constraints may bind: a large initial holding implies that institutional investors can benefit more from stock price appreciation in good deals and are less subject to short-sale constraints in bad deals. As a result, our baseline results should be stronger for institutions with higher initial holdings. This implication is also consistent with the theoretical results in [Edmans \(2009\)](#). To test this implication, we measure the institution's initial holdings of the acquirer's stocks at the beginning of the public negotiation period. We then sort deals based on their initial institutional holdings and partition them into two subsamples of equal size. We rerun the regression in Equation 1 separately for the two subsamples. Panel B of Table 5 presents the regression results. For the subsample of deals with high initial institutional holdings, the coefficient on deal quality is highly significant

and the magnitude doubles our baseline estimates. However, for the subsample of deals with low initial holdings, the coefficients are close to zero and statistically insignificant. The difference between the two subsamples is significant and economically large. The expected gap is 4.6% for deals with high initial institutional holdings while it shrinks to 0.5% for deals with low initial institutional holdings.

Institutional investor ability

Institutional investors differ in their ability to collect information and trade around corporate merger events. [Nain and Yao \(2013\)](#) and [Daniel et al. \(2024\)](#) show that certain mutual funds possess an information advantage prior to M&A announcements, either on the acquirer or target side. Building on their findings, we investigate whether a subset of institutional investors exhibit similar informational advantages during the public negotiation period and exploit this information through trading to earn superior returns. Such differential ability may arise from their expertise and resource, which can persist over time. We measure an institutional investor’s *specific* ability of trading on M&A events using its trading performance in past M&A deals. To construct this measure, we first define a variable *Right-minus-Wrong*, or $RmW_{i,t}$, for institutional investor i in year t . $RmW_{i,t}$ equals the total number of M&A deals in which investor i trades correctly minus the total number of deals in which it trades incorrectly during year t . We assign a deal to a year based on the date of deal closure, and we define investor i trading correctly in a deal if the deal ends up with positive (negative) post-merger BHAR and investor i increases (decreases) its holdings of the acquirer stocks during the public negotiation period. $RmW_{i,t}$ equals zero if investor i does not trade acquirer stock in any deals during year t . Since M&A are rare events, less than 20% of investors trade in M&A events each year in our sample and thus $RmW_{i,t}$ is very lumpy for most investors in a single year. To obtain a smooth measure, we define investor i ’s ability of trading on M&A

events by year t using the weighted average of $RmW_{i,t-n}$ during the past N years

$$ability_{i,t}^{M\&A} = \sum_{n=1}^N w_n \cdot RmW_{i,t-n}$$

We use a window of $N = 10$ years and exponentially declining weights with $w_{n+1} = 0.9w_n$, so that recent trades receive more weight. The long window captures the persistent component of trading ability while averaging out luck. Results are robust to equal weighting schedules.

We then sort the M&A deals into two subsamples based on the average ability of the institutional investors who hold the acquirer before bid announcement. We then perform the baseline regression analysis in each group and report the coefficients of interest in Table 6. Consistent with the model predictions, our results are much stronger for deals in which acquirers are held by institutions with high ability. The difference in coefficients between the high and low ability subsamples is economically large and statistically significant at the 1% level. The expected gap for the high-ability institution subsample is 7.4%, while the gap becomes negligible for the low-ability institutions.

Portfolio weights

Institutions in our sample hold a large portfolio of stocks. [Fich et al. \(2015\)](#) show that such institutions often allocate more time and efforts to monitor firms that account for a large fraction of their portfolios. Thus, we conjecture that if an acquirer’s stock carries a large weight in an institution’s portfolio, the institution has more incentive to collect information about the acquisition and therefore trade more aggressively.

To test this implication, we compute each institution’s portfolio weight in the acquirer as the market value of its acquirer holdings divided by total portfolio value, adjusted by a benchmark weight of one over the total number of stocks in the portfolio. This relative weight measure, consistent with [Fich et al. \(2015\)](#), captures whether the acquirer receives above- or below-average capital allocation within the institution’s portfolio, controlling for

differences in portfolio size.

Using this measure, we sort all deals based on the average portfolio weights of holding institutions and partition them into two subsamples with equal size. We then run the baseline regressions in Equation 1 separately for the two subsamples. We report the results in Table 7. Consistent with our conjecture, we find that for deals in which institutions on average have a larger fraction of their capital invested in acquirers, institutions are more likely to trade in accordance with the ex post quality of the acquisition. In contrast, for deals in which holding institutions invest only a small fraction of their capital in acquirer stocks, our results are much weaker in economic magnitude and statistical significance.

We compute the expected gap to be 6.2% when institutional investors place a high weight on the acquiring firm in their portfolio. In contrast, for acquirers that carry a low weight in institutional investors' portfolio, the expected gap is only 1.7%.

4.1.3 Summary of the Estimated Return Gap

Figure 3 summarizes the return gaps: the full sample yields a 3.3% gap, significantly influenced by deal characteristics. Notably, the gap widens to 6.3% for highly uncertain deals, 4.7% for large deals, and 6.1% for deals with acquirer stock that is more liquid. Additionally, the gap varies with institutional investors' characteristics: it widens to 4.6% with high initial institutional holdings, 7.4% with strong trading ability, and 6.2% with a high portfolio weight of the acquirer stock in institutional investors' portfolios.

4.2 Return Gap and Governance

Finally, we analyze the relationship between the return gap and institutional investors' governance role in the M&A market. The key mechanism is that the return gap is contingent on the deal actually taking place: if an acquisition is never announced or is withdrawn after announcement, institutional investors lose the opportunity to trade on their private

information and capture the trading profits. This creates a direct financial incentive for institutional investors who can expect to earn a high return gap (hereafter referred to as high-gap institutions) to support acquisitions even if such deals may destroy firm value, and to refrain from corrective actions even when the market reacts unfavorably upon announcement, since announcement returns reflect only public information and may not capture the true deal quality already known to informed investors.

To investigate these hypotheses, we begin by constructing a measure of the institution-specific return gap. Specifically, for each institution j in our sample, we run the following regression:

$$\begin{aligned}\Delta Hldg_{ij;(0,cls)} = & \alpha_j + \beta_{1j}BHAR_i + \beta_{2j}Return_{i;(0,cls)} + \beta_{3j}FirmSize_{i,-1yr} \\ & + \beta_{4j}FirmMB_{i,-1yr} + \beta_{5j}Turnover_{i;(0,cls)} + \beta_{6j}EOY_i + e_{ij}.\end{aligned}$$

The dependent variable, $\Delta Hldg_{ij;(0,cls)}$, represents the change in holdings of institutional investor j for acquirer i during the public negotiation period. The independent variables and control variables align with those in our main regression specification. We restrict the sample to institutions that have participated in at least 10 deals, which allows us to estimate β_{1j} for approximately 70 percent of institutional investors. We then calculate the institution-specific expected gap using Equation 2 and classify institutions as *high-gap* or *low-gap* based on the median; those with fewer than 10 deals are classified as low-gap.¹³

Table 8 reports the summary statistics for high-gap and low-gap institutional investors. Panel A reports a representative sample of ten high-gap institutions. These institutions

¹³We measure each institution's return gap using data from the full sample period, classifying institutions accordingly into high- vs. low-gap categories. A potential concern is that this approach may introduce look-ahead bias. However, since our analysis in this section centers specifically on governance outcomes rather than the trading profits themselves, information about future realized trading profits does not mechanically affect governance incentives. An alternative approach would be to use a rolling window and classify institutions based on their return gap estimated up to time t . We opt against this for two reasons. First, even for institutions that participate in many deals over the full sample, a rolling window would leave too few observations in early or intermediate periods to estimate β_{1j} reliably. Second, trading ability in M&A appears to be persistent, so the full-sample regression captures a stable institutional characteristic rather than a time-varying one.

primarily consist of hedge funds, actively managed mutual fund families, and asset managers operating discretionary institutional accounts, including separately managed accounts and pension mandates. Across M&A transactions, these institutions generate estimated return gaps ranging from 2% to 26%. Interestingly, they also exhibit significantly positive alpha, suggesting that the skill of profiting from trading in M&A events is correlated with the skill of generating abnormal returns overall.

Panel B provides a comparison of the characteristics of high-gap and low-gap institutions. High-gap institutions are, on average, smaller in terms of assets under management than low-gap institutions and participate in a smaller number of M&A transactions. Despite their smaller size, high-gap institutions earn significantly larger return gaps, with a median gap of 8.7%, compared to -1.5% for low-gap institutions.

Panel C examines trading behavior conditional on deal outcomes. High-gap institutions trade more asymmetrically, purchasing more aggressively in good deals (0.07% per institution) and selling in bad deals (0.03%), while low-gap institutions trade more symmetrically in both directions. This asymmetry explains why high-gap institutions generate substantially larger return gaps.

4.2.1 Return Gap and Preference of Acquisitions

Institutional investors with a high return gap expect to earn greater profits if their portfolio firms engage in more acquisitions. Therefore, we hypothesize that firms held by high-gap institutions are more likely to become acquirers. To test this hypothesis, we collect data on a panel of all firm-year observations in Compustat from 1980 to 2017 and investigate whether a firm’s ownership by high-gap institutions is positively associated with its probability of engaging in acquisitions in the subsequent year. Specifically, we run the following regression:

$$Acquisition_{it} = \beta_1 HighGap_{i,t-1} + \beta_2 X_{i,t-1} + \alpha_i + \lambda_t + e_{it}$$

where $Acquisition_{it}$ is a dummy variable that equals one if firm i announces an acquisition in year t ; $HighGap_{i,t-1}$ is a dummy variable that equals one if the firms are held mostly by high-gap institutions in year $t - 1$. To construct this variable, we use the following methodology: For all firms in Compustat and our M&A samples, we calculate the fraction of shares held by high-gap institutions at the end of the previous year, normalized by the shares held by all institutional investors. Annually, firms in the top half based on this measure are assigned a $HighGap_{i,t-1}$ value of one; all others receive a value of zero. The normalized high-gap share captures the proportion of shares held by high-gap institutions relative to all institutional investors, distinguishing it from general institutional ownership effects on acquisitiveness.¹⁴ Control variables include the previous year’s firm size, market-to-book ratio, ROA, profitability, and leverage. Some specifications also include firm- and year- fixed effects to account for firm-specific unobservables and macroeconomic fluctuations.

Table 9 presents the results of the regression. Column 1 shows that the holdings of high-gap institutions are positively associated with the probability of a firm becoming an acquirer in the following year in a univariate regression, and column 2 shows that the result holds after controlling for firm-level covariates. Column 3 demonstrates that these results are robust to the inclusion of firm- and year- fixed effects. The economic magnitude is substantial: column 1 implies that firms held predominantly by high-gap institutions are 2.2 percentage points more likely to make an acquisition in the following year, relative to an unconditional annual acquisition rate of approximately 5–6%. These findings support the notion that institutional investors with a high expected return gap prefer acquisitive firms. Our results can be driven by a selection effect (i.e., high-gap institutions select acquisitive firms) and/or a treatment effect (i.e., high-gap institutions encourage holding firms to pursue acquisitions). Both effects are consistent with the high-gap institutions’ preference for acquisitive firms.

¹⁴Our results remain robust when using the raw measure, i.e., the fraction of ownership by high-gap institutions without being normalized by the total institutional ownership.

4.2.2 Return Gap and Deal Performance

Our findings above establish that high-gap institutions prefer firms pursuing acquisitions. A natural follow-up question is whether this preference comes at the cost of deal quality. We conjecture that it does: because high-gap institutions can earn trading profits that offset firm value losses, they face weaker incentives to screen out low-quality deals and thus lower the bar for approving acquisitions. To test this, we compare post-merger performance between acquirers predominantly held by high-gap institutions and those that are not, estimating the following regression:

$$BHAR_i = \beta_1 HighGap_i + \beta_2 X_i + \delta_j + \lambda_t + e_i \quad (3)$$

where $HighGap_i$ is a dummy variable that equals one if the acquirer is mostly held by high-gap institutions; and X_i is the control variable vector that is commonly used in the literature that includes acquirer size, relative deal size, acquirer market-to-book ratio, leverage, conglomeration dummy, all equity payment dummy, all cash payment dummy, and acquirer operating cash flow.

Table 10 presents the results. Column 1 shows that the BHAR of acquirer firms held mostly by high-gap institutions is 7.1 percentage points lower than the performance of acquirers held mostly by low-gap institutions, with the average BHAR for high-gap institutions being -3.5%, while the average BHAR for low-gap institutions is 3.6%. This difference is economically significant, given that the average BHAR of the entire sample is -0.9%. It is also worth noting that the estimated return gap ranges from 3.3% to 6% for institutional investors in various subsamples, and therefore the high-gap institutions are likely to earn a positive gain from M&A even if these deals destroy firm value by 3.5% on average. Column 2 controls for covariates, demonstrating that the difference between the two subgroups even enlarges. Column 3 includes industry- and year- fixed effects, showing that the results are not driven by industry shocks or business cycles.

Taken together, firms held by high-gap institutions are more acquisitive and their deals perform worse, consistent with high-gap investors tolerating or encouraging value-destroying takeovers ex ante because their expected trading profits more than offset the expected firm value loss from M&A.

4.2.3 Return Gap and Corrective Governance

The above findings suggest that the return gap may impair institutional investors' *pre-emptive governance* by leading to lax screening in M&A deals. High-gap institutions tend to favor making more deals and tolerate lower-quality deals.

Lastly, we investigate how the return gap affects institutional investors' *corrective governance*. The differential in return gap suggests that institutional investors may respond differently to bid announcements. Since low-gap institutional investors face a negligible return gap and their interests are largely aligned with firm value maximization, they are more likely to pressure acquirer managers to cancel deals that are poorly received by the market upon announcement. Conversely, high-gap institutional investors may strongly prefer carrying out the deals as long as the information they can leverage is not fully incorporated into the announcement returns, because they cannot realize their expected trading profits (and thus capture the return gap) if the deals are canceled. We expand the setting in [Luo \(2005\)](#) and examine how the likelihood of deal withdrawal in the face of negative market reaction is influenced by the return gap of institutional investors. Specifically, we run the following regression and then explore whether the key coefficient β_1 varies across the two subsamples.

$$I_i = \beta_1 CAR_i + \beta_2 X_i + \delta_j + \lambda_t + e_i$$

where I_i is a dummy variable that equals one if deal i is withdrawn and zero otherwise; CAR_i is the acquirer 3-day cumulative abnormal announcement return; and X_i is the control variable vector that is commonly used in the literature and includes acquirer size, relative

deal size, acquirer Tobin’s Q, leverage, conglomeration dummy, tender offer dummy, hostile dummy, all equity payment dummy, and all cash payment dummy.

Table 11 presents the regression results for our analysis of deal withdrawals. This analysis includes both completed and withdrawn deals and does not require post-merger BHAR information, resulting in a slightly larger sample size. Our findings reveal a notable contrast in deal outcomes based on institutional ownership. For acquirers mainly held by low-gap institutions, the probability of deal withdrawal is negatively correlated with the market reaction to bid announcements (CAR). In contrast, for acquirers mainly held by high-gap institutions, the probability of deal withdrawal shows no significant sensitivity to CAR. While we cannot directly observe institutions’ behind-the-scenes influence (McCahery et al., 2015), these results suggest that low-gap institutions appear to have a more substantial impact on deal outcomes compared to their high-gap counterparts. The difference between these two subsamples is both statistically significant and economically sizeable.

Overall, by relating the return gap to institutional investors’ governance role studied in previous work, we provide evidence suggesting that the return gap indeed distorts institutional investors’ incentives to preempt or correct value-destroying M&A.

5 Robustness and Discussion

We begin with a placebo test that directly addresses a key identification concern: whether the trading-performance correlation reflects general stock-picking skill rather than M&A-specific information. We then present additional robustness tests covering alternative sample restrictions, accounting-based and holding-period-weighted performance measures, and the role of the Big Three. We also examine acquirer shareholders’ trading of target stocks and characterize the identity of trade counterparties.

5.1 Robustness

Placebo Test

We perform a placebo test to examine whether institutional investors exhibit trading advantages during normal periods, outside the context of major corporate events. To implement this test, we define a placebo quarter as N quarters before the bid announcement ($N=8$ or 12). We then estimate the regression of institutional trading over the subsequent two quarters on the one-year post-trading BHAR, using the same matched firm as a benchmark for calculating BHAR. We use two quarters of trading to match the average negotiation duration, and set $N = 8$ or 12 to avoid overlap with any adjacent acquisition.

Specifically, for acquirer i , we run the following regression:

$$\begin{aligned}\Delta Hldg_{i;(-N,-N+2)} = & \alpha + \beta_1 BHAR_{i;(-N+2,-N+6)} + \beta_2 Return_{i;(-N,-N+2)} + \beta_3 FirmSize_{i;(-N-1yr)} \\ & + \beta_4 FirmMB_{i;(-N-1yr)} + \beta_5 Turnover_{i;(-N,-N+2)} + e_i\end{aligned}$$

where N is the number of quarters prior to bid announcement ($N = 8$ or 12). The dependent variable, $\Delta Hldg_{i;(-N,-N+2)}$ denotes the average trading of acquirer i 's stocks by institutional investors during two quarters following the placebo quarter; the independent variable, $BHAR_{i;(-N+2,-N+6)}$ denotes the 1-year BHAR following the placebo trading period using the same matched firm as a benchmark.

The results, shown in Online Appendix Table [A.1](#), indicate that the relationship between institutional trading and subsequent BHAR is statistically insignificant. This finding suggests that institutional investors possess little information advantage to exploit during periods of low uncertainty in firm value. These findings complement our subsample analyses, reinforcing that institutional investors trade actively and profitably only when they have the incentive and ability to do so.

Serial Acquirers

One concern is that our three-year exclusion criterion removes many serial acquirers. We address this by relaxing the restriction to one year before the acquisition of interest. Online Appendix Table [A.2](#) presents the results. The coefficients on BHAR remain consistent with our baseline, confirming that the findings are robust to alternative definitions of serial acquirers.

Accounting-based Performance Measure

Next, we check robustness using an accounting-based performance measure. Our baseline analysis relies on BHAR, which captures market-based valuation. While BHAR reflects investors' collective assessment of deal value, it may also be influenced by market-wide sentiment or short-term price pressures unrelated to the merger's fundamental quality. Return on equity (ROE) provides a complementary perspective: it measures the firm's operating performance directly from financial statements, and is therefore less susceptible to market mispricing. If institutional investors trade on genuine private information about deal quality, their trading should predict not only long-run market returns but also the underlying operating performance of the combined firm. We construct industry-adjusted ROE (median-adjusted within two-digit SIC) and abnormal ROE from an AR(1) regression, following [Chen et al. \(2007\)](#). The results, reported in Online Appendix Table [A.3](#), confirm that institutional trading during the public negotiation period is positively correlated with post-merger operating performance, reinforcing the interpretation that institutions trade on information about the fundamental quality of the deal.

Institutional Investor Holding Period and Weighted BHAR

In the baseline analysis, we use acquirer BHAR over one-year period following acquisition, as it reflects the returns institutions anticipate ex-ante when trading on merger events.

However, a potential concern arises that the returns realized by institutional investors may deviate from this measure if they trade shares before the full one-year BHAR is realized. For example, if the one-year BHAR is 20%, and they sold the shares two quarters after deal completion, then their realized trading profit is only 10%. To address this, we adjust BHAR by weighting it based on institutional holdings post-merger. Specifically, we partition the one-year BHAR into four quarterly BHAR measures and weight each quarterly BHAR by institutional holdings after the merger relative to the positions accrued during the bid negotiation period. For instance, if institutions sold 40% of the shares accrued during the negotiation period at a quarter post-consummation, the weight for the subsequent quarter is adjusted to 0.6 instead of 1. As a result, the weighted BHAR serves as a more conservative measure that accounts for the effect of institutions unwinding their positions after deal completion. The results, presented in Columns 6 and 12 of Online Appendix Table A.4, confirm that the positive relationship between institutional trading and post-merger performance is robust to this alternative performance measure.

The Effects of the Big Three

The steady growth of the Big Three asset management firms (BlackRock, Vanguard, and State Street) has been prominent, and these firms play a crucial role in governance. We examine whether our primary finding is mostly driven by these firms or whether it represents a more pervasive pattern in the data. To conduct this test, we calculate the share of trading attributable to the Big-3 institutional investors during the public negotiation period of each M&A deal. Specifically, for each acquirer i , we compute:

$$\%Big3_i = \frac{|Big3_i|}{|Big3_i| + |NonBig3_i|}$$

where $|Big3_i|$ denotes the trading volume of acquirer i 's stock by Big-3 institutions during public negotiation period, and $|NonBig3_i|$ represents the trading volume by all other institu-

tional investors in our sample during the same period. We then define the indicator variable *Big3dummy*, which equals one if %*Big3* exceeds 10%. The results, reported in Columns 6-10 of Online Appendix Table A.5, indicate that the relationship between institutional trading and post-merger performance remains robust when controlling for the presence of Big-3 firms. These findings suggest that our main results are not solely driven by the Big-3 firms and are pervasive in the data.¹⁵

5.2 Acquirer Shareholders' Trading of Target Stocks

We next examine whether acquirer shareholders also leverage their information advantage to trade target stocks, given that many institutions hold both sides of a merger (Matvos and Ostrovsky, 2008). This analysis is most relevant in equity deals: in cash deals, target shares are delisted after merger; in equity deals, they convert to shares of the combined firm, so acquirer shareholders may trade them alongside acquirer stocks during the negotiation period.

We restrict the sample to deals where both acquirer and target are publicly traded, payment method is observable, and at least one acquirer shareholder held target shares during the process, yielding 559 of the 1,594 deals in our main study. Online Appendix Table A.6 presents summary statistics; on average, 5 of each acquirer's 16 institutional shareholders also hold target shares, representing about 6% of target shares outstanding.

We test this with an interaction regression:

$$\begin{aligned} \Delta TarHldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i \cdot I(Equity_i) + \beta_2 I(Equity_i) + \beta_3 BHAR_i + \beta_4 Return_{i;(0,cls)} \\ & + \beta_5 FirmSize_{i,-1yr} + \beta_6 FirmMB_{i,-1yr} + \beta_7 Turnover_{i;(0,cls)} + \beta_8 EOY_i + e_i \end{aligned}$$

where $\Delta TarHldg_{i;(0,cls)}$ is the acquirer's trading of target stocks, $I(Equity_i)$ equals one if

¹⁵Results are robust to cutoff thresholds of 5%, 15%, or 20%, and to alternative volume measures such as $|Big3|/|Big3+NonBig3|$.

the deal involves equity payment beyond a specified threshold, and other controls are as in the main analysis.

Online Appendix Table [A.7](#) presents regression results with and without industry and year fixed effects. The results confirm that acquirer shareholders' trading of target stock is more positively correlated with post-merger BHAR in equity deals than in cash deals, and the distinction grows more pronounced as the equity fraction increases.

These findings also help address a potential concern that our results are driven by M&A arbitrage. Arbitrageurs typically buy target shares and short acquirer shares in stock deals to capture the deal spread. However, this strategy is generally not pursued by mutual funds, which face constraints on short-selling. Moreover, if arbitrage were the mechanism, we would expect institutions to trade acquirer and target stocks in opposite directions. Instead, our results show that institutions tend to buy both acquirer and target stocks in deals with good long-run outcomes and sell both in deals with poor outcomes when equity is used as payment. This pattern is inconsistent with arbitrage and consistent with trading on private information about deal quality.

5.3 Who Are the Counterparts

A natural question is who takes the other side of these informed trades. We replicate our baseline regression for each investor type in the 13F database (banks, insurance companies, investment advisors, pension funds, and retail holdings). Online Appendix Table [A.8](#) shows that only type 3 investors (mutual funds and hedge funds) consistently trade in the direction of long-run deal outcomes. No other group exhibits a significantly negative coefficient, indicating that losses are not persistently concentrated among any identifiable counterparty.

6 Conclusion

If investors trade actively during corporate events, the return to the firm is not equal to the return to these investors. This gap renders firm return a misleading measure for investors' incentives in corporate decisions. In this paper, we document in the context of M&A that institutional investors increase their holdings of acquirers in good deals and decrease their holdings in bad deals before the market fully realizes the deal outcome. This positive correlation between institutional trading and long-run deal performance implies significant trading profits, and we propose a new measure to incorporate these profits and gauge investors' incentives more accurately. Even though M&A on average destroy firm value, institutional investors benefit from embracing acquisitive firms, because the uncertainty created by merger events allows them to capture the option value of these events: they leverage their information advantage to capture upward potential while mitigating downward risk. Our paper thus offers a complementary explanation to the puzzle of why acquirer shareholders rarely oppose aggressive M&A strategies even when firms do not overtly benefit. We further show that the return gap distorts institutional investors' preemptive and corrective governance incentives, underscoring that investors who have a say on corporate events do not necessarily bear their full consequences and that accounting for shareholder composition dynamics is critical for measuring incentives correctly.

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Table 1: **Summary Statistics****Panel A. The Full Sample**

Panel A reports summary statistics of M&A deal characteristics and the institutional holdings and trading of acquirer stocks in the full sample. $Ln(MV_{Acq})$ is the logarithm of the acquirer's pre-acquisition market value measured 22 trading days before the bid announcement; Q_{Acq} is the acquirer's pre-acquisition market-to-book ratio; $Deal\ Size$ is the relative deal size measured as the transaction value divided by the acquirer's pre-acquisition market value; $Bid\ Len$ is the total number of calendar days between bid announcement and bid completion or withdrawal; CAR_{3d} is the acquirer's 3-day cumulative abnormal return around the bid announcement date computed using the market model; $BHAR_{1y}$ and $BHAR_{2y}$ are the acquirer's post-merger 1-year and 2-year buy-and-hold abnormal return; $Num\ Inst$ is the total number of institutions that hold the acquirer's stock before bid announcement; $BA\ Sprd$ is the bid-ask spread of the acquirer's stock expressed as a percentage of the mid-price; $Hldg_{-1}$ is the average institutional holdings of the acquirer stock one quarter before the bid announcement, expressed as a percent of total shares outstanding; $\Delta Hldg_{(-5,-1)}$ is the change in institutional holdings of the acquirer's stocks during the one year period before bid announcement (i.e., from five quarters to one quarter before the announcement); $\Delta Hldg_{(0,cls)}$ is the change in institutional holdings of the acquirer's stocks during the public negotiation period; $|\Delta Hldg_{(-5,-1)}|$ and $|\Delta Hldg_{(0,cls)}|$ are the absolute value of $\Delta Hldg_{(-5,-1)}$ and $\Delta Hldg_{(0,cls)}$ respectively and capture the trading volume of acquirer stock in the corresponding periods.

Deal Characteristics					
	Mean	Stdev	P10	P50	P90
$Ln(MV_{Acq})$	20.50	1.76	18.31	20.41	22.84
Q_{Acq}	1.91	1.37	0.96	1.44	3.42
$Deal\ Size$	0.33	0.51	0.03	0.16	0.83
$Bid\ Len$	139.17	126.92	43.00	108.50	253.00
$CAR_{3d}(\%)$	-0.04	7.40	-7.52	-0.10	7.27
$BHAR_{1y}(\%)$	-0.89	49.60	-58.20	-0.31	61.00
$BHAR_{2y}(\%)$	-1.73	73.76	-89.67	-1.90	89.27
$Num\ Inst$	13.90	11.59	2.00	11.00	31.00
$BA\ Sprd(\%)$	1.16	1.55	0.04	0.58	2.94

Mutual Fund Holding and Trading					
	Mean	Stdev	P10	P50	P90
$Hldg_{-1}$	1.26	1.26	0.31	0.93	2.40
$\Delta Hldg_{(-5,-1)}$	0.25	0.88	-0.34	0.11	1.07
$\Delta Hldg_{(0,cls)}$	0.15	1.13	-0.24	0.04	0.57
$ \Delta Hldg_{(-5,-1)} $	0.51	0.75	0.03	0.25	1.30
$ \Delta Hldg_{(0,cls)} $	0.32	1.09	0.01	0.13	0.72

Panel B. The Subsamples

Panel B reports summary statistics for different subsamples. Initial holding X_0 is the average institutional holdings of acquirer stocks at the beginning of public negotiation period, expressed as a percent of total acquirer stock outstanding. The relative portfolio weight Wts is the weight of the acquirer's stocks in the institutions' portfolios minus the benchmark weight (the benchmark weight is one over the total number of stocks an institution holds). Transaction value *Deal Size* is measured as the transaction value divided by the acquirer's pre-acquisition market value. Liquidity is measured by the acquirer stock's percent bid-ask spread, and the subsample with high liquidity contains acquirers with low percent bid-ask spreads. $BHAR_{1y}$ is the acquirer's post-merger 1-year buy-and-hold abnormal return. $\Delta Hldg_{(0,cls)}$ is the average change in institutional holdings of the acquirer's stocks during the public negotiation period; $|\Delta Hldg_{(0,cls)}|$ is the absolute value of $\Delta Hldg_{(0,cls)}$ and captures the trading volume of acquirer stock in the public negotiation period.

	Mean	Std	Mean	Std
Initial Holdings X_0				
	High		Low	
$X_0(\%)$	2.09	1.48	0.49	0.27
$BHAR_{1y}(\%)$	-2.22	53.04	0.44	45.90
$\Delta Hldg_{(0,cls)}$	0.16	1.53	0.14	0.47
$ \Delta Hldg_{(0,cls)} $	0.41	1.48	0.22	0.44
Transaction Value				
	High		Low	
<i>Deal Size</i>	0.61	0.62	0.07	0.04
$BHAR_{1y}(\%)$	-0.94	50.65	-0.84	48.57
$\Delta Hldg_{(0,cls)}$	0.25	1.49	0.05	0.57
$ \Delta Hldg_{(0,cls)} $	0.40	1.45	0.23	0.52
Investor Ability				
	High		Low	
<i>AbilityScore</i>	0.43	0.33	-0.24	0.28
$BHAR_{1y}(\%)$	-2.26	48.92	0.77	50.11
$\Delta Hldg_{(0,cls)}$	0.16	1.50	0.14	0.55
$ \Delta Hldg_{(0,cls)} $	0.34	1.48	0.30	0.48

	Mean	Std	Mean	Std
Relative Portfolio Weights Wts				
	High		Low	
$Wts(\%)$	0.15	0.20	-0.09	0.10
$BHAR_{1y}(\%)$	-1.40	43.10	-0.38	55.36
$\Delta Hldg_{(0,cls)}$	0.20	1.43	0.10	0.72
$ \Delta Hldg_{(0,cls)} $	0.29	1.41	0.34	0.64
Liquidity				
	High		Low	
<i>BA Sprd</i> (%)	0.16	0.19	2.11	1.71
$BHAR_{1y}(\%)$	-1.44	57.28	-1.20	42.98
$\Delta Hldg_{(0,cls)}$	0.23	1.69	0.08	0.34
$ \Delta Hldg_{(0,cls)} $	0.43	1.65	0.21	0.29

Table 2: **Institutional Trading and Merger Performance: The Full Sample**

This table presents the results for the baseline analysis:

$$\begin{aligned}\Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i\end{aligned}$$

The dependent variable, $\Delta Hldg_{i;(0,cls)}$ denotes the average trading of acquirer i 's stocks by institutional investors during the public negotiation period; $BHAR_i$ is the post-merger buy-and-hold abnormal return over different horizons. Control variables follow [Parrino et al. \(2003\)](#) who study the determinants of changes in institutional holdings: $Return_{i;(0,cls)}$ denotes the acquirer's cumulative return in public negotiation period; $FirmSize_{i,-1yr}$ and $FirmMB_{i,-1yr}$ denote the acquirer's size (i.e., the logarithm of market value) and book-to-market ratio measured one year before the bid announcement; $Turnover_{i;(0,cls)}$ denotes the aggregate trading volume in public negotiation period normalized by the shares outstanding, EOY_i denotes the year-end dummy, which takes the value of one if the public negotiation period contains the fourth quarter. The analyses with industry and year fixed effects are also reported.

	[0, 12m]	[0, 24m]	[0, 6m]	[6m,12m]	[12m, 24m]	[0, 12m]	[0, 24m]	[0, 6m]	[6m,12m]	[12m, 24m]
<i>BHAR</i>	0.176*** (0.057)	0.096** (0.038)	0.108 (0.083)	0.239*** (0.078)	0.030 (0.052)	0.192*** (0.057)	0.108*** (0.039)	0.146* (0.085)	0.236*** (0.080)	0.040 (0.053)
<i>Return</i>	0.322*** (0.095)	0.327*** (0.095)	0.331*** (0.096)	0.338*** (0.095)	0.341*** (0.095)	0.313*** (0.098)	0.318*** (0.098)	0.322*** (0.099)	0.331*** (0.098)	0.334*** (0.098)
<i>Size</i>	-0.067*** (0.017)	-0.067*** (0.017)	-0.065*** (0.017)	-0.069*** (0.017)	-0.066*** (0.017)	-0.073*** (0.018)	-0.072*** (0.018)	-0.070*** (0.018)	-0.074*** (0.018)	-0.071*** (0.018)
<i>M/B</i>	0.002 (0.021)	0.004 (0.021)	0.002 (0.021)	0.004 (0.021)	0.004 (0.021)	0.010 (0.023)	0.013 (0.023)	0.010 (0.023)	0.011 (0.023)	0.012 (0.023)
<i>EOY</i>	0.029 (0.058)	0.032 (0.058)	0.029 (0.058)	0.031 (0.058)	0.031 (0.058)	0.050 (0.060)	0.053 (0.060)	0.049 (0.060)	0.052 (0.060)	0.051 (0.060)
<i>Vol</i>	0.002 (0.028)	-0.004 (0.028)	-0.001 (0.028)	-0.002 (0.028)	-0.005 (0.028)	0.002 (0.030)	-0.005 (0.030)	-0.001 (0.030)	-0.003 (0.030)	-0.006 (0.030)
<i>Cons.</i>	0.563*** (0.118)	0.559*** (0.118)	0.547*** (0.118)	0.576*** (0.118)	0.552*** (0.118)	0.576*** (0.124)	0.572*** (0.125)	0.558*** (0.125)	0.589*** (0.125)	0.565*** (0.125)
Fixed Effects	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
# Obs	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594
Adj-R2	0.021	0.019	0.016	0.021	0.015	0.019	0.017	0.014	0.017	0.012

Table 3: **Institutional Trading and Merger Performance: Deal Size**

This table presents the results for the following regression in two subsamples that are constructed based on the relative deal size, $\frac{TranVal}{MV_{Acq}}$:

$$\begin{aligned} \Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i \end{aligned}$$

where $\Delta Hldg_{i;(0,cls)}$ is the change in institutional holdings during the public negotiation period that starts from the quarter end of bid announcement and lasts until the quarter end of bid completion or withdrawal. $BHAR_i$ is the post-merger buy-and-hold abnormal return over different horizons, $Return_{i;(0,cls)}$ is the total return of the company stock during the public negotiation period, $FirmSize_{i,-1yr}$ is the logarithm of the acquirer's market value one year before the bid announcement, $FirmMB_{i,-1yr}$ is the market-to-book equity ratio of the acquirer one year before the bid, $Turnover_{i;(0,cls)}$ is the total trading volume as a percentage of the acquirer's shares outstanding during public negotiation period, and EOY_i is an end-of-year dummy. The analyses with industry and year fixed effects are also reported.

	Large		Small		Difference		Large		Small		Difference	
	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]
<i>BHAR</i>	0.266**	0.160**	0.062	0.033	0.204*	0.127*	0.298***	0.186**	0.066	0.033	0.232**	0.153*
	(0.104)	(0.071)	(0.041)	(0.027)	(0.112)	(0.076)	(0.107)	(0.073)	(0.042)	(0.028)	(0.115)	(0.078)
<i>Return</i>	0.315**	0.331**	0.284***	0.281***	0.031	0.050	0.312*	0.332**	0.262***	0.260***	0.050	0.072
	(0.158)	(0.157)	(0.080)	(0.080)	(0.177)	(0.176)	(0.165)	(0.165)	(0.084)	(0.084)	(0.185)	(0.185)
<i>Size</i>	-0.085***	-0.085***	-0.035***	-0.035***	-0.050	-0.050	-0.097***	-0.097***	-0.036***	-0.035***	-0.061*	-0.062*
	(0.031)	(0.031)	(0.012)	(0.012)	(0.033)	(0.033)	(0.034)	(0.034)	(0.013)	(0.013)	(0.036)	(0.036)
<i>M/B</i>	0.046	0.055	-0.018	-0.018	0.064	0.073	0.078	0.088*	-0.020	-0.020	0.098*	0.108**
	(0.044)	(0.044)	(0.014)	(0.014)	(0.046)	(0.046)	(0.048)	(0.048)	(0.015)	(0.015)	(0.050)	(0.050)
<i>EOY</i>	0.115	0.116	-0.099**	-0.097**	0.214*	0.213*	0.145	0.144	-0.091**	-0.090**	0.236*	0.234*
	(0.107)	(0.107)	(0.042)	(0.042)	(0.115)	(0.115)	(0.113)	(0.114)	(0.044)	(0.044)	(0.121)	(0.122)
<i>Vol</i>	-0.023	-0.033	0.033	0.031	-0.056	-0.064	-0.022	-0.033	0.035	0.032	-0.057	-0.065
	(0.045)	(0.045)	(0.026)	(0.026)	(0.052)	(0.052)	(0.048)	(0.048)	(0.028)	(0.028)	(0.056)	(0.056)
<i>Cons.</i>	0.654***	0.648***	0.339***	0.337***	0.315	0.311	0.656***	0.653***	0.342***	0.340***	0.314	0.313
	(0.208)	(0.208)	(0.091)	(0.091)	(0.227)	(0.227)	(0.224)	(0.224)	(0.099)	(0.099)	(0.245)	(0.245)
Fixed Effects	No	No	No	No			Yes	Yes	Yes	Yes		
# Obs	797	797	797	797			797	797	797	797		

Table 4: **Institutional Trading and Merger Performance: Liquidity**

This table presents the results for the following regression in two subsamples that are constructed based on the acquirer stock liquidity:

$$\begin{aligned}\Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i\end{aligned}$$

where $\Delta Hldg_{i;(0,cls)}$ is the change in institutional holdings during the public negotiation period that starts from the quarter end of bid announcement and lasts until the quarter end of bid completion or withdrawal. $BHAR_i$ is the post-merger buy-and-hold abnormal return over different horizons, $Return_{i;(0,cls)}$ is the total return of the company stock during the public negotiation period, $FirmSize_{i,-1yr}$ is the logarithm of the acquirer's market value one year before the bid announcement, $FirmMB_{i,-1yr}$ is the market-to-book equity ratio of the acquirer one year before the bid, $Turnover_{i;(0,cls)}$ is the total trading volume as a percentage of the acquirer's shares outstanding during public negotiation period, and EOY_i is an end-of-year dummy. The analyses with industry and year fixed effects are also reported.

	High		Low		Difference		High		Low		Difference	
	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]
<i>BHAR</i>	0.301** (0.117)	0.176** (0.079)	-0.038 (0.032)	-0.036* (0.021)	0.339*** (0.121)	0.212*** (0.082)	0.362*** (0.120)	0.228*** (0.082)	-0.051 (0.033)	-0.041* (0.022)	0.413*** (0.124)	0.269*** (0.085)
<i>Return</i>	0.342* (0.189)	0.356* (0.189)	0.182*** (0.057)	0.182*** (0.057)	0.160 (0.197)	0.174 (0.197)	0.367* (0.197)	0.378* (0.197)	0.161*** (0.061)	0.160*** (0.061)	0.206 (0.206)	0.218 (0.206)
<i>Size</i>	-0.111*** (0.041)	-0.114*** (0.041)	-0.016* (0.009)	-0.016* (0.009)	-0.095** (0.042)	-0.098*** (0.042)	-0.169*** (0.048)	-0.176*** (0.049)	-0.015 (0.010)	-0.016 (0.010)	-0.154*** (0.049)	-0.160*** (0.050)
<i>M/B</i>	0.011 (0.049)	0.015 (0.049)	0.010 (0.009)	0.010 (0.009)	0.001 (0.050)	0.005 (0.050)	0.047 (0.054)	0.055 (0.054)	0.014 (0.011)	0.014 (0.011)	0.033 (0.055)	0.041 (0.055)
<i>EOY</i>	0.109 (0.136)	0.114 (0.136)	0.012 (0.028)	0.011 (0.028)	0.097 (0.139)	0.103 (0.139)	0.161 (0.145)	0.169 (0.145)	0.020 (0.031)	0.019 (0.030)	0.141 (0.148)	0.150 (0.148)
<i>Vol</i>	0.019 (0.086)	-0.002 (0.086)	-0.018 (0.011)	-0.017 (0.011)	0.037 (0.087)	0.015 (0.087)	0.020 (0.090)	-0.003 (0.090)	-0.017 (0.012)	-0.016 (0.012)	0.037 (0.091)	0.013 (0.091)
<i>Cons.</i>	0.783*** (0.262)	0.806*** (0.262)	0.188*** (0.069)	0.191*** (0.069)	0.595** (0.271)	0.615** (0.271)	1.034*** (0.295)	1.075*** (0.296)	0.174** (0.074)	0.179** (0.074)	0.860*** (0.304)	0.896*** (0.305)
Fixed Effects	No	No	No	No			Yes	Yes	Yes	Yes		
# Obs	641	641	641	641			639	639	638	638		

Table 5: Institutional Trading and Merger Performance: Short Sale Constraints

Panel A. Institutional Trading in Good and Bad Deals

This panel presents the following regression:

$$\begin{aligned} \Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 [BHAR_i]^{+(-)} + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i \end{aligned}$$

where $\Delta Hldg_{i;(0,cls)}$ is the change in institutional holdings of acquirer i 's stocks during the public negotiation period that starts from the quarter end of bid announcement and lasts until the quarter end of bid closure (completed or withdrawn). $[BHAR_i]^{+(-)}$ equals $BHAR_i$ when $BHAR_i$ is positive (negative) and zero otherwise, $BHAR_i$ is the post-merger buy-and-hold abnormal return over different horizons, $Return_{i;(0,cls)}$ is the total return of the company stock during the public negotiation period, $FirmSize_{i,-1yr}$ is the logarithm of the acquirer's market value one year before the bid announcement, $FirmMB_{i,-1yr}$ is the market-to-book equity ratio of the acquirer one year before the bid, $Turnover_{i;(0,cls)}$ denotes the aggregate trading volume in public negotiation period normalized by the shares outstanding, and EOY_i is an end-of-year dummy. The analyses with industry and year fixed effects are also reported.

	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]
$[BHAR]^+$	0.374*** (0.099)	0.165** (0.065)			0.404*** (0.101)	0.175*** (0.067)		
$[BHAR]^-$			0.143 (0.093)	0.104* (0.062)			0.169* (0.095)	0.133** (0.064)
<i>Return</i>	0.320*** (0.095)	0.329*** (0.095)	0.334*** (0.095)	0.334*** (0.095)	0.314*** (0.098)	0.324*** (0.098)	0.325*** (0.098)	0.323*** (0.098)
<i>Size</i>	-0.058*** (0.017)	-0.062*** (0.017)	-0.070*** (0.017)	-0.069*** (0.017)	-0.064*** (0.018)	-0.068*** (0.018)	-0.075*** (0.018)	-0.075*** (0.018)
<i>M/B</i>	-0.002 (0.021)	0.002 (0.021)	0.004 (0.021)	0.005 (0.021)	0.008 (0.023)	0.012 (0.023)	0.012 (0.023)	0.013 (0.023)
<i>EOY</i>	0.030 (0.058)	0.034 (0.058)	0.029 (0.058)	0.030 (0.058)	0.049 (0.059)	0.053 (0.060)	0.051 (0.060)	0.051 (0.060)
<i>Vol</i>	-0.001 (0.028)	-0.003 (0.028)	-0.000 (0.028)	-0.004 (0.028)	-0.001 (0.029)	-0.004 (0.030)	-0.001 (0.030)	-0.005 (0.030)
<i>Cons.</i>	0.445*** (0.121)	0.487*** (0.121)	0.601*** (0.123)	0.600*** (0.122)	0.445*** (0.128)	0.497*** (0.127)	0.624*** (0.129)	0.625*** (0.128)
Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes
# Obs	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594

Panel B. Initial Holding X_0

This panel presents the results for the following regression in two subsamples that are constructed based on the institutions' initial holdings, X_0 , of the acquirer stocks at the beginning of public negotiation period:

$$\begin{aligned}\Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i\end{aligned}$$

where $\Delta Hldg_{i;(0,cls)}$ is the change in institutional holdings during the public negotiation period that starts from the quarter end of bid announcement and lasts until the quarter end of bid completion or withdrawal. $BHAR_i$ is the post-merger buy-and-hold abnormal return over different horizons, $Return_{i;(0,cls)}$ is the total return of the company stock during the public negotiation period, $FirmSize_{i,-1yr}$ is the logarithm of the acquirer's market value one year before the bid announcement, $FirmMB_{i,-1yr}$ is the market-to-book equity ratio of the acquirer one year before the bid, $Turnover_{i;(0,cls)}$ is the total trading volume as a percentage of the acquirer's shares outstanding during public negotiation period, and EOY_i is an end-of-year dummy. The analyses with industry and year fixed effects are also reported.

	High X_0		Low X_0		Difference		High X_0		Low X_0		Difference	
	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]
<i>BHAR</i>	0.316*** (0.102)	0.176*** (0.067)	-0.024 (0.036)	-0.025 (0.025)	0.340*** (0.108)	0.201*** (0.072)	0.361*** (0.105)	0.229*** (0.070)	-0.027 (0.037)	-0.029 (0.025)	0.388*** (0.111)	0.258*** (0.074)
<i>Return</i>	0.460** (0.182)	0.494*** (0.181)	0.116** (0.056)	0.117** (0.056)	0.344* (0.190)	0.377** (0.189)	0.430** (0.190)	0.458** (0.189)	0.118** (0.059)	0.119** (0.059)	0.312 (0.199)	0.339* (0.198)
<i>Size</i>	-0.137*** (0.039)	-0.134*** (0.039)	-0.036*** (0.009)	-0.037*** (0.009)	-0.101*** (0.040)	-0.097*** (0.040)	-0.141*** (0.043)	-0.138*** (0.043)	-0.038*** (0.010)	-0.038*** (0.010)	-0.103*** (0.044)	-0.100** (0.044)
<i>M/B</i>	0.029 (0.042)	0.029 (0.043)	-0.011 (0.012)	-0.011 (0.012)	0.040 (0.044)	0.040 (0.045)	0.033 (0.047)	0.035 (0.047)	-0.001 (0.013)	-0.002 (0.013)	0.034 (0.049)	0.037 (0.049)
<i>EOY</i>	0.109 (0.111)	0.119 (0.111)	-0.062* (0.034)	-0.062* (0.034)	0.171 (0.116)	0.181 (0.116)	0.151 (0.117)	0.168 (0.117)	-0.069* (0.035)	-0.069* (0.035)	0.220* (0.122)	0.237* (0.122)
<i>Vol</i>	-0.018 (0.047)	-0.029 (0.047)	0.069*** (0.020)	0.069*** (0.020)	-0.087* (0.051)	-0.098* (0.051)	-0.029 (0.050)	-0.042 (0.050)	0.073*** (0.022)	0.074*** (0.022)	-0.102* (0.055)	-0.116** (0.055)
<i>Cons.</i>	0.903*** (0.242)	0.894*** (0.243)	0.393*** (0.071)	0.395*** (0.071)	0.510** (0.252)	0.499** (0.253)	0.917*** (0.266)	0.903*** (0.266)	0.383*** (0.075)	0.386*** (0.075)	0.534* (0.276)	0.517* (0.276)
Fixed Effects	No	No	No	No			Yes	Yes	Yes	Yes		
# Obs	797	797	797	797			794	794	795	795		

Table 6: **Institutional Trading and Merger Performance: Ability**

This table presents the results for the following regression in two subsamples that are constructed based on the abilities of mutual funds measured by their trading performance in past M&As.

$$\begin{aligned}\Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i\end{aligned}$$

where $\Delta Hldg_{i;(0,cls)}$ is the change in institutional holdings during the public negotiation period that starts from the quarter end of bid announcement and lasts until the quarter end of bid completion or withdrawal. $BHAR_i$ is the post-merger buy-and-hold abnormal return over different horizons, $Return_{i;(0,cls)}$ is the total return of the company stock during the public negotiation period, $FirmSize_{i,-1yr}$ is the logarithm of the acquirer's market value one year before the bid announcement, $FirmMB_{i,-1yr}$ is the market-to-book equity ratio of the acquirer one year before the bid, $Turnover_{i;(0,cls)}$ is the total trading volume as a percentage of the acquirer's shares outstanding during public negotiation period, and EOY_i is an end-of-year dummy. The analyses with industry and year fixed effects are also reported.

	High		Low		Difference		High		Low		Difference	
	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]
<i>BHAR</i>	0.385*** (0.108)	0.196*** (0.072)	0.002 (0.039)	0.014 (0.026)	0.383*** (0.115)	0.182*** (0.077)	0.404*** (0.112)	0.197*** (0.075)	-0.004 (0.040)	-0.002 (0.027)	0.408*** (0.119)	0.199*** (0.080)
<i>Return</i>	0.439** (0.186)	0.451** (0.187)	0.219*** (0.064)	0.216*** (0.063)	0.220 (0.197)	0.235 (0.197)	0.465** (0.197)	0.482** (0.197)	0.249*** (0.067)	0.248*** (0.066)	0.216 (0.208)	0.234 (0.208)
<i>Size</i>	-0.092*** (0.030)	-0.089*** (0.030)	-0.045*** (0.012)	-0.045*** (0.012)	-0.047 (0.032)	-0.044 (0.032)	-0.106*** (0.034)	-0.101*** (0.034)	-0.046*** (0.013)	-0.046*** (0.013)	-0.060* (0.036)	-0.055 (0.036)
<i>M/B</i>	0.003 (0.041)	0.006 (0.041)	0.003 (0.014)	0.004 (0.014)	0.000 (0.043)	0.002 (0.043)	0.023 (0.045)	0.028 (0.045)	0.006 (0.015)	0.006 (0.015)	0.017 (0.047)	0.022 (0.047)
<i>EOY</i>	0.069 (0.110)	0.080 (0.111)	-0.028 (0.039)	-0.028 (0.039)	0.097 (0.117)	0.108 (0.118)	0.106 (0.116)	0.117 (0.117)	-0.035 (0.042)	-0.035 (0.042)	0.141 (0.123)	0.152 (0.124)
<i>Vol</i>	-0.034 (0.057)	-0.049 (0.057)	0.023 (0.018)	0.023 (0.018)	-0.057 (0.060)	-0.072 (0.060)	-0.051 (0.060)	-0.069 (0.060)	0.025 (0.020)	0.025 (0.020)	-0.076 (0.063)	-0.094 (0.063)
<i>Cons.</i>	0.759*** (0.217)	0.728*** (0.217)	0.411*** (0.084)	0.412*** (0.084)	0.348 (0.233)	0.316 (0.233)	0.810*** (0.237)	0.770*** (0.238)	0.413*** (0.092)	0.413*** (0.092)	0.397 (0.254)	0.357 (0.255)
Fixed Effects	No	No	No	No			Yes	Yes	Yes	Yes		
# Obs	790	790	790	790			789	789	789	789		

Table 7: Institutional Trading and Merger Performance: Portfolio Weights

This table presents the results for the following regression in two subsamples that are constructed based on the relative weights of acquirer stock in mutual funds' portfolios, Wts :

$$\begin{aligned}\Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i\end{aligned}$$

where $\Delta Hldg_{i;(0,cls)}$ is the change in institutional holdings during the public negotiation period that starts from the quarter end of bid announcement and lasts until the quarter end of bid completion or withdrawal. $BHAR_i$ is the post-merger buy-and-hold abnormal return over different horizons, $Return_{i;(0,cls)}$ is the total return of the company stock during the public negotiation period, $FirmSize_{i,-1yr}$ is the logarithm of the acquirer's market value one year before the bid announcement, $FirmMB_{i,-1yr}$ is the market-to-book equity ratio of the acquirer one year before the bid, $Turnover_{i;(0,cls)}$ is the total trading volume as a percentage of the acquirer's shares outstanding during public negotiation period, and EOY_i is an end-of-year dummy. The analyses with industry and year fixed effects are also reported.

	High Wts		Low Wts		Difference		High Wts		Low Wts		Difference	
	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]	[0, 12m]	[0, 24m]
$BHAR$	0.358*** (0.116)	0.164** (0.076)	0.081* (0.045)	0.056* (0.031)	0.277** (0.124)	0.108 (0.082)	0.400*** (0.120)	0.196** (0.079)	0.091* (0.047)	0.073** (0.032)	0.309*** (0.129)	0.123 (0.085)
$Return$	0.274 (0.186)	0.265 (0.186)	0.314*** (0.079)	0.318*** (0.079)	-0.040 (0.202)	-0.053 (0.202)	0.316 (0.196)	0.307 (0.197)	0.269*** (0.084)	0.271*** (0.083)	0.047 (0.213)	0.036 (0.214)
$Size$	-0.163*** (0.033)	-0.160*** (0.033)	-0.060*** (0.020)	-0.061*** (0.020)	-0.103*** (0.039)	-0.099*** (0.039)	-0.187*** (0.036)	-0.185*** (0.036)	-0.061*** (0.021)	-0.061*** (0.021)	-0.126*** (0.042)	-0.124*** (0.042)
M/B	0.019 (0.034)	0.020 (0.034)	-0.023 (0.021)	-0.021 (0.021)	0.042 (0.040)	0.041 (0.040)	0.043 (0.039)	0.047 (0.039)	-0.027 (0.023)	-0.024 (0.023)	0.070 (0.045)	0.071 (0.045)
EOY	0.101 (0.104)	0.119 (0.104)	-0.009 (0.051)	-0.011 (0.051)	0.110 (0.116)	0.130 (0.116)	0.145 (0.110)	0.167 (0.110)	0.009 (0.054)	0.008 (0.054)	0.136 (0.123)	0.159 (0.123)
Vol	-0.038 (0.054)	-0.047 (0.054)	0.019 (0.023)	0.016 (0.023)	-0.057 (0.059)	-0.063 (0.059)	-0.033 (0.060)	-0.044 (0.060)	0.014 (0.025)	0.011 (0.025)	-0.047 (0.065)	-0.055 (0.065)
$Cons.$	1.381*** (0.260)	1.350*** (0.261)	0.465*** (0.118)	0.467*** (0.118)	0.916*** (0.286)	0.883*** (0.286)	1.494*** (0.287)	1.464*** (0.288)	0.472*** (0.126)	0.472*** (0.126)	1.022*** (0.313)	0.992*** (0.314)
Fixed Effects	No	No	No	No			Yes	Yes	Yes	Yes		
# Obs	797	797	797	797			796	796	795	795		

Table 8: **High-gap and Low-gap Institutional Investors****Panel A. Sample of High-gap Institutions**

Panel A reports summary statistics for a sample of high-gap institutional investors. *Fund type* denotes an institutional investor's primary investment vehicle and does not necessarily capture all of its business activities. *Hedge* refers to hedge funds; *Mutual* and *ETF* refer to publicly offered mutual funds and exchange-traded funds, respectively; and *Institutional* refers to discretionary institutional accounts, including separately managed accounts and pension mandates for institutional clients. *Ndeals* is the number of deals that a given institution engaged in trading among our 1,594 M&A transactions. *AUM* is the time-series average assets under management for each institution between 1980 and 2017, and *Nstock* is the time-series average number of stocks held by the institution over the same period. *Gap* denotes the estimated institution-specific gap measure. *Alpha* is the average monthly alpha estimated using the Fama–French four-factor model at the fund level and then aggregated to the fund-family level using AUM weights. All calculations are based on securities reported in 13F filings.

A. Sample of High-gap Institutions						
	Fund type	Ndeals	AUM (\$billion)	Nstock	Gap (%)	Alpha (%)
Maverick Capital	Hedge	40	4.19	67.42	26.24	0.19
Berger LLC	Institutional	98	2.75	256.48	16.13	0.51
Keystone Investments	Mutual	99	3.50	728.52	11.01	0.35
Delaware Investments	Mutual	544	21.72	764.78	10.06	0.39
Parnassus Investments	Mutual	53	4.01	82.86	7.86	0.41
De Garmo & Kelleher	Institutional	181	5.64	508.37	7.10	0.35
AAL Capital Management	Mutual, Institutional	223	5.62	817.51	5.57	0.13
Davis Selected Advisers	Mutual, ETF	89	34.69	206.98	3.93	0.36
Neuberger & Berman	Mutual, Hedge	106	7.88	386.82	3.72	0.37
Nicholas Company	Mutual	141	3.15	213.90	2.74	0.46

Panel B. Comparison of High-gap and Low-gap Institutions

Panel B reports the summary statistics comparing high-gap and low-gap institutions. *Ndeals* is the number of deals that a given institution engaged in trading among our 1,594 M&A transactions. *AUM* is the time-series average assets under management for each institution between 1980 and 2017, and *Nstock* is the time-series average number of stocks held by the institution over the same period. *Gap* denotes the estimated institution-specific gap measure winsorized at the 1% level. *Alpha* is the average monthly alpha estimated using the Fama–French four-factor model at the fund level and then aggregated to the fund-family level using AUM weights. To maintain comparability and avoid summary statistics being dominated by the largest asset managers, we exclude the Big Four institutions (BlackRock, Vanguard, State Street, and Fidelity) from Panel B.

B. Summary Statistics										
	High gap					Low gap				
	Mean	Std	P10	P50	P90	Mean	Std	P10	P50	P90
Ndeals	101.45	116.29	13	54	298	159.57	238.54	2	43	537
AUM (\$billion)	3.47	6.49	0.23	1.49	7.88	8.88	22.39	0.12	0.87	26.69
Nstock	322.19	260.92	51.52	248.05	806.62	333.04	428.35	50.07	166.33	838.22
Gap (%)	13.08	10.69	3.72	8.70	31.50	-5.78	9.07	-20.91	-1.49	1.31
Alpha (%)	0.32	0.16	0.11	0.36	0.46	0.27	0.26	0.05	0.32	0.47

Panel C. Trading Performance of High-gap and Low-gap Institutions

Panel C reports the summary statistics on trading performance. *Good deals* are M&A transactions with positive post-merger 12-month BHAR, while *Bad deals* are those with negative post-merger 12-month BHAR. *Trading* denotes the average signed trading volume in the acquirer's shares per institution, measured as a fraction of acquirer shares outstanding. Big Four institutions (BlackRock, Vanguard, State Street, and Fidelity) are excluded from Panel C.

C. Trading Performance											
		High gap					Low gap				
		Mean	Std	P10	P50	P90	Mean	Std	P10	P50	P90
Good deal	Trading (%)	0.07	0.15	-0.02	0.03	0.20	0.03	0.30	-0.09	0.01	0.14
Bad deal	Trading (%)	-0.03	0.14	-0.19	-0.01	0.11	0.02	0.15	-0.05	0.02	0.14

Table 9: **Return Gap and Governance: Acquisitiveness**

This table presents the results for the following regression:

$$Acquisition_{it} = \beta_1 HighGap_{i,t-1} + \beta_2 X_{i,t-1} + \alpha_i + \lambda_t + e_{it}.$$

$Acquisition_{it}$ is the dummy variable that equals one if firm i announced an acquisition in year t and zero otherwise. $HighGap_{i,t-1}$ is a dummy that equals one if the acquirers are held more heavily by institutional investors that earn a high return gap; $X_{i,t-1}$ is the control variable vector that includes firm size, market-to-book ratio, ROA, profitability, and leverage, all measured one year before the bid; α_i and λ_t are firm and year fixed effects, respectively. The analyses with and without fixed effects are also reported.

<i>HighGap</i>	0.022*** (0.002)	0.062*** (0.001)	0.026*** (0.001)
<i>Size</i>		0.006*** (0.000)	0.010*** (0.001)
<i>M/B</i>		0.000*** (0.000)	0.000*** (0.000)
ROA		0.002* (0.001)	0.001 (0.001)
Profitability		-0.003** (0.001)	-0.001 (0.001)
Leverage		-0.037*** (0.002)	-0.039*** (0.004)
Constant	0.055*** (0.001)	0.003** (0.001)	-0.002 (0.003)
Fixed Effects	No	No	Yes
# <i>Obs</i>	228,717	201,643	199,679

Table 10: **Return Gap and Governance: Deal Performance**

This table presents the results for the following regression:

$$BHAR_i = \beta_1 HighGap_i + \beta_2 X_i + \delta_j + \lambda_t + e_i$$

where $BHAR_i$ is the post-merger buy-and-hold abnormal return over a 12-month period; $HighGap_i$ is a dummy that equals one if the acquirer is held more heavily by high-gap institutional investors; X_i is the control variable vector that includes acquirer size, relative deal size, acquirer Tobin's Q, leverage, conglomeration dummy, all equity payment dummy, and operating cash flow; and δ_j and λ_t are industry and year fixed effects, respectively. The analyses with and without fixed effects are also reported.

<i>HighGap</i>	-0.071*** (0.026)	-0.075** (0.033)	-0.058* (0.035)
<i>Size_{Acq}</i>		0.017* (0.010)	0.013 (0.011)
<i>TranVal</i>		0.052* (0.030)	0.058* (0.031)
<i>MB_{Acq}</i>		0.003 (0.012)	0.002 (0.013)
<i>Lev_{Acq}</i>		0.042 (0.062)	0.059 (0.065)
<i>Conglom</i>		0.029 (0.032)	0.018 (0.033)
<i>All Equity</i>		0.018 (0.036)	0.025 (0.039)
<i>All Cash</i>		0.036 (0.037)	0.046 (0.038)
<i>OCF/AT_{Acq}</i>		0.111 (2.603)	0.895 (2.658)
<i>Cons.</i>	0.036* (0.020)	-0.144** (0.069)	-0.136* (0.073)
Fixed Effects	No	No	Yes
# Obs	1,594	1,222	1,222

Table 11: **Return Gap and Governance: Deal Withdrawal**

This table presents the results for the following regression in two subsamples that are constructed based on the return gap of institutional investors that hold the acquirer:

$$I_i = \beta_1 CAR_i + \beta_2 X_i + \delta_j + \lambda_t + e_i$$

where I_i is a dummy variable that equals one if deal i is withdrawn and zero otherwise; CAR_i is the acquirer 3-day cumulative abnormal announcement return; X_i is the control variable vector that includes acquirer size, relative deal size, acquirer Tobin's Q, leverage, operating cash flow, conglomeration dummy, tender offer dummy, hostile dummy, all equity payment dummy, and all cash payment dummy; and δ_j and λ_t are industry and year fixed effects, respectively. The analyses with and without fixed effects are also reported.

	Low Gap	High Gap	Difference	Low Gap	High Gap	Difference
<i>CAR</i>	-0.274*** (0.081)	0.035 (0.111)	-0.309** (0.137)	-0.266*** (0.084)	-0.019 (0.114)	-0.247* (0.142)
<i>SizeAcq</i>	-0.022*** (0.005)	-0.003 (0.005)	-0.019*** (0.007)	-0.025*** (0.006)	-0.003 (0.006)	-0.022*** (0.008)
<i>TranVal</i>	0.021*** (0.006)	0.084*** (0.019)	-0.063*** (0.020)	0.018*** (0.006)	0.077*** (0.020)	-0.059*** (0.021)
<i>MBAcq</i>	0.001 (0.005)	0.006 (0.006)	-0.005 (0.008)	0.001 (0.006)	0.003 (0.006)	-0.002 (0.008)
<i>LevAcq</i>	0.184*** (0.046)	0.060 (0.050)	0.124* (0.068)	0.197*** (0.050)	0.090* (0.053)	0.107 (0.073)
<i>Conglom</i>	0.016 (0.017)	0.017 (0.017)	-0.001 (0.024)	0.032* (0.018)	0.021 (0.018)	0.011 (0.025)
<i>Tender</i>	0.022 (0.025)	-0.033 (0.024)	0.055 (0.035)	0.031 (0.027)	-0.035 (0.025)	0.066* (0.037)
<i>Hostile</i>	0.195*** (0.072)	0.633*** (0.075)	-0.438*** (0.104)	0.220*** (0.074)	0.608*** (0.076)	-0.388*** (0.106)
<i>All Equity</i>	0.088*** (0.019)	0.040** (0.020)	0.048* (0.028)	0.059*** (0.022)	0.039* (0.021)	0.020 (0.030)
<i>All Cash</i>	0.029 (0.022)	0.056*** (0.021)	-0.027 (0.030)	0.022 (0.024)	0.043** (0.022)	-0.021 (0.033)
<i>Cons.</i>	0.408*** (0.096)	0.050 (0.101)	0.358*** (0.139)	0.471*** (0.107)	0.065 (0.116)	0.406*** (0.158)
Fixed Effects	No	No		Yes	Yes	
# Obs	945	944		945	944	

Figure 1: **A Thought Experiment**

This figure presents a thought experiment illustrating how the returns to institutional investors can diverge from the firm's returns when investors trade actively around M&A events, and how this return gap affects their governance incentives. The process unfolds in two stages. The first stage is the governance stage, where institutional investors decide whether to support the firm in pursuing M&A, based on expected returns from the subsequent stage. At this point, the target has not yet been identified, so deal quality is unknown, though its distribution is common knowledge. The second stage is the trading stage, where the target is identified, and deal quality becomes privately known to institutional investors but remains unknown to the rest of the market, creating an information advantage. Investors can then trade the acquirer's shares accordingly. By the end of this stage, deal quality is revealed to all, and the M&A outcome is fully reflected in the acquirer's stock price. Returns to the firm at each stage are marked in blue; returns to institutional investors are marked in red.

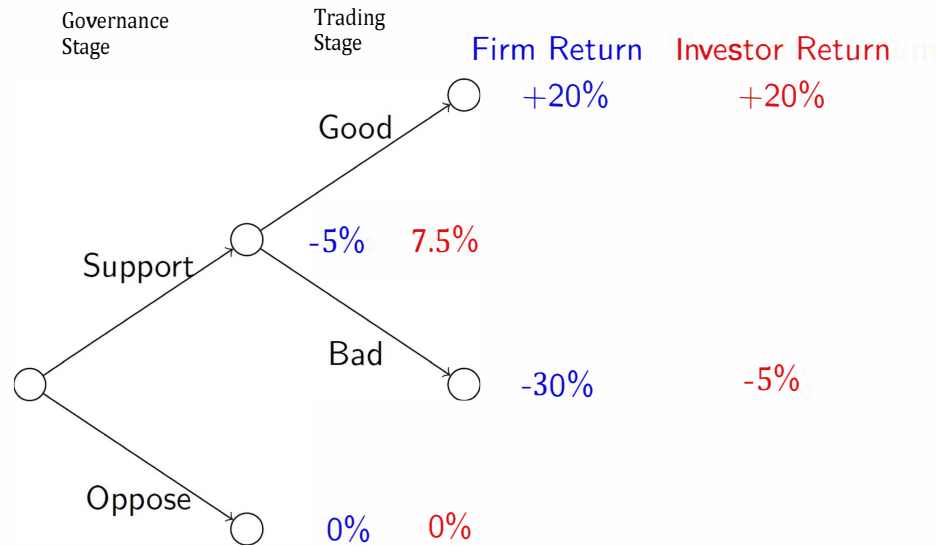


Figure 2: **Timeline of Trading and Merger Performance**

This figure illustrates three time periods for measuring institutional investors' trading of acquirer stock before, around, and after bid announcements. It also shows the different horizons over which merger performance is measured. $\Delta Hldg_{-5,-1}$ is the change in institutional investors' holdings of the acquirer stock over the four quarters preceding the bid-announcement quarter; $\Delta Hldg_{-1,0}$ is the change in institutional investors' holdings of the acquirer stock during the bid-announcement quarter; $\Delta Hldg_{0,cls}$ is the change in institutional investors' holdings of the acquirer stock from the quarter end of bid announcement to the quarter end of bid outcome. $BHAR_{cls+n,cls+m}$ is the acquirer's buy-and-hold abnormal return measured in the event window that starts from n quarters after bid outcome and covers up to m quarters after bid outcome. DealAnn and DealClose are the exact dates of bid announcement and bid outcome.

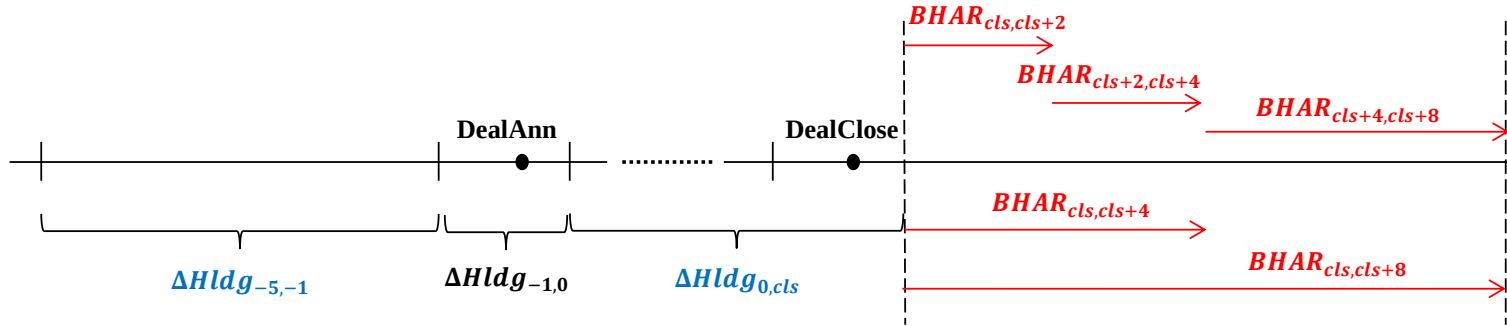
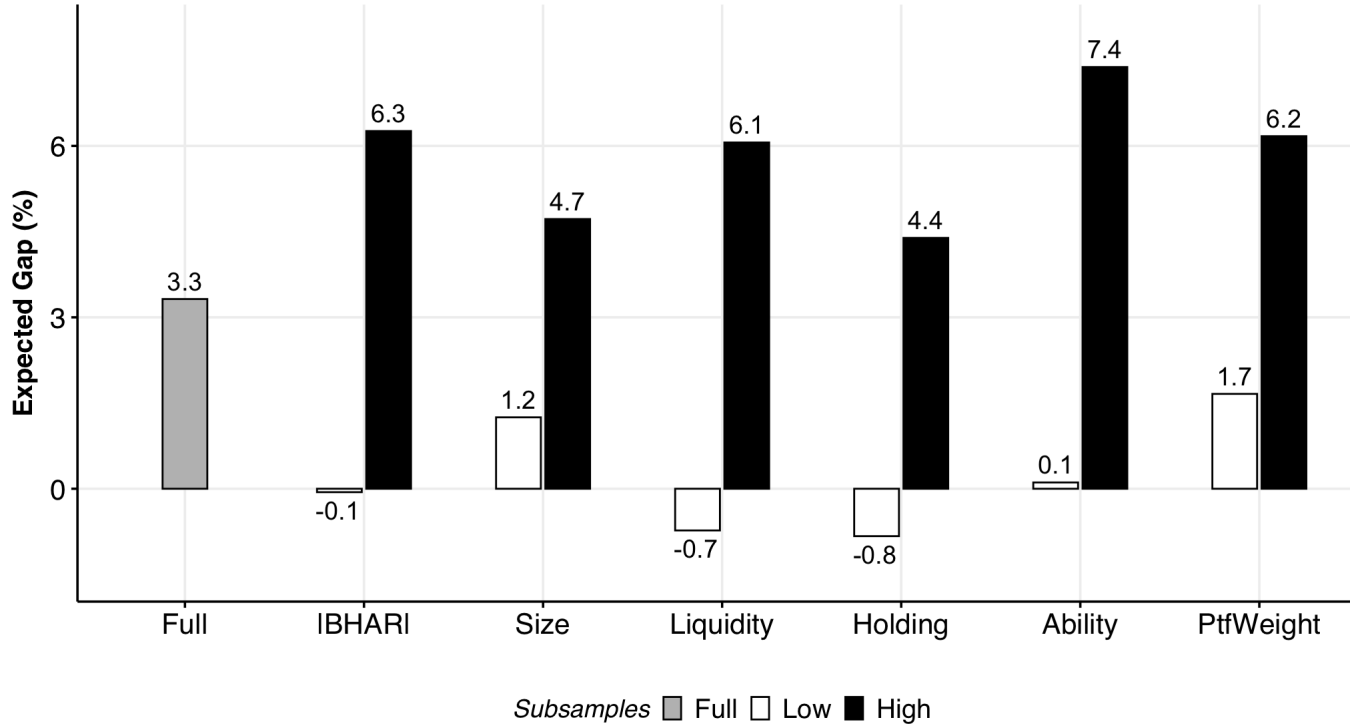


Figure 3: **Expected Gap**

This figure provides a summary of the expected gap presented in our analyses. The expected gap is calculated using the formula:

$$E(gap_i) = \frac{1}{Hldg_{i,-1}} \left(\beta_1 Var(BHAR_i) + E(\Delta Hldg_{i|BHAR}) E(BHAR_i) \right).$$

Here, $Hldg_{i,-1}$ corresponds to institutional investors' pre-announcement holdings of the acquirer stock. $BHAR$ is the acquirer's post-merger 1-year buy-and-hold abnormal return. β_1 is the coefficient estimated from the regression of $\Delta Hldg_{i|BHAR}$ onto $BHAR_i$ and other covariates. $\Delta Hldg_{i|BHAR}$ represents the portion of institutional investor trading explained by BHAR after accounting for the effects of other covariates. The subgroups are categorized into low (white bars) and high (black bars) groups based on the corresponding variables. $|BHAR|$ represents the absolute value of BHAR. *Size* measures the size of the M&A deal relative to the acquirer firm's market capitalization before announcement. *Liquidity* is measured by the bid-ask spread of the acquirer stock. *Holding* represents institutions' initial holdings. *Ability* is measured by institutional investors' trading performance in past M&As. *PtfWeight* captures the relative weight of the acquirer stock in mutual funds' portfolios.



Internet Appendix for “See the Gap: Firm Returns and Shareholder Incentives”

Robustness Checks and Additional Analyses

This online appendix provides supplementary results and robustness checks that complement the main analyses presented in the paper. Specifically, we include robustness tests examining whether our core findings remain consistent across alternative sample restrictions, merger performance measures, and measures accounting for institutional investors’ holding periods. Additionally, we investigate the potential influence of the Big Three asset management firms (BlackRock, Vanguard, and State Street) to ensure that our main conclusions are pervasive rather than driven by a subset of large institutions. We also conduct a placebo test to confirm that institutional trading advantages identified in our main study are specific to merger events and do not persist in normal trading periods outside corporate events. Furthermore, we provide additional analyses that explore important aspects related to our primary findings. These analyses include examining whether institutional investors who hold shares in acquiring firms also trade strategically in target stocks, particularly when merger payments involve equity. We also investigate the identities of counterparties to institutional investors’ trades to understand better whether certain investor groups consistently bear losses.

The main results are discussed in the manuscript and the corresponding tables are reported below.

Table A.1: **Robustness: Placebo Test**

This table presents the results for the baseline analysis:

$$\begin{aligned}\Delta Hldg_{i;(-N,-N+2)} = & \alpha + \beta_1 BHAR_{i;(-N+2,-N+6)} + \beta_2 Return_{i;(-N,-N+2)} + \beta_3 FirmSize_{i;(-N-1yr)} \\ & + \beta_4 FirmMB_{i;(-N-1yr)} + \beta_5 Turnover_{i;(-N,-N+2)} + e_i\end{aligned}$$

In the analysis, we run the same regression for the same set of acquirers out of major event windows. In particular, we set a placebo quarter as N quarters prior to bid announcement ($N = 8$ or 12). The dependent variable, $\Delta Hldg_{i;(-N,-N+2)}$ denotes the average trading of acquirer i 's stocks by institutional investors during two quarters following the placebo quarter; The independent variable, $BHAR_{i;(-N+2,-N+6)}$ denotes the 1-year buy-and-hold abnormal return (BHAR) following the placebo trading period using the same matched firm as a benchmark; Control variables follow [Parrino et al. \(2003\)](#) who study the determinants of changes in institutional holdings: $Return_{i;(-N,-N+2)}$ denotes the acquirer's cumulative return in the placebo trading period; $FirmSize_{i;(-N-1yr)}$ and $FirmMB_{i;(-N-1yr)}$ denote the acquirer's size (i.e., the logarithm of market value) and book-to-market ratio measured one year before the placebo quarter; $Turnover_{i;(-N,-N+2)}$ denotes the aggregate trading volume normalized by the shares outstanding in the placebo trading period. The analyses with industry and year fixed effects are also reported.

	Placebo quarter (N quarters ago)			
	8 quarters	12 quarters	8 quarters	12 quarters
$BHAR$	-0.003 (0.072)	0.030 (0.051)	0.004 (0.071)	0.016 (0.051)
$Return$	0.345*** (0.097)	0.321*** (0.057)	0.434*** (0.099)	0.307*** (0.058)
$Size$	-0.120*** (0.019)	-0.065*** (0.015)	-0.125*** (0.020)	-0.054*** (0.016)
M/B	0.017 (0.024)	0.022 (0.020)	0.018 (0.025)	0.017 (0.021)
Vol	0.004 (0.040)	-0.004 (0.031)	0.025 (0.045)	0.005 (0.034)
$Cons.$	0.997*** (0.133)	0.526*** (0.105)	0.999*** (0.140)	0.460*** (0.111)
Fixed Effects	No	No	Yes	Yes
# Obs	1,234	1,095	1,234	1,094

Table A.2: **Robustness: Sample Screening with Serial Acquirers**

This table presents the results for the baseline analysis:

$$\begin{aligned}\Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i\end{aligned}$$

In the analysis, we restrict the sample to acquiring firms that do not make any bids within *one year* around the current bid, instead of the three-year window used in our main specification. The dependent variable, $\Delta Hldg_{i;(0,cls)}$ denotes the average trading of acquirer i 's stocks by institutional investors during the public negotiation period; $BHAR_i$ is the post-merger buy-and-hold abnormal return over different horizons. Control variables follow [Parrino et al. \(2003\)](#) who study the determinants of changes in institutional holdings: $Return_{i;(0,cls)}$ denotes the acquirer's cumulative return in public negotiation period; $FirmSize_{i,-1yr}$ and $FirmMB_{i,-1yr}$ denote the acquirer's size (i.e., the logarithm of market value) and book-to-market ratio measured one year before the bid announcement; $Turnover_{i;(0,cls)}$ denotes the aggregate trading volume in public negotiation period normalized by the shares outstanding, EOY_i denotes the year-end dummy, which takes the value of one if the public negotiation period contains the fourth quarter. The analyses with industry and year fixed effects are also reported.

	[0, 12m]	[0, 24m]	[0, 6m]	[6m,12m]	[12m, 24m]	[0, 12m]	[0, 24m]	[0, 6m]	[6m,12m]	[12m, 24m]
<i>BHAR</i>	0.146*** (0.046)	0.078** (0.031)	0.102 (0.068)	0.189*** (0.064)	0.027 (0.042)	0.158*** (0.047)	0.091*** (0.031)	0.129* (0.069)	0.188*** (0.065)	0.041 (0.043)
<i>Return</i>	0.287*** (0.078)	0.291*** (0.078)	0.290*** (0.078)	0.303*** (0.078)	0.300*** (0.078)	0.288*** (0.080)	0.291*** (0.080)	0.289*** (0.080)	0.305*** (0.079)	0.301*** (0.080)
<i>Size</i>	-0.063*** (0.013)	-0.063*** (0.013)	-0.062*** (0.013)	-0.065*** (0.013)	-0.063*** (0.013)	-0.065*** (0.014)	-0.064*** (0.014)	-0.063*** (0.014)	-0.066*** (0.014)	-0.064*** (0.014)
<i>M/B</i>	0.003 (0.014)	0.004 (0.014)	0.004 (0.014)	0.004 (0.014)	0.005 (0.014)	0.007 (0.015)	0.009 (0.015)	0.008 (0.015)	0.008 (0.015)	0.009 (0.015)
<i>EOY</i>	0.030 (0.046)	0.033 (0.046)	0.031 (0.046)	0.032 (0.046)	0.033 (0.046)	0.040 (0.047)	0.043 (0.047)	0.040 (0.047)	0.042 (0.047)	0.043 (0.047)
<i>Vol</i>	0.012 (0.023)	0.009 (0.023)	0.010 (0.023)	0.010 (0.023)	0.008 (0.023)	0.014 (0.024)	0.009 (0.024)	0.012 (0.024)	0.012 (0.024)	0.008 (0.024)
<i>Cons.</i>	0.532*** (0.095)	0.530*** (0.095)	0.522*** (0.095)	0.543*** (0.095)	0.527*** (0.095)	0.529*** (0.101)	0.526*** (0.101)	0.516*** (0.101)	0.541*** (0.101)	0.523*** (0.101)
Fixed Effects	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
# Obs	2,066	2,066	2,066	2,066	2,066	2,066	2,066	2,066	2,066	2,066
Adj-R ²	0.021	0.019	0.017	0.020	0.016	0.028	0.027	0.024	0.027	0.023

Table A.3: **Robustness: Accounting Measure (Return on Equity)**

This table presents the results for the baseline analysis:

$$\begin{aligned}\Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 \Delta ROE_{i;(-1yr,nyr)} + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i\end{aligned}$$

The dependent variable, $\Delta Hldg_{i;(0,cls)}$ denotes the average trading of acquirer i 's stocks by institutional investors during the public negotiation period; $\Delta ROE_{i;(-1yr,nyr)}$ is calculated as the difference between one-year industry-adjusted pre-merger ROE and the average industry-adjusted ROE across n years post-merger. Following [Chen et al. \(2007\)](#), abnormal ROE is defined as the residual from a cross-sectional regression of post-merger three-year average industry-adjusted ROE on the corresponding pre-merger measure. Control variables follow [Parrino et al. \(2003\)](#) who study the determinants of changes in institutional holdings: $Return_{i;(0,cls)}$ denotes the acquirer's cumulative return in public negotiation period; $FirmSize_{i,-1yr}$ and $FirmMB_{i,-1yr}$ denote the acquirer's size (i.e., the logarithm of market value) and book-to-market ratio measured one year before the bid announcement; $Turnover_{i;(0,cls)}$ denotes the aggregate trading volume in public negotiation period normalized by the shares outstanding, EOY_i denotes the year-end dummy, which takes the value of one if the public negotiation period contains the fourth quarter. The analyses with industry and year fixed effects are also reported.

	[-1yr, 1yr]	[-1yr, 2yr]	[-1yr, 3yr]	Abnormal	[-1yr, 1yr]	[-1yr, 2yr]	[-1yr, 3yr]	Abnormal
ΔROE	0.060** (0.029)	0.030** (0.014)	0.027** (0.013)	0.028** (0.014)	0.059** (0.029)	0.030** (0.014)	0.026* (0.014)	0.028** (0.014)
$Return$	0.210*** (0.050)	0.214*** (0.050)	0.216*** (0.050)	0.219*** (0.050)	0.202*** (0.052)	0.205*** (0.051)	0.208*** (0.051)	0.211*** (0.051)
$Size$	-0.033*** (0.008)	-0.033*** (0.008)	-0.033*** (0.008)	-0.033*** (0.008)	-0.035*** (0.009)	-0.035*** (0.009)	-0.035*** (0.009)	-0.035*** (0.009)
M/B	-0.005 (0.010)	-0.004 (0.010)	-0.004 (0.010)	-0.004 (0.010)	-0.000 (0.011)	0.000 (0.011)	0.000 (0.011)	0.001 (0.011)
EOY	-0.007 (0.030)	-0.005 (0.030)	-0.005 (0.030)	-0.005 (0.030)	-0.011 (0.031)	-0.009 (0.031)	-0.009 (0.031)	-0.009 (0.031)
Vol	0.038** (0.016)	0.037** (0.016)	0.037** (0.016)	0.037** (0.016)	0.041** (0.017)	0.041** (0.017)	0.041** (0.017)	0.041** (0.017)
$Cons.$	0.319*** (0.059)	0.318*** (0.059)	0.318*** (0.059)	0.318*** (0.059)	0.324*** (0.063)	0.322*** (0.063)	0.322*** (0.063)	0.322*** (0.063)
Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes
# Obs	1,389	1,390	1,390	1,390	1,388	1,389	1,389	1,389

Table A.4: **Robustness: Weighted BHAR**

This table presents the results for the baseline analysis:

$$\begin{aligned}\Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 WeightedBHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i\end{aligned}$$

In the analysis, we construct an alternative measure $WeightedBHAR_i$ to capture deal performance. $WeightedBHAR_i$ is measured by weighting 1-year BHAR depending on the ratio of institutional investors' post-merger holdings relative to their trading during public negotiation period. The dependent variable, $\Delta Hldg_{i;(0,cls)}$ denotes the average trading of acquirer i 's stocks by institutional investors during the public negotiation period; Control variables follow [Parrino et al. \(2003\)](#) who study the determinants of changes in institutional holdings: $Return_{i;(0,cls)}$ denotes the acquirer's cumulative return in public negotiation period; $FirmSize_{i,-1yr}$ and $FirmMB_{i,-1yr}$ denote the acquirer's size (i.e., the logarithm of market value) and book-to-market ratio measured one year before the bid announcement; $Turnover_{i;(0,cls)}$ denotes the aggregate trading volume in public negotiation period normalized by the shares outstanding, EOY_i denotes the year-end dummy, which takes the value of one if the public negotiation period contains the fourth quarter. The analyses with industry and year fixed effects are also reported.

	[0, 12m]	[0, 24m]	[0, 6m]	[6m,12m]	[12m, 24m]	Weighted	[0, 12m]	[0, 24m]	[0, 6m]	[6m,12m]	[12m, 24m]	Weighted
<i>BHAR</i>	0.176*** (0.057)	0.096** (0.038)	0.108 (0.083)	0.239*** (0.078)	0.030 (0.052)	0.208** (0.102)	0.192*** (0.057)	0.108*** (0.039)	0.146* (0.085)	0.236*** (0.080)	0.040 (0.053)	0.229** (0.104)
<i>Return</i>	0.322*** (0.095)	0.327*** (0.095)	0.331*** (0.096)	0.338*** (0.095)	0.341*** (0.095)	0.334*** (0.095)	0.313*** (0.098)	0.318*** (0.098)	0.322*** (0.099)	0.331*** (0.098)	0.334*** (0.098)	0.326*** (0.098)
<i>Size</i>	-0.067*** (0.017)	-0.067*** (0.017)	-0.065*** (0.017)	-0.069*** (0.017)	-0.066*** (0.017)	-0.067*** (0.017)	-0.073*** (0.018)	-0.072*** (0.018)	-0.070*** (0.018)	-0.074*** (0.018)	-0.071*** (0.018)	-0.073*** (0.018)
<i>M/B</i>	0.002 (0.021)	0.004 (0.021)	0.002 (0.021)	0.004 (0.021)	0.004 (0.021)	0.003 (0.021)	0.010 (0.023)	0.013 (0.023)	0.010 (0.023)	0.011 (0.023)	0.012 (0.023)	0.011 (0.023)
<i>EOY</i>	0.029 (0.058)	0.032 (0.058)	0.029 (0.058)	0.031 (0.058)	0.031 (0.058)	0.031 (0.058)	0.050 (0.060)	0.053 (0.060)	0.049 (0.060)	0.052 (0.060)	0.051 (0.060)	0.052 (0.060)
<i>Vol</i>	0.002 (0.028)	-0.004 (0.028)	-0.001 (0.028)	-0.002 (0.028)	-0.005 (0.028)	-0.001 (0.028)	0.002 (0.030)	-0.005 (0.030)	-0.001 (0.030)	-0.003 (0.030)	-0.006 (0.030)	-0.001 (0.030)
<i>Cons.</i>	0.563*** (0.118)	0.559*** (0.118)	0.547*** (0.118)	0.576*** (0.118)	0.552*** (0.118)	0.561*** (0.118)	0.576*** (0.124)	0.572*** (0.125)	0.558*** (0.125)	0.589*** (0.125)	0.565*** (0.125)	0.575*** (0.125)
Fixed Effects	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
# Obs	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594
Adj-R2	0.021	0.019	0.016	0.021	0.015	0.017	0.019	0.017	0.014	0.017	0.012	0.015

Table A.5: **Robustness: Specification with a Big-3 Dummy**

This table presents the results for the baseline analysis:

$$\begin{aligned}\Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + \beta_7 Big3Dummy_i + e_i\end{aligned}$$

In the analysis, we control for passive institutional investors by including $Big3Dummy_i$, an indicator variable equal to one if trading by the Big-3 institutional investors (BlackRock, Vanguard, and State Street) accounts for more than 10% of total trading volume of acquirer i 's stock during the public negotiation period. The dependent variable, $\Delta Hldg_{i;(0,cls)}$ denotes the average trading of acquirer i 's stocks by institutional investors during the public negotiation period; Control variables follow [Parrino et al. \(2003\)](#) who study the determinants of changes in institutional holdings: $Return_{i;(0,cls)}$ denotes the acquirer's cumulative return in public negotiation period; $FirmSize_{i,-1yr}$ and $FirmMB_{i,-1yr}$ denote the acquirer's size (i.e., the logarithm of market value) and book-to-market ratio measured one year before the bid announcement; $Turnover_{i;(0,cls)}$ denotes the aggregate trading volume in public negotiation period normalized by the shares outstanding, EOY_i denotes the year-end dummy, which takes the value of one if the public negotiation period contains the fourth quarter.

	[0, 12m]	[0, 24m]	[0, 6m]	[6m,12m]	[12m, 24m]	[0, 12m]	[0, 24m]	[0, 6m]	[6m,12m]	[12m, 24m]
<i>BHAR</i>	0.176*** (0.057)	0.096** (0.038)	0.108 (0.083)	0.239*** (0.078)	0.030 (0.052)	0.177*** (0.057)	0.097** (0.038)	0.109 (0.083)	0.241*** (0.078)	0.032 (0.052)
<i>Return</i>	0.322*** (0.095)	0.327*** (0.095)	0.331*** (0.096)	0.338*** (0.095)	0.341*** (0.095)	0.323*** (0.095)	0.328*** (0.095)	0.333*** (0.096)	0.340*** (0.095)	0.343*** (0.095)
<i>Size</i>	-0.067*** (0.017)	-0.067*** (0.017)	-0.065*** (0.017)	-0.069*** (0.017)	-0.066*** (0.017)	-0.064*** (0.017)	-0.064*** (0.017)	-0.062*** (0.017)	-0.066*** (0.017)	-0.063*** (0.017)
<i>M/B</i>	0.002 (0.021)	0.004 (0.021)	0.002 (0.021)	0.004 (0.021)	0.004 (0.021)	0.001 (0.021)	0.003 (0.021)	0.001 (0.021)	0.002 (0.021)	0.002 (0.021)
<i>EOY</i>	0.029 (0.058)	0.032 (0.058)	0.029 (0.058)	0.031 (0.058)	0.031 (0.058)	0.027 (0.058)	0.030 (0.058)	0.027 (0.058)	0.029 (0.058)	0.029 (0.058)
<i>Vol</i>	0.002 (0.028)	-0.004 (0.028)	-0.001 (0.028)	-0.002 (0.028)	-0.005 (0.028)	0.006 (0.028)	0.001 (0.028)	0.003 (0.028)	0.002 (0.028)	-0.001 (0.028)
<i>Cons.</i>	0.563*** (0.118)	0.559*** (0.118)	0.547*** (0.118)	0.576*** (0.118)	0.552*** (0.118)	0.543*** (0.119)	0.539*** (0.119)	0.528*** (0.120)	0.556*** (0.120)	0.533*** (0.120)
Big-3 Dummy	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
# Obs	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594
Adj-R ²	0.021	0.019	0.016	0.021	0.015	0.021	0.019	0.016	0.021	0.015

Table A.6: **Acquirer Shareholders' Target Trading: Summary Statistics**

The table presents summary statistics for institutional investors holding stocks of both acquirer and target firms in the quarter preceding the M&A deal announcement (Q-1). The sample is limited to deals with publicly traded acquirer and target firms. *NumAcqInst* represents the number of institutional investors holding acquirer stocks at Q-1. *NumAcqInstTar* indicates the number of these acquirer's institutional shareholders who also hold target stocks at Q-1. *ShrAcq* denotes the percentage of the acquirer firm owned by its institutional shareholders. *ShrAcqTar* shows the percentage of the target firm owned by the acquirer's institutional shareholders. *ProbAcqTar* represents the probability that the acquirer's institutional shareholders simultaneously hold target stocks at Q-1.

Summary Statistics						
	Mean	Sd	Min	Median	Max	N
<i>NumAcqInst</i>	16.14	12.55	0	13	66	740
<i>NumAcqInstTar</i>	5.08	6.71	0	2	53	740
<i>ShrAcq (%)</i>	13.53	10.64	0	11.49	52.82	740
<i>ShrAcqTar (%)</i>	5.94	7.97	0	2.63	54.12	740
<i>ProbAcqTar (%)</i>	25.18	24.58	0	20	100	740

Table A.7: **Acquirer Shareholders' Trading of Target Stock and Post-Merger Performance: Method of Payment**

This table presents the results for the following regression:

$$\Delta TarHldg_{i;(0,cls)} = \alpha + \beta_1 BHAR_i \cdot I(Equity_i) + \beta_2 I(Equity_i) + \beta_3 BHAR_i + \beta_4 Return_{i;(0,cls)} + \beta_5 FirmSize_{i,-1yr} + \beta_6 FirmMB_{i,-1yr} + \beta_7 Turnover_{i;(0,cls)} + \beta_8 EOY_i + e_i$$

The dependent variable, $\Delta TarHldg_{i;(0,cls)}$, represents the average trading of corresponding target stocks by institutional investors of acquirer i during the public negotiation period. $BHAR_i$ is the post-merger buy-and-hold abnormal return over a 12-month period. $I(Equity_i)$ is a dummy that equals one if the M&A deal is paid with equity exceeding certain thresholds. The specific thresholds are reported in each column. $BHAR_i \cdot I(Equity_i)$ is an interaction term of $BHAR_i$ and $Equity_i$ dummy. Control variables follow [Parrino et al. \(2003\)](#) who study the determinants of changes in institutional holdings: $Return_{i;(0,cls)}$ denotes the acquirer's cumulative return in public negotiation period; $FirmSize_{i,-1yr}$ and $FirmMB_{i,-1yr}$ denote the acquirer's size (i.e., the logarithm of market value) and book-to-market ratio measured one year before the bid announcement; $Turnover_{i;(0,cls)}$ denotes the aggregate trading volume in public negotiation period normalized by the shares outstanding, EOY_i denotes the year-end dummy, which takes the value of one if the public negotiation period contains the fourth quarter. The analyses with industry and year fixed effects are also reported.

	Equity Dummy Percentile Threshold					
	10%	50%	100%	10%	50%	100%
$BHAR \cdot I(Equity)$	0.170 (0.170)	0.298* (0.162)	0.415** (0.168)	0.192 (0.180)	0.341** (0.172)	0.504*** (0.178)
$BHAR$	-0.173 (0.138)	-0.222* (0.117)	-0.207** (0.102)	-0.171 (0.147)	-0.232* (0.127)	-0.220** (0.110)
$I(Equity)$	-0.283*** (0.075)	-0.278*** (0.074)	-0.228*** (0.081)	-0.313*** (0.083)	-0.308*** (0.082)	-0.267*** (0.089)
$Return$	-0.104 (0.124)	-0.078 (0.124)	-0.101 (0.124)	-0.065 (0.134)	-0.034 (0.134)	-0.054 (0.133)
$Size$	0.050** (0.024)	0.052** (0.024)	0.059** (0.024)	0.047* (0.027)	0.051* (0.027)	0.058** (0.027)
M/B	0.003 (0.027)	0.014 (0.027)	0.011 (0.027)	0.020 (0.031)	0.032 (0.031)	0.030 (0.031)
EOY	0.110 (0.073)	0.110 (0.073)	0.093 (0.073)	0.124 (0.079)	0.125 (0.078)	0.104 (0.079)
Vol	-0.023 (0.035)	-0.037 (0.034)	-0.045 (0.034)	-0.001 (0.039)	-0.017 (0.038)	-0.027 (0.038)
$Cons.$	-0.582*** (0.195)	-0.645*** (0.191)	-0.734*** (0.190)	-0.603*** (0.213)	-0.691*** (0.208)	-0.788*** (0.206)
Fixed Effects	No	No	No	Yes	Yes	Yes
# Obs	559	559	559	557	557	557

Table A.8: **Institutional Trading and Merger Performance: Institution Types**

This table presents the results for the baseline analysis:

$$\begin{aligned}\Delta Hldg_{i;(0,cls)} = & \alpha + \beta_1 BHAR_i + \beta_2 Return_{i;(0,cls)} + \beta_3 FirmSize_{i,-1yr} \\ & + \beta_4 FirmMB_{i,-1yr} + \beta_5 Turnover_{i;(0,cls)} + \beta_6 EOY_i + e_i\end{aligned}$$

The dependent variable, $\Delta Hldg_{i;(0,cls)}$ denotes the average trading of acquirer i 's stocks by institutional investors of various types during the public negotiation period. The institution types are classified as follows: type 1 refers to banks; type 2 to insurance companies; type 3 to investment companies (e.g., mutual fund management firms); type 4 to independent investment advisors; and type 5 to all other institutions (including pension funds and university endowment). Retail investor holdings are defined as the total shares outstanding minus aggregated institutional holdings across all types. $BHAR_i$ is the post-merger buy-and-hold abnormal return over 12 months. Control variables follow [Parrino et al. \(2003\)](#) who study the determinants of changes in institutional holdings: $Return_{i;(0,cls)}$ denotes the acquirer's cumulative return in public negotiation period; $FirmSize_{i,-1yr}$ and $FirmMB_{i,-1yr}$ denote the acquirer's size (i.e., the logarithm of market value) and book-to-market ratio measured one year before the bid announcement; $Turnover_{i;(0,cls)}$ denotes the aggregate trading volume in public negotiation period normalized by the shares outstanding, EOY_i denotes the year-end dummy, which takes the value of one if the public negotiation period contains the fourth quarter. The analyses with industry and year fixed effects are also reported.

	Type 1	Type 2	Type 3	Type 4	Type 5	Retail	Type 1	Type 2	Type 3	Type 4	Type 5	Retail
<i>BHAR</i>	-0.021 (0.017)	-0.005 (0.019)	0.176*** (0.057)	-0.007 (0.017)	0.015 (0.019)	0.085 (0.381)	-0.020 (0.017)	-0.003 (0.019)	0.192*** (0.057)	-0.006 (0.017)	0.017 (0.019)	0.085 (0.385)
<i>Return</i>	0.081*** (0.028)	0.050 (0.032)	0.322*** (0.095)	0.109*** (0.028)	-0.032 (0.032)	-1.038 (0.640)	0.085*** (0.029)	0.047 (0.033)	0.313*** (0.098)	0.105*** (0.029)	-0.038 (0.033)	-0.983 (0.657)
<i>Size</i>	-0.013*** (0.005)	-0.023*** (0.006)	-0.067*** (0.017)	-0.031*** (0.005)	-0.014** (0.006)	-0.474*** (0.112)	-0.013** (0.005)	-0.020*** (0.006)	-0.073*** (0.018)	-0.028*** (0.005)	-0.013** (0.006)	-0.498*** (0.119)
<i>M/B</i>	-0.003 (0.006)	0.008 (0.007)	0.002 (0.021)	-0.000 (0.006)	-0.001 (0.007)	-0.182 (0.141)	-0.005 (0.007)	0.008 (0.008)	0.010 (0.023)	-0.004 (0.007)	-0.001 (0.008)	-0.149 (0.153)
<i>EOY</i>	-0.002 (0.017)	-0.010 (0.019)	0.029 (0.058)	-0.011 (0.017)	0.016 (0.019)	0.691* (0.388)	-0.006 (0.017)	0.001 (0.020)	0.050 (0.060)	-0.005 (0.017)	0.025 (0.020)	0.624 (0.398)
<i>Vol</i>	0.010 (0.008)	0.013 (0.009)	0.002 (0.028)	0.013 (0.008)	0.002 (0.009)	0.928*** (0.188)	0.006 (0.009)	0.019* (0.010)	0.002 (0.030)	0.017** (0.009)	0.006 (0.010)	0.908*** (0.198)
<i>Cons.</i>	0.116*** (0.034)	0.178*** (0.040)	0.563*** (0.118)	0.271*** (0.034)	0.123*** (0.040)	6.113*** (0.792)	0.127*** (0.036)	0.152*** (0.041)	0.576*** (0.124)	0.247*** (0.036)	0.112*** (0.042)	6.253*** (0.833)
Fixed Effects	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
# Obs	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594	1,594
Adj-R2	0.009	0.009	0.021	0.034	0.001	0.025	0.005	0.030	0.019	0.036	0.005	0.030

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