

See the Gap: Firm Returns and Shareholder Incentives

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Abstract

Firm return is widely used to infer shareholder incentives, yet this approach can be misleading when shareholders trade actively around corporate events. In mergers and acquisitions, we document that institutional investors strategically increase (decrease) their holdings of acquirers in deals that generate positive (negative) value. This trading creates a substantial gap between firm return and shareholder return: on average, institutional investors earn 2.4% from M&A while firm return is -0.9%. The gap grows with investors' incentive and ability to trade. Importantly, institutions earning high return gaps are associated with weaker governance, emphasizing the need to account for shareholder turnover when evaluating governance incentives.

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

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Abstract

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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 to capture this tension and examine the resulting distortion in governance incentives.

While such gaps can arise in many corporate settings where investors exploit information asymmetry around major events, we focus our study on M&A as a particularly salient example. Our paper aims to measure this return gap between the acquiring firms and their institutional investors and understand how it influences these investors’ support for pursuing M&A ex ante. We focus on M&A for two primary reasons. First, 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. Second, 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, Mitchell, and Stafford, 2001](#); [Betton, Eckbo, and Thorburn, 2008](#)

and references therein). Identifying this gap offers fresh insights into this literature.¹ While our study focuses on M&As, its implications extend to a broader spectrum of corporate events where institutional investors' information advantage and governance incentives are intertwined.

Two examples help illustrate this concept. On August 4th, 1999, Dow Chemical announced its takeover bid for Union Carbide. At the time, institutional investors of Dow Chemical included Putnam Investments, Wellington Management, Vanguard, and T. Rowe Price Group, which collectively held 11% of Dow Chemical's shares before the announcement. The deal closed on February 6th, 2001, and during the public negotiation period (from the bid announcement to deal completion), these institutional investors increased their holdings by purchasing an additional 8% of Dow Chemical's outstanding shares, raising their total ownership to 19% post-merger. Over the next 12 months, Dow Chemical realized a buy-and-hold abnormal return (BHAR) of 18%, generating a substantial profit for these institutional investors. A back-of-the-envelope calculation shows that if these investors had remained passive, they would have earned approximately 593 million dollars (i.e., the BHAR of 18%). However, their active trading produced an additional profit of 418 million dollars (i.e., an additional return of 13%).

Another example is Sealed Air Corp's acquisition of Diversey, announced on June 1st, 2011, and completed on October 3rd, 2011. Prior to the announcement, twenty institutional investors held 42% of Sealed Air's shares, but they liquidated a significant portion of their holdings during the public negotiation period, selling off 27% of the company's total outstanding shares before the deal closed. Sealed Air subsequently lost 15% of its value over the 12 months following the merger completion, compared to its matched firm. Had these institutional investors remained passive, they would have incurred losses of 262 million dol-

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, Robinson, and Viswanathan, 2005, Cai, Song, and Walkling, 2011; Bhagat, Dong, Hirshleifer, and Noah, 2005, and Wang, 2018), and institutional cross-holding of acquirer and target stocks in their portfolios (Matvos and Ostrovsky, 2008, and Harford, Jenter, and Li, 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.

lars (i.e., BHAR of -15%). However, by actively reducing their holdings, they limited their losses to 73 million dollars, achieving a return of -5% ex post. This active trading highlights that the return to Sealed Air does not accurately reflect the actual loss of these institutional investors.

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 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 announced between 1980 and 2017, 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. We then relate the trading activity 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 the long-term merger performance, because the ultimate success of a merger critically depends on the post-merger integration and the realization of expected synergies, and the market may learn about this information after deal completion. Thus, the BHAR may reflect the market's updated assessment as new information arrives. 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, we find that institutional trading during the public negotiation period is strongly and positively correlated with the ex post deal performance. Specifically, we find that following the bid announcement, institutional investors

²For example, [Lyon, Barber, and Tsai \(1999\)](#); [Mitchell and Stafford \(2000\)](#); [Ben-David, Drake, and Roulstone \(2015\)](#); [Chen, Harford, and Li \(2007\)](#). 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, Robinson, Smith, and Whaley, 2013](#); [Jacobsen, 2014](#); [Ben-David, Bhattacharya, and Jacobsen, 2025](#)).

tend to increase their holdings of acquirer stocks in mergers that subsequently demonstrate good performance, while reducing their stakes in those that ultimately underperform. Our estimate suggests that, for every one-standard deviation increase in the ex post deal performance (measured by 12-month BHAR), institutional investors increase their holding of acquirer stocks by 60% on average during the public negotiation period. This trading activity results in substantial benefits for institutional investors. 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%. This return gap is economically significant, suggesting that even when M&A deals destroy firm value on average, they can still be profitable for informed institutional investors. Furthermore, our findings reveal that this return gap is particularly pronounced in deals with volatile returns. When sorting deals by the *magnitude* of their post-merger 12-month BHAR, we find that institutional shareholders' returns exceed firm returns by 6.3 percentage points for deals ranking above the median. Conversely, the gap narrows considerably when BHAR approaches zero. This pattern aligns with the notion that institutional investors engage in more aggressive trading in M&A deals characterized by high uncertainty.

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 partition our full sample into two equal-sized subsamples based on the median deal size (measured by the transaction value scaled by acquirer pre-merger market value). The results reveal a more pronounced positive association between institutional investors' trading of acquirer stock and post-merger performance in larger deals. Quantitatively, the gap between the return to the firm and the return to institutional investors 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. Consequently, we hypothesize that the positive association between institutional investors' trading and ex post deal performance will be more pronounced in good deals rather than in bad deals. Our findings support this hypothesis, with the estimated coefficient for good deals being almost three times larger than that for bad deals. Additionally, motivated by previous studies (e.g., [Edmans, 2014](#) and references therein) arguing that larger initial holdings of acquirer stocks induce more information collection and mitigate short-sale constraints, we examine how our results vary with institutional investors' initial holdings. We find more pronounced results for deals where institutional investors hold a large fraction of acquirers' shares before bid announcements. In these cases, institutional investors earn 4.6 percentage points higher returns than acquirers, compared to a 0.5 percentage-point gap 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 (see [Fich, Harford, and Tran, 2015](#)). 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. Partitioning investors based on this ability measure, we find that the association between trading and ex post deal performance is much stronger for investors with high trading ability exhibited in past M&A deals. The difference between the two groups is both

economically sizeable and statistically significant. High-ability institutions earn returns 7.4 percentage points higher than the firm’s return, compared to negligible gap in low ability institutions. This contrast highlights the crucial role of trading skill in leveraging information advantages in M&A contexts.

Finally, we examine how the return gap relates to institutional investors’ governance role in the M&A market. 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 ultimately 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 payoff from an M&A policy 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.

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.

Our governance analyses do not leverage shareholder voting data in M&A. While shareholder voting is often used to study governance in previous studies, it is ill-suited for our setting. Our analysis focuses on *ex ante* governance, defined as institutional investors' influence on a firm's general M&A policy before any specific deal is proposed, rather than *ex post* governance, which involves voting on specific merger proposals. *Ex ante* influence typically occurs behind the scenes through private engagement or strategic pressure, and therefore does not appear in formal votes (McCahery, Sautner, and Starks, 2015). Moreover, even *ex post* governance through voting on merger proposals is typically required on the target side yet is rarely triggered for acquirer firms. Under stock exchange rules, acquirers must seek shareholder approval only if they issue more than 20 percent of their outstanding equity to finance a transaction. This threshold excludes the majority of deals from requiring a vote, and prior studies show that acquirers frequently adjust the financing structure to remain below the threshold (e.g., Li, Liu, and Wu, 2018), introducing selection concerns that make shareholder voting data endogenous to the governance outcomes.

We conduct several robustness checks to validate our main findings. First, we show that the results hold under alternative sample selection criteria for excluding serial acquirers and when using different accounting-based measures of merger performance. Second, a placebo test confirms that institutional trading is not profitable in the absence of major corporate events, highlighting the critical role of M&A in creating information asymmetry and enabling informed trading. Third, we find that our results are not driven by the Giant Three institutional investors (BlackRock, Vanguard, and State Street) and are pervasive in the data. Moreover, we find no evidence that institutional investors systematically trade against specific groups of market participants for consistent gain. While other types of investors may occasionally lose when trading with institutions around M&A events, such

losses are not persistent or systematically concentrated. We also rule out the possibility that our findings are solely driven by firms’ agency costs, showing that these frictions can explain our results only when they serve as a source of private information. Finally, we extend our analysis to examine acquirer shareholders’ trading of target stocks during M&A deals. In equity-based transactions, where target shares are converted into shares of the combined firm, institutional trading of target stocks is positively correlated with post-merger performance. In contrast, this correlation is weak or absent in cash deals where target shares are redeemed for cash. These findings suggest that informed acquirer shareholders leverage their information advantage in trading both acquirer and target stocks, particularly when their interests are driven by the long-term performance of the combined firm.

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, Dorn, and Pedersen, 2024](#)), our contribution lies in examining the broader governance implications of these trading gains. This paper focuses on quantifying and analyzing the gap between institutional investors’ returns and firm returns that arises from strategic trading around corporate events. We argue that this return gap is not merely evidence of informed trading, but instead reflects a potential distortion in governance incentives. By measuring the gap, identifying its cross-sectional drivers, and exploring its consequences, we show how trading profits can weaken the alignment between institutional investors’ interests and firm value maximization. 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.

This perspective is distinct from the literature on shareholder governance through voice or exit (e.g., [Maug, 1998](#); [Edmans, 2009, 2014](#); [McCahery, Sautner, and Starks, 2015](#) and references therein). That body of work largely examines the *ex post* governance, that is, how institutional investors fight against corporate decisions whose adverse consequences have already been revealed. In contrast, our study focuses on the *ex ante* governance, that is, how institutional investors influence corporate decisions that may destroy value in expectation, while their realizations are still uncertain. In this sense, our results neither conflict with the *ex post* governance literature nor imply that institutional investors would support *ex post* bad deals. Instead, our results highlight that return gaps can impair institutional investors’

incentives to discourage *ex ante* bad deals.³ Therefore, our findings reveal a distinct form of governance failure: investors’ incentives can become distorted *before* deal quality is fully revealed (*ex ante* governance), rather than only *after* poor outcomes are realized (*ex post* governance). By integrating this forward-looking dimension, we contribute a novel angle to the evolving understanding of how institutional ownership shapes corporate governance.

Our paper contributes to a few strands of literature. First, the M&A literature 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, Palepu, and Ruback, 1992; Li, 2013; Ben-David, Drake, and Roulstone, 2015; Hoberg and Phillips, 2018; Dasgupta, Harford, and Ma, 2023; Ben-David, Bhattacharya, and Jacobsen, 2025). In our paper, 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. In this regard, we emphasize the importance of measuring shareholders’ return in M&A from a *dynamic* perspective. We highlight the fact that smart money trades actively in such corporate events and there exists a large gap between the return to firm value and the return to these informed institutional shareholders. To this end, our paper stresses that the return to the firm can be a misleading measure of shareholder incentives in engaging in M&A, and we propose to gauge the shareholders’ incentives by taking into account their expected trading profits from these deals.

Second, our paper also contributes to the large empirical literature that documents the governance value of institutional investors. Several studies, for example, investigate how institutional investors impact executive compensation (e.g. Hartzell and Starks, 2003) or anti-takeover provisions (e.g. Brickley, Lease, and Smith, 1988). A more closely related stream of research focuses on the effect of institutional investors on acquisition outcomes. For example, Gaspar, Massa, and Matos (2005) document that acquirers held by long-term

³An *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.

institutions outperform those held by short-term institutional investors. [Chen, Harford, and Li \(2007\)](#) document that long-term independent institutional investors actively monitor corporate acquisition decisions. [Matvos and Ostrovsky \(2008\)](#) and [Harford, Jenter, and Li \(2011\)](#) explore whether institutional investors' cross-holdings of the acquirer and target stocks can explain their lack of opposition to mergers that generate low returns for acquirers; [Nain and Yao \(2013\)](#) show that mutual funds with strong stock picking ability select to hold better acquirers before takeover announcements. Finally, [Bae, Kang, and Kim \(2002\)](#) and [Masulis, Wang, and Xie \(2007\)](#) show that poor corporate governance leads to more mergers with poor performance. 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. Our results suggest that their governance incentive to curtail the M&A activities and preserve firm value can be compromised by their trading incentive, and therefore they may choose to tolerate or even promote firms pursuing M&A activities even if such deals deliver a zero or slightly negative return to acquiring firms.

2 A Thought Experiment

To build intuition for our empirical analysis, we begin by presenting a simple thought experiment that illustrates the core mechanism of our paper. This example demonstrates 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. [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. If institutional investors oppose the M&A strategy, no acquisition is pursued and the process ends with a zero return to both the firm and institutional investors. If they support it, the deal proceeds and the game moves to the second stage.

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 the M&A, which is also reflected in the announcement return of the deal. In other words, the M&A policy is value-destroying 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.⁴ 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, 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 is motivated by three considerations. First, recent studies suggest that institutional investors often exert influence through behind-the-scenes interventions, not case-by-case voting (McCahery, Sautner, and Starks, 2015). This mode of engagement aligns more closely with ex ante governance. Second, shareholder approval on a specific deal is only required when the acquirer issues more than 20% of its outstanding shares to finance the deal—an event that occurs in a relatively small fraction of

⁴Institutional investors learn about deal quality after M&A announcement, and thus they can sell only after experiencing the -5% announcement return in bad deals.

our sample. Third, institutional investors typically do not observe deal quality when making ex ante governance decisions, consistent with the information set assumed in our framework.

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, which we now briefly discuss along with their implications. For a more complete treatment, we refer readers to [Goldman and Wang \(2021\)](#), which develops a formal model incorporating these elements. The conclusions of that model are consistent with the insights here. First, in the thought experiment, we assume that investors are able to sell all shares in bad deals. In reality, even if they can only exit partially and have to continue holding the remaining positions in bad deals, their ex ante incentive may still be distorted. To see this, assume that they are able to sell only 50% of their holdings of the acquirer stocks in bad deals ex post. Their return in bad deals therefore turns to -17.5%, and accordingly, their expected return from supporting the takeover ex ante becomes 1.25%, which remains positive.⁵ Second, we abstract from price impact of informed trading. In a Kyle-style model, informed trading does move prices and reduce trading profits. However, 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. In principle, institutional investors may try to prevent bad deals after observing their quality, but they cannot always block them outright; their ability to reduce completion likelihood depends on their governance power. [Goldman and Wang \(2021\)](#) shows that while such ex post intervention benefits the firm, it is often insufficient to outweigh the distortions induced by ex ante governance, especially under the parameter of governance power that is empirically relevant. Thus, the return gap persists, and informed investors may still support value-destroying deals that generate

⁵Their return in bad deals includes the -30% from the half of holdings they cannot sell and -5% from the remaining half of holdings they sell before deals close, which averages -17.5%. Given that they earn 20% return in good deals, their expected return from takeovers, ex ante, is 1.25%, which is simply the average of -17.5% and 20%.

trading opportunities.

While highly stylized, this thought experiment is intended to convey the core intuition behind our analysis rather than offer a fully rigorous treatment. In the next section, we turn to the data to explore whether the patterns suggested by this framework are borne out empirically.

3 Sample Formation and Variable Construction

We collect data on mergers and acquisitions and the institutional investors' holdings of acquirer stocks during different stages of the acquisition. We discuss below the sample selection process and the construction of our dependent and independent variables.

3.1 Data

We start with a sample of merger and acquisition transactions announced between 1980 and 2017 available from the Thomson Reuters SDC Platinum database. Our sample does not include transactions announced after 2017, because we require two years of post-merger data in order to measure post merger performance and we require the return data to end by 2019 to exclude the pandemic period. To be included in the final sample, we require that the acquirer is a publicly traded U.S. firm with non-missing stock return data during the period of interest. We also apply standard data screening criteria such that the acquiring firm must hold less than 50 percent of target shares before the acquisition and that it seeks to gain the control of the target firm. We require that the deal value is more than one million dollars and that it represents more than one percent of acquirer pre-merger market value. We further limit the sample to transactions in which we can clearly identify the date of deal completion or withdrawal. Finally, we restrict the sample of acquiring firms to those who do not make any preceding bids within three years of the current bid. This criterion is imposed to guarantee that no preceding mergers confound our observations.⁶

⁶It excludes many serial acquirers from our sample. In the robustness check section, we rerun the baseline analyses without imposing this sample selection criterion. Removing this criterion increases sample size and the main results remain similar.

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 and other asset management firms. This database has been widely used in previous studies (e.g., [Chen, Harford, and Li 2007](#); [Fich, Harford, and Tran 2015](#); [Harford, Jenter, and Li 2011](#); [Matvos and Ostrovsky 2008](#); [Parrino, Sias, and Starks 2003](#)), 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, Harford, and Li \(2007\)](#) and correct the mapping error of the post-1998 CDA type classification and drop institutions whose CDA type code cannot be accurately determined. Our focus on investment companies builds on the large literature documenting that they are likely to have superior information collecting and processing abilities, and they also play an important role in corporate governance.

We conduct our analyses on the level of institutional investors (e.g. fund families) rather than individual funds, because most governance decisions are made by institutional investors 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.⁷ Analyzing investors' incentive at a more disaggregate level (e.g., fund level) loses this important connection among all funds within the same family.

3.2 Measuring Merger Performance

To measure merger performance, we follow [Lyon, Barber, and Tsai \(1999\)](#) and [Chen, Harford, and Li \(2007\)](#) and compute the acquirers' long-run post-merger buy-and-hold abnormal return (BHAR). As [Lyon, Barber, and Tsai \(1999\)](#) suggest, this measure controls for

⁷[Iliev and Lowry \(2015\)](#) report that, on average, only 1–3% of mutual funds within a fund family vote in a different direction from the family. [Cai and Walkling \(2011\)](#) report that all funds in the same family cast the same vote in 98% of proposals voted on at shareholder meetings. [Morgan, Poulsen, Wolf, and Yang \(2011\)](#) report that funds within a family vote identically on 97.6% of management-sponsored proposals.

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:

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

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.⁸

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.

⁸Our 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.

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. 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, Harford, and Li \(2007\)](#) 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 acquire 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, Sias, and Starks \(2003\)](#) 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. To see an example, suppose that an institutional investor hold 1% of the acquirer's outstanding shares before the bid announcement (i.e., $Hldg_{i;-1} = 0.01$) and then purchased another 0.5% of acquirer shares during the public negotiation period (i.e., $\Delta Hldg_{i;(0,cls)} = 0.005$), and also assume that $BHAR_i$ equals 10% for this deal, then this institutional investor earns a return of 15%. We can decompose the total 15% return into a return of 10% coming from his passive holding and a return of 5% return coming from his active trading. The gap between the return to the firm (i.e., $BHAR = 10\%$) and the return to this institutional investor (15%) then equals 5 percentage-points in this deal.

Our focus on the expected gap is motivated by two main reasons. First, from the theoretical perspective, we consider institutional investors' governance decisions *before* realizing their trading profits. In the context of M&A, institutional investors have to decide whether to support or oppose a merger before the post-merger BHAR is realized. To this end, institutional investors need to form an expectation of their trading profits, which leads to an expected gap between their return from M&A and the return to the acquiring firm. Second, empirically, institutional investors' trading quantity can be driven by many factors other than BHAR, and it is therefore paramount to isolate the part of trading driven by BHAR. This can be achieved through our estimate of the coefficient β_1 in Equation 1. For these reasons, we 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. This allows sufficient time for institutional investors to collect information regarding deal quality and trade on their private information.

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 average institutional ownership 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. In this panel, we compute summary statistics for various subsamples. 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 trading patterns is consistent with the idea that having a large initial position allows institutions to trade in both directions (buy or sell) depending on the private information they collect. In contrast, institutions with small initial holdings are limited in their ability to sell if they identify negative information due to short sale constraints.

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.

These subsample summary statistics provide some suggestive evidence that institutional investors' trading is influenced by deal characteristics and investor traits. We explore this cross-sectional variation and relate it to deal performance using multivariate regression analyses in the following section.

4 Empirical Results

In this section, we document a strong, positive correlation between institutional trading and deal quality for the full sample, suggesting that these institutions indeed trade in the right direction and earn positive trading profits. We further demonstrate that the correlation varies significantly with deal and institution characteristics that affect the institutional investors' incentive or ability to trade in these M&A deals. To this end, we identify the scenarios in which the return gap is large, and thus using firm returns to gauge institutional investors' incentives in these scenarios can be particularly misleading. Our empirical specifications follow what laid out in Section 3.4.

4.1 Institutional Trading and Merger Performance

We first examine how institutional trading of acquirer stocks correlates with long run deal performance, which is the fundamental driver of the gap between the return to firm and the return to these informed shareholders.

4.1.1 Baseline Results

Table 2 presents the baseline results on how institutional trading during the public negotiation period relates to the ex post acquisition performance. In columns 1 to 5, we report the results without fixed effects, while in columns 6 to 10, we include the industry fixed effect and year fixed effect. The results confirm that institutional trading during the public negotiation period is positively correlated with acquirers' long-run BHARs up to two years after bid closure. Specifically, the coefficient on deal quality is positive and significant for both the one-year BHAR and two-year BHAR. 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 an about 60% increase in the institutions' net purchase of acquirer stocks on average.⁹

⁹The magnitude is computed as $\frac{Stdev(BHAR_{1yr}) \times \hat{\beta}_1}{\Delta Hldg(0,cls)} = \frac{0.50 \times 0.176}{0.15} = 0.59$

One possible concern with the empirical specification of this regression is reverse causality. For example, a positive correlation between institutional trading and acquirers' post-merger BHARs may simply result from the impact of institutions' large trades on the market price of acquirer stocks when the market reacts slowly. This can occur if uninformed traders follow institutional investors' trades after they are publicly disclosed and thus move market prices towards the direction of the institutional investors' trades. To address this concern, we break down the two-year post-merger period into different subperiods and examine the correlation between institutional trading and BHARs accumulated within each subperiod. As columns 3 to 5 and 8 to 10 show, institutional trading is positively correlated with BHARs accumulated in all subperiods, however, the positive correlation is only economically large and statistically significant for BHARs accumulated from 6 months post merger to 12 months post merger. The *insignificant* coefficient for BHAR during the first 6 months post merger suggests that reverse causality concerns are unlikely, because the impact of price pressure is more likely to happen within the first few months. In addition, since institutional holdings are made public every quarter, the effect from uninformed traders who follow institutional investors' trades would have implied a price effect within the first few months post merger as well. The term structure of correlation we document here is more consistent with the gradual revelation of information regarding the post-merger integration and the realization of expected synergy, which are critical to deal success. As such information arrives, it gets incorporated into the acquirer's market price and reflected in BHAR.

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%.¹⁰ 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 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.

Equation 2 also suggests that the expected gap is larger in deals with more volatile

¹⁰We 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 $E(gap) = \frac{1}{holdings-1} (\hat{\beta} \times var(BHAR) + E(Trade)E(BHAR)) = 1/1.26 * (0.176 * 0.246 + 0.15 * (-0.009)) \approx 0.033$.

BHAR. To confirm this prediction, we divide our full sample into two subsamples using the median of the *absolute value* of BHAR. We find the the expected gap is 6.3% for the subsample with more volatile BHAR while it shrinks to almost zero for the subsample with less volatile BHAR.

4.1.2 Subsample Evidence

After documenting a positive, significant correlation between institutional trading and long-run deal performance in the full sample, we explore how the results vary in subsamples with different deal and institution characteristics. Our analyses center on the characteristics that shape the institutional investors’ incentive and ability to trade and profit from the M&A deals. Our results shed light on where the return gap can be 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 of 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 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. 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.¹¹ 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.

Short sale constraints

A large number of institutions in our sample are mutual funds who are subject to short-sale constraints. Since in theory an informed investor can make profits by trading in both

¹¹The increase is computed as $\frac{Stdev(BHAR_{1yr}) \times \hat{\beta}_1}{\Delta Hldg_{(0,cls)}} = \frac{0.50 \times 0.362}{0.15} = 120\%$

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, Harford, and Li \(2007\)](#) 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, Dorn, and Pedersen \(2024\)](#) 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 he 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 choose a series of exponentially declining weights with $w_{n+1} = 0.9w_n$. The declining weights capture the idea that an investor’s recent trades contain more information regarding his current ability. Our results are robust to using alternative declining weighting schedules or simply an equal weighting schedule. Using a long window of 10 years also allows us to capture the persistent component of institutional investors’ ability in trading in M&A events, averaging out the effect of luck.

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, Harford, and Tran (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 carry 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 first compute the market value of acquirer stock in each institution’s portfolio at the beginning of the public negotiation period as well as the total market value of each institution’s portfolio. The portfolio weight of the acquirer is then calculated as the total market value of acquirer’s stock in the institution’s portfolio divided by the total market value of the portfolio. We further adjust the portfolio weight by a benchmark weight that equals one over the total number of stocks in an institution’s portfolio. This benchmark weight represents the weight a stock would receive if the institution allocated its capital equally to each stock in its portfolio. This adjustment is made to account for the fact that institutions differ in size and in the number of stocks they hold. Our measure of relative portfolio weight means that a positive (negative) relative weight on a stock represents a stock that receives a higher (lower) weight than the average stock in the institution’s portfolio. This measure is consistent with the measure used in Fich, Harford, and Tran (2015) in the sense that both measures adjust for the number of stocks in an institution’s portfolio.¹²

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

¹²Fich, Harford, and Tran (2015) define monitoring institutions of a firm as those whose holding value in the firm is in the top 10% of their portfolios. This measure effectively captures the relative importance of the firm to the institutional investors.

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

We summarize in Figure 3 the main findings from our analyses above. In the full sample analysis, we report a strong positive correlation between institutional trading and subsequent BHAR, resulting in a 3.3% return gap. This correlation is 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' role of governance in the M&A market. Given that institutional investors who can expect to earn a high return gap (hereafter referred to as high-gap institutions) derive significant private returns from M&A, we hypothesize that high-gap institutions are more inclined to support acquisitions even if such deals may destroy firm value. Additionally, we posit that these institutions are also less likely to carry out strong corrective actions, such as deal cancellations, even when the M&A deals are unfavorably received by the market upon announcements.

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. Conducting separate regressions for each institution is feasible because most institutions in our sample are involved in multiple M&A deals as the shareholders of the acquirers. We restrict our regression sample to institutions that have participated in at least 10 deals to ensure adequate statistical power. This criterion allows us to estimate β_{1j} for approximately 70 percent of the institutional investors in our sample. Once we obtain β_{1j} , we calculate the institution-specific expected gap according to the Equation 2. Subsequently, we categorize all institutional investors in our sample into two groups: *high-gap institutions* and *low-gap institutions*, based on their institution-specific gap measure. Institutions involved in fewer than 10 deals are automatically classified to the low-gap institutions group.¹³

Table A.9 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 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, high-gap institutions trade in the correct direction—defined as buying (selling) the acquirer’s shares when the post-merger 12-month BHAR is positive (negative)—in approximately 46% to 70% of cases. This trading behavior translates into substantial return, with estimated return gaps ranging from 2% to 26%. Overall, Panel A illustrates that high-gap institutions exhibit trading patterns consistent

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.

with informed institutional investors. 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. Interestingly, the fraction of trades executed in the correct direction is identical for the two groups (56%). This pattern suggests that high-gap institutions appear to concentrate their trading and earn disproportionately large profits in a subset of deals where they possess a stronger information advantage. Taken together, the evidence indicates that high-gap institutions are not necessarily the largest investors in the market, but rather those that deploy capital more selectively and aggressively when information advantages are strongest.

Panel C examines trading behavior in greater detail by conditioning on deal outcomes. We separately analyze good deals, defined as M&A transactions with positive post-merger 12-month BHARs, and bad deals, defined as those with negative BHARs. In good deals, high-gap institutions purchase, on average, 0.07% of the acquirer's shares outstanding per institution, while in bad deals they sell approximately 0.03%. In contrast, low-gap institutions trade more symmetrically in both good and bad deals, purchasing about 0.03% of shares outstanding in good deals and purchasing approximately 0.02% in bad deals. Notably, high-gap institutions generate substantially larger return gaps because they trade more aggressively and precisely in the deals where their trading direction is correct.

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:

$$\begin{aligned} Acquisition_{it} = & \beta_1 HighGap_{i,-1yr} + \beta_2 FirmSize_{i,-1yr} + \beta_3 FirmMB_{i,-1yr} \\ & + \beta_4 ROA_{i,-1yr} + \beta_5 Profitability_{i,-1yr} + \beta_6 Leverage_{i,-1yr} + \alpha_i + \lambda_t + e_{it} \end{aligned}$$

where $Acquisition_{it}$ is a dummy variable that equals one if firm i announces an acquisition in year t ; $HighGap_{i,-1yr}$ 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 8 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. 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 normalized by the total institutional ownership.

4.2.2 Return Gap and Deal Performance

Our findings above support the prediction that high-gap institutions prefer firms pursuing acquisitions. A follow-up question is whether high-gap institutions are more tolerant of firm pursuing weak acquisitions, given that they can earn the return gap that may more than offset their loss from firm value decline. Specifically, we compare the post-merger performance between acquirers predominantly held by high-gap institutions and those that are not. We conjecture that acquirers held by high-gap institutions will exhibit weaker post-merger performance on average. To compare the differences, we first partition our sample into two subsamples based on high-gap institutions' share. We then run the following regression:

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

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 9 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.

The above evidence shows that firms held by high-gap institutions appear more acquisitive and suffer from weaker deal performance compared to those held by low-gap institutions. High-gap institutional investors benefit from actively trading on M&A events, potentially

aligning with managers' preference for pursuing excessive takeovers. Although such takeovers can be value-destroying to the firm on average, high-gap investors are compensated by their expected trading profits, and their total expected gains from M&A are positive due to the return gap, confirming that they indeed benefit 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 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.

$$I_i = \alpha + \beta_1 CAR_i + \beta_2 X_i + e_i$$

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 [10](#) 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, Sautner, and Starks, 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’ role of incentives in preempting or correcting value-destroying M&A.

5 Robustness and Discussion

5.1 Robustness

In this section, we present the results of various robustness tests to confirm the validity and consistency of our findings. First, we examine whether our results are robust across different sample restrictions. Additionally, we test robustness using alternative measures of merger performance, including those based on accounting variables and BHARs weighted by the average holding period of institutional investors. Then, we examine whether our results are driven by Giant Three (BlackRock, State Street, and Vanguard) or appear more pervasive in the data. Finally, we conduct a placebo test by examining the correlation between institutional trading and post-trading BHARs outside the merger event window. In additional, unreported robustness tests, we confirm that our results are also robust to winsorizing the main variables at the 1% level, alleviating concerns about extreme values, and we further find that our results are robust to including M&A transactions in which the acquirer does not survive beyond one year, mitigating concerns about the survivorship bias.

Serial Acquirers

Our baseline analysis excludes serial acquirers who made any acquisitions within three years prior the acquisitions. This stringent sample screening criterion reduces confounding mergers in the event window, thus generating a clear estimate. However, one may be concerned that many serial acquirers are consequently excluded from our sample. To address this concern, we conduct a robustness check in which we exclude only serial acquirers who made acquisitions within the year before the acquisitions of interest. Online Appendix Table [A.1](#) presents results from this analysis with the revised definition of serial acquirers. The results confirm that our main findings are robust across different definitions of serial acquirers. Specifically, the coefficients on BHAR and other key variables remain consistent with our baseline results, indicating that institutional trading during the public negotiation period continues to positively correlate with post-merger performance.

Accounting-based Performance Measure

Next, we examine whether our primary findings are robust when utilizing alternative measures of merger performance. In our baseline analysis, we use BHAR as the performance measure, as institutional investors arguably care primarily about this metric for their trading profits and gains from M&A. To ensure that our BHAR results are also consistent with the combined firm's long-run performance, we conduct a robustness check by examining its operating performance measured by Return on Equity (ROE). ROE is an accounting-based measure that corresponds to the market-based measure of returns earned by shareholders. To control for industry heterogeneity, we adjust ROE by subtracting the median value of ROE for all firms within the same two-digit SIC code as the acquirer. We then calculate the change in ROE as the difference between the post-merger average over different horizons and the corresponding pre-merger values. The results across various horizons are reported in columns 1-3 and 5-7 of Online Appendix Table [A.2](#). Furthermore, following [Chen, Harford, and Li \(2007\)](#), we also calculate the abnormal change in ROE by taking the residual from an AR(1) regression of ROE on its lagged value. The results using the abnormal changes in ROE are reported in columns 4 and 8 of Table [A.2](#). The results demonstrate that the relationship between institutional trading and post-merger performance is robust to this alternative measure of merger performance. The positive and significant coefficient

implies that institutional investors' trading during the public negotiation period is positively correlated with the changes in post-merger operating performance.

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. This approach aims to isolate the portion of BHAR actually realized by institutions by accounting for the fraction influenced by trading after deal consummation. For instance, in our weighted-BHAR measure, 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, taking into account the effect of institutions unwinding their positions after deal completion.

In particular, we use the following formula for calculating weighted BHAR. For acquirer i and quarter q ,

$$BHAR_{i;weight} = \sum_{q=1}^4 w_{iq} \cdot (BHAR_{i;1year}/4)$$

where $w_{iq} = \min(1, \max(0, (hldg_{i;q} - hldg_{i;0})/\Delta hldg_{i;(0,cls)}))$; $hldg_{i;q}$ represents the average percentage holdings of acquirer stock i per institution at q th quarter after deal completion; $hldg_{i;0}$ is the average percentage holdings of acquirer i at deal announcement quarter; $\Delta hldg_{i;(0,cls)}$ is the average trading per institution during public bid negotiation period. The intuition of the weight w_{iq} is that the post-merger holdings relative to the position accrued during bid negotiation is capped between 0 and 1.

The results, presented in Columns 6 and 12 of Online Appendix Table [A.3](#), show that

the relationship between institutional trading and post-merger performance remains robust when institutional investors' post-merger holding periods are considered. The positive and significant coefficients on BHAR are consistent with our baseline findings, suggesting that institutional trading during the public negotiation period is strongly associated with post-merger performance that these institutions eventually capture.

The Effects of Giant Three

The steady growth of the Giant Three (or Big-3) asset management firms (Blackrock, Vanguard, and State Street) has been prominent, and they are playing 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 institutional 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.4, 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

Placebo Test

Finally, we perform a placebo test to examine whether institutional investors exhibit trading advantages during normal periods, outside the context of major corporate events. To

¹⁵Our results are robust to alternative definitions of the *Big3Dummy* variable. Specifically, we obtain similar findings using different cutoff thresholds of 5%, 15%, or 20%, as well as when defining the trading share based on alternative measures of volume such as $|Big3| / |Big3+NonBig3|$.

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 selected two quarters of trading periods to align with the average duration of public negotiation periods. For the placebo quarter, we used eight and twelve quarters prior to the bid announcement to ensure that the trading period and the measurement of post-trading BHAR do not overlap with either the subsequent acquisition or any preceding acquisition by serial acquirers.

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.5, 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 incentive and ability to do so.

Together, these robustness checks strengthen the validity of our main findings, demonstrating their consistency across different sample specifications, performance measures, and placebo tests.

5.2 Acquirer Shareholder’s Trading of Target Stocks

While our analysis primarily focuses on the trading of acquirer stocks, [Matvos and Ostrovsky \(2008\)](#) document that institutional investors often hold both acquirers and targets in their portfolios. As a result, it is worth exploring whether these informed investors might also leverage their information advantage in trading target stocks.

This analysis critically depends on the method of payment used in the M&A deal. If a M&A deal is settled in cash, acquirer shareholders have little incentive to trade target stocks during the public negotiation period, because target shares will be exchanged for cash and delisted after the merger, and thus the future of the combined firm becomes irrelevant after the offer premium is mostly incorporated into target stock price after the announcement. Conversely, if a M&A deal involves the payment through equity of the combined firm, institutional investors of acquirer may trade target stocks in a manner similar to how they trade acquirer stocks during the public negotiation period, because their holdings of target shares will be converted to shares in the combined firm post-merger.

We construct a sample of M&A deals with specific criteria: (1) both acquirers and targets must be publicly traded firms; (2) detailed information on the payment method must be available; (3) at least one acquirer shareholder must have held shares in the target firm during the M&A process. This selection reduces our dataset to 559 M&A deals from the 1,594 deals analyzed in our main study. We then calculate the average trading activity of acquirer shareholders on target stock during the public bid negotiation period, $\Delta TarHldg_{i;(0,cls)}$, using a method similar to how we determine the average trading of acquirer stocks, $\Delta Hldg_{i;(0,cls)}$. Online Appendix Table [A.6](#) presents the summary statistics for the specific sample. In this sample, each acquirer is held by 16 institutional investors on average, and 5 of them also hold target shares prior the bid announcement. On average, these institutional investors hold about 6% of target shares outstanding and thus represent a meaningful fraction of ownership.

To test the hypothesis that the correlation between acquirer’s trading of target stocks and the post-merger BHAR is weak in cash deal but positive and strong in equity deals, we

run a regression with an interaction term:

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

where $\Delta TarHldg_{i;(0,cls)}$ represents the acquirer’s trading of target stocks; $BHAR_i$ is the combined firm’s post-merger buy-and-hold abnormal return over a 12-month period; $I(Equity_i)$ is a dummy equals one if the M&A deal is paid with equity beyond a specified threshold; $BHAR_i \cdot I(Equity_i)$ is an interaction term of $BHAR_i$ and $Equity_i$ dummy. The other control variables are defined similarly to those in the main analysis.

Online Appendix Table A.7 presents the regression results, where each column indicates the threshold used to define $Equity_i$ dummy. In columns 1 to 3, we present the results without fixed effects, while in columns 4 to 6, we include fixed effects for target firm’s industry and year. The results confirm that acquirer shareholders’ trading on target stock is more positively correlated with the post-merger BHAR in equity deals compared to cash deals. The distinction between cash and equity deals grows more significant and economically substantial as the fraction of payment in equity increases, reinforcing that equity payments encourage acquirer shareholders to trade target stocks similarly to acquirer stocks.

Overall, by relating the acquirer’s trading on the target side with post-merger performance, we provide evidence suggesting that acquirer shareholders leverage their information advantage about post-merger performance in trading target stocks, especially when the payment involves a high fraction of equity of the combined firm.

5.3 Who Are the Counterparts

Given that the institutional investors we study earn positive trading profits around M&A events, a natural question arises: Who are they trading against? Are there identifiable groups of market participants who consistently take the opposite side of these trades and incur losses?

To shed light on this question, we examine the trading behavior of other types of institutional investors covered in the 13F database. We classify investors into five groups based on

their 13F type codes. Type 3 investors, which include mutual funds and hedge funds, form the main focus of our paper. Other groups include banks (type 1), insurance companies (type 2), investment advisors (type 4), and pension funds, endowments, and foundations (type 5). Retail holdings are estimated as the residual between total shares outstanding and the aggregate institutional holdings across all types. While we label this residual group as retail investors for convenience, it may also include other market participants not captured by 13F filings.

We replicate our baseline regression separately for each investor group to assess whether their trading during M&A events is systematically related to deal performance. Online Appendix Table A.8 presents the results. Only type 3 investors—those at the center of our study—consistently trade in the direction of long-run deal outcomes. For all other investor groups, the relation between their trading and deal performance is either statistically insignificant or, in some cases, weakly negative. Importantly, no group exhibits a significantly negative coefficient that would suggest they systematically take the losing side of informed trades.

Overall, we find no evidence that institutional investors systematically trade against specific groups of market participants for consistent gain. While other types of investors may occasionally lose when trading with institutions around M&A events, such losses are not persistent or systematically concentrated.

5.4 Information Asymmetry and Agency Costs

A potential alternative explanation for our findings is that institutional investors are not necessarily informed about deal quality, but rather about the agency costs of the acquiring firms. If firms with higher agency conflicts are more likely to engage in poor acquisitions, and institutional investors can identify these firms, then their trading around M&A may reflect differences in agency costs rather than private information about the deals themselves.

We view this interpretation as entirely consistent with the mechanism studied in this paper—as long as the information about agency costs is not public. In fact, institutional investors’ ability to anticipate how firm-specific agency costs will affect M&A outcomes is a concrete example of the broader information advantage we emphasize. What matters is

that institutional investors act on information that is not yet reflected in prices, whether that information pertains to deal fundamentals or to persistent agency frictions within the acquiring firm.

To clarify this point, consider a scenario in which firms differ in agency costs, but these differences are fully known to the market. In that case, acquirers' announcement returns (e.g., 3-day CAR) would already incorporate these agency costs. Institutional investors would have no informational edge, and their trades would not predict long-run deal performance. This scenario is inconsistent with our empirical results, and thus, agency costs alone, without information asymmetry, cannot explain our findings.

In contrast, if agency costs are imperfectly priced, and institutional investors possess private information about them, then this is simply one channel through which information asymmetry arises. In that sense, agency frictions can be important components of institutional investors' informational advantage of deal outcome, reinforcing rather than contradicting our central mechanism.

In summary, our findings are not at odds with the idea that agency costs matter. Rather, they highlight that agency costs become relevant in explaining institutional trading only when they serve as a source of private information—and in that case, they support the core mechanism of information asymmetry that we study.

6 Conclusion

If investors trade actively during corporate events, the return to the firm, induced by such events, is not equal to the return to these investors. This gap renders firm return a misleading measure for these 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 investors' trading and the long-run performance of M&A deals implies significant trading profits for these investors. We propose a new measure to incorporate the trading profits in order to gauge their incentives more accurately in M&A. On average, institutional investors earn 2.4% from M&A while the return to acquirers is only -0.9%. As a result, even though M&A on average

destroy firm value, institutional investors benefit from embracing acquisitive firms, because the high uncertainty created by merger events allow them to capture the option value of these events. Institutional investors leverage their information advantage in trading to capture the upward potential of these deals but meanwhile mitigate the downward risk. To this end, our paper offers a complementary explanation to the puzzle why acquirer shareholders, even the large institutional investors, rarely oppose aggressive M&A strategies even if the firms do not overtly benefit from these deals. We further highlight that the return gap distorts institutional investors' preemptive and corrective governance incentives in firms' acquisition decisions. Our study contributes to the literature by highlighting the fact that the group of investors who have a say on corporate events do not necessarily bear the full consequences of such events, and therefore accounting for the dynamics of shareholder composition is critical in measuring investors' 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 spread. $BHAR_{1y}$ 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 capture 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 acquire 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, Sias, and Starks \(2003\)](#) 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-R ²	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 changes 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 percentages 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 changes 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**	0.176**	-0.038	-0.036*	0.339***	0.212***	0.362***	0.228***	-0.051	-0.041*	0.413***	0.269***
	(0.117)	(0.079)	(0.032)	(0.021)	(0.121)	(0.082)	(0.120)	(0.082)	(0.033)	(0.022)	(0.124)	(0.085)
<i>Return</i>	0.342*	0.356*	0.182***	0.182***	0.160	0.174	0.367*	0.378*	0.161***	0.160***	0.206	0.218
	(0.189)	(0.189)	(0.057)	(0.057)	(0.197)	(0.197)	(0.197)	(0.197)	(0.061)	(0.061)	(0.206)	(0.206)
<i>Size</i>	-0.111***	-0.114***	-0.016*	-0.016*	-0.095**	-0.098***	-0.169***	-0.176***	-0.015	-0.016	-0.154***	-0.160***
	(0.041)	(0.041)	(0.009)	(0.009)	(0.042)	(0.042)	(0.048)	(0.049)	(0.010)	(0.010)	(0.049)	(0.050)
<i>M/B</i>	0.011	0.015	0.010	0.010	0.001	0.005	0.047	0.055	0.014	0.014	0.033	0.041
	(0.049)	(0.049)	(0.009)	(0.009)	(0.050)	(0.050)	(0.054)	(0.054)	(0.011)	(0.011)	(0.055)	(0.055)
<i>EOY</i>	0.109	0.114	0.012	0.011	0.097	0.103	0.161	0.169	0.020	0.019	0.141	0.150
	(0.136)	(0.136)	(0.028)	(0.028)	(0.139)	(0.139)	(0.145)	(0.145)	(0.031)	(0.030)	(0.148)	(0.148)
<i>Vol</i>	0.019	-0.002	-0.018	-0.017	0.037	0.015	0.020	-0.003	-0.017	-0.016	0.037	0.013
	(0.086)	(0.086)	(0.011)	(0.011)	(0.087)	(0.087)	(0.090)	(0.090)	(0.012)	(0.012)	(0.091)	(0.091)
<i>Cons.</i>	0.783***	0.806***	0.188***	0.191***	0.595**	0.615**	1.034***	1.075***	0.174**	0.179**	0.860***	0.896***
	(0.262)	(0.262)	(0.069)	(0.069)	(0.271)	(0.271)	(0.295)	(0.296)	(0.074)	(0.074)	(0.304)	(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 changes 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 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 percent of the acquirer's share 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.

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	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 changes 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 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 percent of the acquirer's share 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 changes 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 share 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: **Return Gap and Governance: Acquisitiveness**

This table presents the results for the following regression:

$$Acquisition_{it} = \beta_1 HighGap_i + \beta_2 FirmSize_{i,-1yr} + \beta_3 FirmMB_{i,-1yr} + \beta_4 ROA_{i,-1yr} + \beta_5 Profitability_{i,-1yr} + \beta_6 Leverage_{i,-1yr} + \alpha_i + \lambda_t + e_{it}.$$

$Acquisition_{it}$ is the dummy variable that equals one if firm i announced an acquisition in year t and zero otherwise. $HighGap_i$ is a dummy that equals one if the acquirers are held more by institutional investors that earn high return gap; $FirmSize_{i,-1yr}$ is the logarithm of the acquirer's market value one year before the bid, $FirmMB_i$ is the market-to-book equity ratio of the acquirer one year before the bid. Other control variables include acquirers' ROA, profitability, and leverage one year before the bid. The analyses with firm and year 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	0.125*** (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 9: **Return Gap and Governance: Deal Performance**

This table presents the results for the following regression:

$$BHAR_i = \alpha + \beta_1 HighGap_i + \beta_2 X_i + e_i$$

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 acquirers are held more by institutional investors that earn high return gap; and 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. The analyses with industry and year 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 10: **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:

$$I_i = \alpha + \beta_1 CAR_i + \beta_2 X_i + e_i$$

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 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. The analyses with industry and year 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>Size_{Acq}</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>MB_{Acq}</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>Lev_{Acq}</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.

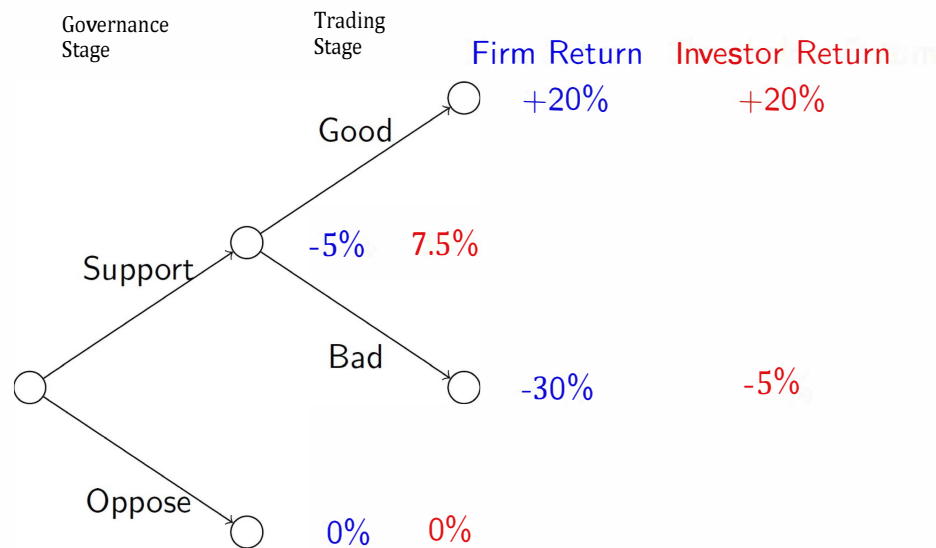


Figure 2: **Timeline of Trading and Merger Performance**

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 of institutional investors' holding of the acquirer stock during 4 quarter periods before the quarter of bid announcement; $\Delta Hldg_{-1,0}$ is the change of institutional investors' holding of the acquirer stock during the quarter of bid announcement; $\Delta Hldg_{0,cls}$ is the change of institutional investors' holding 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. DateAnn and DateClose are the exact date of bid announcement and bid outcome.

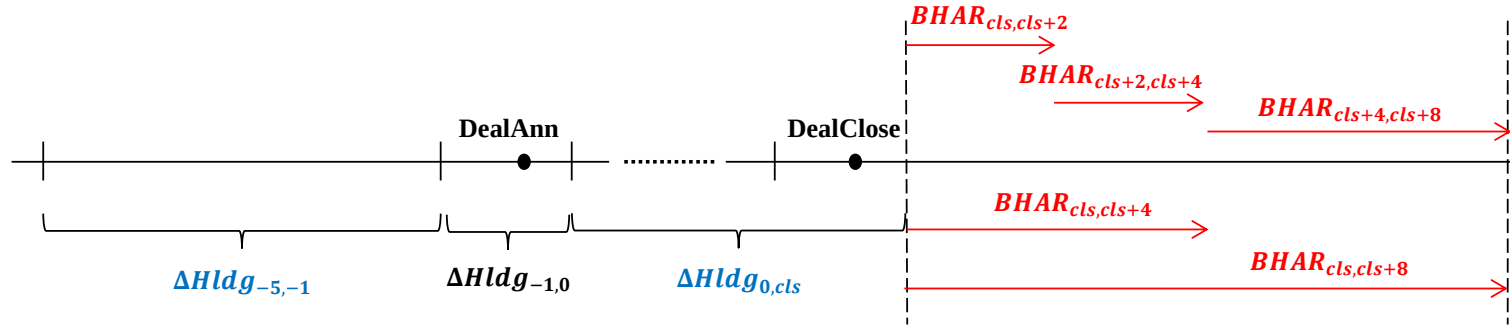
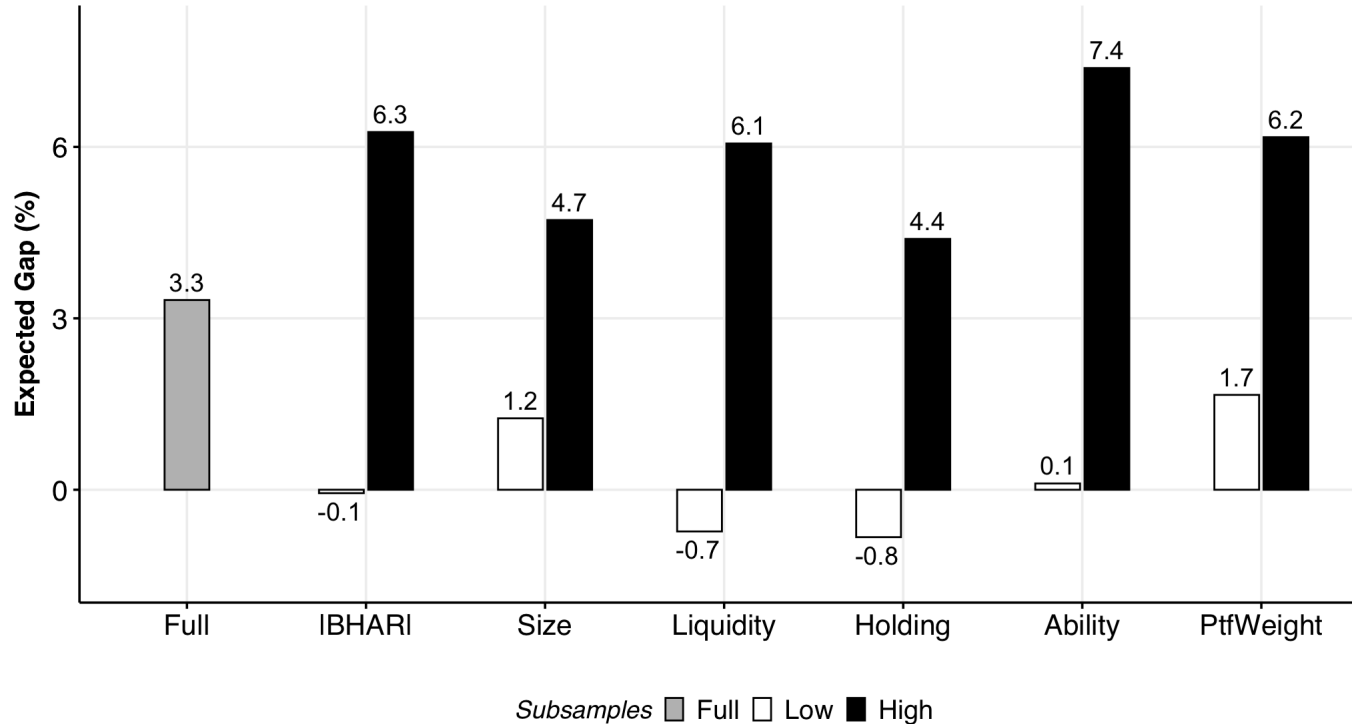


Figure 3: **Expected Gap**

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 the institutional investors' pre-announcement holding on the acquirer stock. $BHAR$ is 1-year buy-and-hold abnormal return of the acquirer stock post-merger. 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 as low group (represented by white bars) and high group (represented by black bars) based on the respective 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. $PtfWeight$ is indicative of the relative weights 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 Giant 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: 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 to those who 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 acquire 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, Sias, and Starks \(2003\)](#) 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.2: **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 acquire 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, Harford, and Li \(2007\)](#), 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, Sias, and Starks \(2003\)](#) 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.3: 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 acquire i 's stocks by institutional investors during the public negotiation period; Control variables follow [Parrino, Sias, and Starks \(2003\)](#) 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.4: **Robustness: Specification with additional fixed effects of big-3 institutions**

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 acquire i 's stocks by institutional investors during the public negotiation period; Control variables follow [Parrino, Sias, and Starks \(2003\)](#) 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]
$BHAR$	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)
$Return$	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)
$Size$	-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)
M/B	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)
EOY	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)
Vol	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)
$Cons.$	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.5: **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, Sias, and Starks \(2003\)](#) 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.6: **Acquirer Shareholder's 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 Shareholder's 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. $BHAR_i * I(Equity_i)$ is an interaction term of $BHAR_i$ and $Equity_i$ dummy. Control variables follow [Parrino, Sias, and Starks \(2003\)](#) 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%
$BHAR * I(Equity)$	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 acquire 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, Sias, and Starks \(2003\)](#) 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
$BHAR$	-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)
$Return$	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)
$Size$	-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)
M/B	-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)
EOY	-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)
Vol	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)
$Cons.$	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

Table A.9: **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. *Direction* measures the fraction of M&A deals in which the institution traded in the correct direction (e.g., buying the acquirer's shares when the post-merger 12-month BHAR is positive and selling when it is negative). *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	Direction	Gap (%)	Alpha (%)
Maverick Capital	Hedge	40	4.19	67.42	0.70	26.24	0.19
Berger LLC	Institutional	98	2.75	256.48	0.61	16.13	0.51
Keystone Investments	Mutual	99	3.50	728.52	0.46	11.01	0.35
Delaware Investments	Mutual	544	21.72	764.78	0.56	10.06	0.39
Parnassus Investments	Mutual	53	4.01	82.86	0.49	7.86	0.41
De Garmo & Kelleher	Institutional	181	5.64	508.37	0.55	7.10	0.35
AAL Capital Management	Mutual, Institutional	223	5.62	817.51	0.57	5.57	0.13
Davis Selected Advisers	Mutual, ETF	89	34.69	206.98	0.54	3.93	0.36
Neuberger & Berman	Mutual, Hedge	106	7.88	386.82	0.48	3.72	0.37
Nicholas Company	Mutual	141	3.15	213.90	0.52	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. *Direction* measures the fraction of M&A deals in which the institution traded in the correct direction (e.g., buying the acquirer's shares when the post-merger 12-month BHAR is positive and selling when it is negative). *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
Direction	0.56	0.09	0.44	0.55	0.70	0.56	0.19	0.36	0.54	0.85
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

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