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Do Firms Strategically Internalize Disclosure Spillovers? Evidence from Cash-Financed M&As

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Abstract

We investigate whether managers internalize the spillover effects of their disclosure on the stock price of related firms and strategically alter their disclosure decisions when doing so is beneficial. Using data on firm-initiated disclosures during all-cash acquisitions, we find evidence consistent with acquirers strategically generating news that they expect will depress the target's stock price. Our results suggest the disclosure strategy leads to lower target returns during the negotiation period when the takeover price is being determined and results in a lower target premium. These findings are robust to a battery of specifications and falsification tests. Our results are consistent with expected spillovers influencing the timing and content of firms' disclosures in M&A transactions.

JEL codes: D62; D83; G34; M41

Keywords: corporate disclosures; internalizing externalities; mergers and acquisitions

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1. Introduction

We study firm disclosures and price formation in all-cash M&A transactions. Our goal is to investigate whether and to what extent managers recognize the potential for their firms' disclosures to influence the stock prices of other firms (the so-called spillover effects of disclosure) and strategically adjust their disclosures for gain. Our motivation arises from prior research documenting that firms' disclosure influences the stock prices of related firms (e.g., Firth (1976), Foster (1981), Freeman and Tse (1992)). We extend this literature by asking the reverse question – whether the presence of information spillovers influences disclosure decisions in the first place.

Our central prediction is that acquirers deliberately disclose information intended to affect the target's stock price when doing so is beneficial. We test this prediction in two steps. Our first hypothesis is that when the acquirer and target have economic linkages that make it likely that positive news from the acquirer spill over as positive news to the target (hereafter, positive information spillovers), the acquirer is more likely to disclose negative news during the negotiation period to acquire the target at a lower price. Similarly, when the acquirer and target have economic linkages that make it likely that positive news from the acquirer spill over as *negative* news to the target (hereafter, negative information spillovers), the acquirer is more likely to disclose positive news during merger negotiations. Thus, we expect a negative relation between the nature of the spillover and acquirer disclosure tone during the merger negotiation window.¹ Our second hypothesis focuses on the valuation implications of the acquirer's disclosure choices. If acquirers are able to successfully exploit their information spillovers (regardless of whether the spillover is

¹ A key component of our study is to estimate the economic linkages between acquirers and targets to test whether firms make strategic disclosure choices based on those linkages. As discussed in detail in Sections 4.4.1 and 4.4.2, we perform a variety of tests to show our economic linkage proxies indeed relate to ex post information spillovers.

positive or negative), we expect the target's stock price to underperform during merger negotiations, relative to acquirers without spillover incentives.

Our predictions notwithstanding, there are reasons why acquirers may not strategically disclose information designed to affect the target's stock price. First, it is not clear *ex ante* whether the potential gains outweigh the costs of disclosing information designed to influence the value of other firms. For instance, it is unclear whether acquirers are willing to disclose bad news (to exploit positive information spillovers with the target) at the cost of reducing their own stock's value. Second, because a merger negotiation is a bilateral agreement, it is possible that the use of strategic disclosure by one party may lead the other party to oppose and reject the deal. We discuss these issues below when explaining our research setting and exploit these tensions in our empirical tests.

A primary challenge to testing our hypotheses is finding a setting where the benefits of information spillover are strong enough to offset the other determinants of optimal disclosure choice. Motivated by this challenge, we test our hypothesis using cash-based acquisitions and the disclosure choices made by acquiring firms. In this setting, the acquisition price is determined during the merger negotiation period, which precedes the acquisition announcement date. To the extent that the acquirer's disclosure can reduce the target's stock price during negotiations, the acquirer directly benefits. Further, because we focus on cash transactions, the impact of the acquirer's disclosure on its own stock price is temporarily less important. As a result, in such a setting, information spillovers can have a first order impact on the acquirer's disclosure choice.²

Following Ahern and Sosyura (2014), our primary research design estimates changes in acquirers' disclosures during merger negotiations (relative to the pre-negotiation window) by

² As falsification tests, we examine the disclosure of *targets* in our cash-based acquisition sample, as well as the disclosure of acquirers in *stock*-based acquisitions.

controlling for firm-deal fixed effects.³ The inclusion of firm-deal fixed effects also controls for time-invariant differences both at the firm and deal levels and thus ensures a design that is robust to a wide array of observable and unobservable factors. Overall, this methodology identifies whether the sign and magnitude of information spillovers influence acquirers' disclosures during the short window when they stand to benefit from reductions in the target's stock price.

We implement our tests using two complementary approaches. First, we classify deals into quintile ranks based on the sign and magnitude of the potential information spillover (i.e., from negative to positive, centered around zero). In our primary analysis, we proxy for information spillover based on the pairwise correlation of daily stock returns prior to the pre-negotiation period.⁴ Second, to better highlight the opposing incentives created by positive and negative spillovers, we partition the sample of deals into three groups: (i) firms with positive spillovers in which good news for the acquirer is likely to be good news for the target, (ii) firms with negative spillovers in which good news for the acquirer is likely to be bad news for the target, and (iii) firms with little or no spillover in which the news for the acquirer is irrelevant to the target (control firms). Both approaches use firms with weak or no spillover incentives as a benchmark group and test whether acquirers disclose more negative (positive) information during the negotiation period, when the acquirer's disclosures have a positive (negative) spillover effect on the target firm.

Our primary sample consists of 381 cash-based acquisitions announced and completed during the period from 2000 to 2017. Our dependent variable for our first hypothesis is the sign of the news that acquirers initiate during the negotiation window. We find that relative to deals with zero spillovers, acquirers with positive spillovers generate disclosures that are approximately 16%

³ While we build on their methodology, our research question differs from that in Ahern and Sosyura (2014). Using a setting of stock-for-stock acquisitions, they study whether acquirers change their disclosure to increase the value of their *own* stock. In contrast, we are interested in testing whether spillover incentives influence a firm's disclosure and test it by studying whether acquirers change their disclosure to drive down the value of the *target's* stock.

⁴ In additional analysis, we show that our findings are robust to using three alternative spillover proxies.

more negative in tone during merger negotiations compared to the pre-negotiation period. In contrast, acquirers with negative spillovers do the opposite: they initiate disclosures that are approximately 50% more positive in tone during negotiations. Both results provide initial evidence consistent with our hypothesis that acquirers alter their disclosure during the time period when the firms are negotiating the takeover price.

We then extend our window of analysis to examine subsequent changes in disclosure following completion of the deal. If the disclosures are strategic during the negotiation period, we expect them to revert to pre-negotiation levels after the merger is complete. In contrast, if the acquirer's disclosures are driven by a missing factor we would not necessarily expect an immediate reversal in the post-completion period.⁵ Consistent with the disclosures being strategic, we find that acquirers' disclosure tone reverts back to pre-negotiation levels for acquirers with both positive and negative information spillovers in the post-completion period.

We next turn to our second hypothesis, which focuses on the valuation implications of the acquirer's disclosure choices. Our results suggest that strategic disclosures by acquirers with strong spillovers depress the target's cumulative returns during the merger negotiation period. Compared to acquisition premiums in deals with zero spillovers, acquirers with strong (positive or negative) spillovers acquire targets at an approximately 3-8% lower premium. In other words, while the average takeover premium in our sample of deals is around 40%, average premiums for target firms with strong spillovers range from 32-37%. Economically, this effect translates into mean (median) dollar savings of approximately \$23-58 million (\$6-16 million) in the acquisition price.

We perform several additional tests to corroborate our main findings, as well as to mitigate alternative explanations. First, we validate a key assumption underlying our proxy for information

⁵ Missing factors may include a change in performance for the acquirer or an industry factor jointly influencing the acquirer and the target as in the classic "reflection problem" discussed by Manski (1993) and Angrist (2014).

spillovers – that the historical comovement of returns between the acquirer and target also governs how the acquirer firm’s disclosure affects the target firm’s stock price. We find that our proxy indeed predicts the direction and degree to which target stock prices react to acquirer disclosure tone, and that this relation is amplified during merger negotiations, consistent with acquirers intentionally altering their disclosures to affect target value.⁶ This result suggests that our *ex ante* proxy of the economic linkages between the acquirer and the target is predictive of the acquirer’s disclosure actions and the stock price consequences during the negotiation window.

Nonetheless, we construct three alternative proxies for information spillovers and show that our primary findings are robust to the use of different measurement choices. Our first alternative proxy is based on target stock price reactions to acquirer disclosure tone during merger negotiations. Our second alternative proxy is based on the historical quarterly earnings correlation between the acquirer and target firms. Our third alternative proxy uses targets’ stock price reactions to acquirers’ historical quarterly earnings surprises. All three alternative measures of economic links between the acquirer and target firms produce results consistent with our main findings.

We also explore in more detail *how* disclosures are being modified. We investigate three dimensions: the extensive margin (i.e., whether firms choose to disclose or not), intensive margin (i.e., conditional on a firm having made a disclosure, how good or bad is the disclosed news), and type of news disclosed (i.e., whether the news is more “macro-oriented” or more firm-specific). We find evidence that acquirers alter their disclosures along both the extensive and intensive margins during merger negotiations. Further, as information spillovers become more positive and acquirers disclose more bad news, they also increase their use of macro-oriented words (arguably) to emphasize the systemic, as opposed to idiosyncratic, nature of bad news.

⁶ In addition, we find that the comovement of returns between the acquirer and the target persists and in fact becomes stronger during the negotiation window.

Next, we perform two falsification tests to better attribute our main findings to the acquirer's strategic disclosure incentives. First, we examine the target's (as opposed to the acquirer's) disclosures during negotiations. The target's incentive is to maximize its own stock price during negotiations, and hence, to disclose more favorable information regardless of the nature of the spillover between the two firms. Consistent with this argument, we find that during merger negotiations, target firms uniformly disclose more positive news, independent of the nature of information spillovers with the acquiring firm. Second, we examine acquirers' disclosures in stock-for-stock (as opposed to cash) transactions. Based on the findings in Ahern and Sosyura (2014), we predict that when a firm uses its own stock as payment, the primary incentive is to inflate its own stock price rather than exploiting information spillovers to influence the target's stock price. Consistent with this argument, acquirers in stock-based acquisitions disclose more positive news during merger negotiations and seem relatively insensitive to spillover incentives.⁷ Overall, these two tests provide additional assurance that our primary results do not simply reflect omitted factors that drive the tone of news in the deals we investigate.

Finally, we investigate potential costs of exploiting information spillovers by examining the likelihood that an announced deal triggers an opposition campaign by activist shareholders within the target, and that the announced deal fails prior to completion. We predict that when acquirers attempt to reduce the takeover price by exploiting information spillovers, target shareholders become incrementally less likely to accept the takeover bid. Consistent with this argument, we find that announced deals are more likely to experience an opposition campaign by target shareholders and fail before completion when information spillovers are strong. These

⁷ Information spillover incentives may also exist in stock-for-stock deals. For instance, acquirers with negative spillovers may benefit by disclosing more positive news to both inflate their own price and suppress the target's. But the acquirer's dominant disclosure incentive in stock transactions is likely to be to inflate its own stock price.

results suggest that a cost to acquirers of exploiting disclosure spillovers to obtain a lower takeover price is a higher risk of losing the deal entirely.

While the battery of tests in our paper support the notion that acquirers use disclosures with the goal of depressing targets' stock prices, our results should be interpreted with caution since we cannot directly observe acquirers' intent. We discuss these and other related limitations in our study in more detail throughout the paper, and conclude with a discussion of some opportunities for future research.

These caveats notwithstanding, our finding that information spillovers influence firm disclosure decisions contributes to several streams of literature. First, we extend the literature on information spillovers, an important but under-researched topic (Leuz and Wysocki (2016)). Studies in this area generally assume disclosure and its associated spillovers are exogenous, and investigate the relevant market and corporate consequences for affected peers.⁸ In contrast, we reverse the analysis and study how spillovers affect disclosure. Our study views managers as strategic players who incorporate expected spillover effects when making optimal disclosure choices around merger deals.

Our findings also relate to literature on the proprietary costs of disclosure (e.g., Verrecchia (1983)), in which firms withhold information that would be helpful to peer firms and consequently harm the disclosing firm. In our setting, firms alter their disclosure when doing so negatively affects peer firms to the disclosing firm's benefit. In this light, our paper relates to recent work by Aobdia and Cheng (2018), who show that non-unionized firms increase good news disclosures to weaken their unionized rivals. Our paper also relates to Park, Sani, Shroff, and White (2019), who

⁸ For example, empirical evidence shows that disclosure spillovers affect liquidity (Bushee and Leuz (2005)), investment decisions (Badertscher, Shroff, and White (2013), Chen, Young, and Zhuang (2013), Shroff, Verdi, and Yu (2014)), and the cost of capital (Shroff, Verdi, and Yost (2017)).

show that common ownership increases disclosure, consistent with firms internalizing the benefits of their disclosure for peer firms that share common ownership. Last, Cao, Fang, and Lei (2020) investigate an emerging corporate strategy of publicizing adverse news about industry peers on social media in an attempt to gain competitive advantage. Although we study a different setting (mergers) and outcome (stock price), our papers have a shared goal of understanding when, how, and to what extent firms internalize information spillovers when making disclosure choices.

Our study also contributes to the body of work that investigates incentives to voluntarily disclose negative news and/or withhold good news. Prior research has shown that firms disclose negative news when doing so reduces litigation costs (Skinner (1994, 1997)) and when managers have incentives to temporarily lower their stock prices (Aboody and Kasznik (2000)). We extend the work in this area by suggesting that acquirers have an incentive to strategically disclose negative news when the disclosure can reduce the target's takeover price (i.e., when the firms share positive information spillovers). Further, our findings provide a rationale for acquirers to withhold good news when the disclosure is likely to increase the target's stock price.

Last, our paper adds to the literature that seeks to understand the wealth effects of mergers.⁹ In particular, we build on Ahern and Sosyura (2014), who find that acquirers in stock mergers strategically disclose positive news to inflate their own stock price. Our study complements their findings by providing evidence that acquirers modify their disclosures to influence not only their own stock price, but also that of their targets. By showing that disclosure spillovers enable acquirers to buy targets at a discount, our findings reveal a previously unknown factor that influences the relative wealth gains during mergers.

⁹ For example, Savor and Lu (2009), Cai, Song, and Walkling (2011), Betton, Eckbo, Thompson, and Thorburn (2014), and Stewart (2020). See Eckbo (2014) for a review.

2. Research Setting and Hypothesis Development

Our goal is to study whether information spillovers, i.e., the extent to which information about one firm affects the stock price of another, influence firms' disclosure decisions. A primary challenge, however, in empirically testing our prediction is that it is crucial to identify a setting where the benefits to a firm of exploiting those spillovers outweigh the other determinants of optimal disclosure choice, such as maximizing its own short-run value.

Motivated by this challenge, we examine cash-financed mergers and acquisitions as our setting to investigate whether firms internalize information spillovers and alter their disclosures accordingly. Cash-based mergers offer several desirable features. First, the outcome of merger negotiations regarding the takeover price result in a direct wealth transfer in which the acquirer gains from a lower target stock price (i.e., the acquirer has a clear motivation to reduce the target's stock price if possible). Second, using cash (as opposed to its own stock) to finance the transaction ensures that the acquirer remains relatively insensitive to any temporary decline in its own price. Third, the merger negotiation period is relatively short-lived (on average, beginning 60 trading days prior to the acquisition announcement), providing a limited window during which the acquirer must strategically disclose information. Last, market participants apart from the acquirer and target firms are generally unaware of the merger negotiations while they are taking place, so the market likely perceives the disclosures as credible.

In this setting, we conjecture that the existence of information spillovers between the acquiring and target firms provides an incentive for acquirers to strategically disclose information to reduce the target's takeover price. For instance, a strong positive information spillover may prompt the acquirer to attempt to drive down the target's market value by disclosing negative news. Similarly, in the presence of a strong negative information spillover (i.e., when good news from the acquirer depresses the target's stock price), the acquirer may seek to decrease the target's value

by disclosing positive news.¹⁰ Thus, we expect acquirers' disclosure tone during merger negotiations to vary inversely with the direction of information spillovers between the acquirer and target firms. These arguments lead to our first hypothesis:

H1: *Acquirers in cash-financed acquisitions initiate more negatively biased press release articles during merger negotiations as information spillovers between the acquirer and target firms become more positive.*

Further, if acquirers are able to successfully exploit information spillovers with targets, then we should see the impact of the acquirer's disclosure on the target's stock price during the merger negotiations. In other words, the presumed goal of the acquirer firm is to acquire the target firm at the lowest possible price. In H1, the acquirer's disclosure response depends on the sign of the information spillover (i.e., a positive spillover induces the acquirer to release negatively biased news, whereas a negative spillover induces the acquirer to generate positively biased news). But our prediction with respect to the target's stock price depends only on the *strength* of any information spillovers, not the sign. The existence of a pricing effect is made possible due to the feature that merger negotiations typically take place in private, and thus it is difficult for investors to fully see through the acquirers' strategic disclosures. Thus, our second hypothesis is as follows:

H2: *Target run-ups and premiums in cash-financed acquisitions decrease as the strength of information spillovers between the acquirer and target firms increase.*

Nevertheless, there are reasons why we might not observe our predicted outcomes. As discussed in the introduction, the acquirer faces potential costs from strategic disclosure including a possible negative impact on its own stock value (for acquirers disclosing bad news to exploit positive spillovers), as well as the possibility that the resulting deal terms will lead target shareholders to oppose and ultimately reject the deal. Also, if certain investors are aware that

¹⁰ See Appendix B for specific examples of deals with positive and negative information spillovers and examples of press articles initiated by the acquirer firms in those deals before and during merger negotiations.

negotiations are taking place (for example through private information channels) and are able to discern the motives behind acquirers' strategic disclosure, we may not observe pricing effects.

3. Data and Methods

3.1 Background of the Merger Data

We construct our sample using the SDC database, starting with mergers of U.S. publicly traded firms announced after January 1, 2000 and completed by December 31, 2017 in which the payment was 100 percent cash and the deal size greater than \$10 million. We require that the deal's pre-negotiation period start no earlier than January 2000 because Factiva's news coverage (which we use to measure disclosure tone, as described below) is less comprehensive prior to that date. Our focus on cash deals is central to our hypothesis because it provides a powerful setting in which to observe the influence of information spillovers on disclosure choices.

To ensure our sample reflects deals in which acquirers have the incentive and the opportunity to exploit information spillovers, we exclude hostile takeovers, deals with multiple bidders, and tender offers. Each of these three groups of deals reflect situations where the target has relatively more bargaining power, and as a result the acquirer firm has a lesser ability to manipulate the takeover price.¹¹ We impose an additional requirement that the acquirer in each deal initiate press release articles at least on five separate days during the merger's pre-negotiation and negotiation periods to ensure that our results are not influenced by firms with very few disclosures. Last, for our main tests we exclude deals that were announced but never completed

¹¹ For instance, Offenberg and Pirinsky (2015) provide evidence that when an acquirer makes a tender offer, it signals a higher demand for the target's shares, leading the target to raise its reservation price. In the [Internet Appendix](#), we perform our main tests while including hostile takeovers, deals with multiple bidders, and tender offers, and we find that our inferences are largely similar, albeit weaker in some cases (see Tables A1 and A3).

(i.e., failed deals).¹² After these restrictions, the final sample consists of 381 completed mergers.

Table 1 displays our sample selection process.

Following Ahern and Sosyura (2014), we define the following periods:

- (1) Pre-Negotiation Period: the 120 trading days immediately preceding the day when the merger negotiations begin. This window spans $t=-180$ to $t=-61$ relative to the public announcement of the merger.
- (2) Negotiation Period: the 45 trading days stretching from $t=-60$ to $t=-16$ days relative to the public announcement of the merger.¹³
- (3) Post-Completion Period: the 45 trading days following the completion date of the merger. We use a window spanning $t=+2$ to $t=+46$ relative to the merger completion date.

As discussed in Ahern and Sosyura (2014), the restriction of the negotiation period to end 15 days before the public announcement reduces the chance that firm-initiated press releases contain information about the merger. Figure 1 provides the timeline for a typical merger.

3.2 Firm-originated News Data

In our main analysis, we follow Ahern and Sosyura (2014) and collect all articles at a daily frequency from the pre-negotiation period through the close of the merger from the top three newswire sources: *Reuters News*, *Dow Jones News Service*, and *Business Wire*. We refer to articles from these sources as “firm-initiated” as they typically report firm press releases with no additional analysis.¹⁴ Moreover, press releases are particularly suitable for strategic disclosure because they

¹² In additional analysis we retain the failed deals in the sample to test whether information spillovers between the acquirer and target firms are associated with higher likelihoods of target shareholder activist campaigns opposing the merger and failed deals (see Table 10 and the related discussion in Section 4.4.5).

¹³ For a randomly selected subsample of deals, we retrieve information about the negotiation start dates for the merger process from SEC filings. This information typically appears in the section entitled “Background of the Merger” in the merger agreement, which provides a narrative history of the merger process. We find that 60 trading days is the average length of time between the start of negotiations and the acquisition announcement date.

¹⁴ We do this for consistency with Ahern and Sosyura (2014), although we acknowledge that this assumption is not without controversy. For example, Guest (2018) shows that articles published by the *Dow Jones News Service* include additional analyses relative to the press releases directly issued by firms. As a result, in Section 4.4.4, we conduct additional tests using firm-initiated disclosures gathered from the RavenPack database, which allows us to better identify the news source and assess the sensitivity of our findings to alternative news sources.

are typically less regulated than accounting statements, offering firms greater flexibility in steering news content according to their preferences (e.g., Dyck and Zingales (2003)). Table 1 displays the news sources for the sample of mergers.

To identify strategic disclosure behavior, we construct two primary measures of disclosure tone. First, we create a text-based measure, *Factiva Tone-Sentiment*, which identifies positive and negative words in the articles following Loughran and McDonald (2011). We classify each day as a good news day, bad news day, or neither (if there are no press articles for the firm that day), based on the overall tone of the day's news. To establish a benchmark news tone for the entire sample, we use the average difference between the number of positive words and negative words in each day's disclosures. Then we classify each day as a good news day (bad news day) if the difference between the positive and negative words in the day's articles is above (below) the sample average. *Factiva Tone-Sentiment* is set equal to one (minus one) for good (bad) news days, and zero if there are no press articles on that day.¹⁵

Our second measure of disclosure tone, *Factiva Tone-CAR*, relies on the market reaction to the release of news. The advantage of this approach is that it relies on the market response to infer whether the news was good or bad, as opposed to relying on word counts and specific dictionaries. To implement the market-based measure of news, on each day with at least one Factiva disclosure, we compute the three-day cumulative abnormal returns adjusted for the value-weighted index. *Factiva Tone-CAR* is set equal to one (minus one) if the 3-day returns are positive (negative) and zero if there are no press articles on that day.

To create a parsimonious measure of disclosure tone, *Factiva Tone-Index*, we take the sum of *Factiva Tone-Sentiment* and *Factiva Tone-CAR* and scale the result to range from minus one to

¹⁵ Our results using *Factiva Tone-Sentiment* are qualitatively similar if we define disclosure tone at the article level rather than the daily level.

one. As such, *Factiva Tone-Index* takes on three possible values: -1, 0, and +1. In untabulated analysis, we find that *Factiva Tone-Sentiment* and *Factiva Tone-CAR* are significantly positively correlated with each other (Pearson (Spearman) correlation of 0.56 (0.55)) as well as with *Factiva Tone-Index*. Further details on the construction of key variables are provided in Appendix A.

3.3 Economic Linkage Proxies

Our analysis requires a measure of economic linkages, or the potential for information spillovers, between the acquirer and the target firms. In our main tables we use the correlation of the firms' daily stock returns adjusted for the value-weighted market index during the 120-trading-day window ending the day before the start of the pre-negotiation period (*Returns Spillover*). We then convert *Returns Spillover* into quintile ranks (scaled to range from -0.5 to 0.5). While we focus on the return correlation in our main results, we show in Section 4.4.2 that our inferences are similar when we instead use three different alternative proxies for information spillovers.

Before we proceed, we discuss an important assumption underlying the spillover measure – that the return comovement behavior used to construct the *Returns Spillover* proxy also governs how the acquirer's disclosure affects the target's stock price. To mitigate concern that return comovement fails to capture the influence of the acquirer's disclosure tone on target stock price, in Section 4.4.1 we test and validate this assumption directly using two different approaches. First, we examine targets' stock price reactions to acquirers' press releases during the merger process, and the implications for the comovement of the firms' stock returns. Second, we observe targets' stock price reactions to acquirers' historical quarterly earnings surprises. The results of both validation tests confirm that the *Returns Spillover* proxy predicts the degree and direction of target stock price reactions to acquirer news. Further, in Section 4.4.2 we construct three alternative measures of information spillovers and show that our primary inferences are unchanged when using these alternative measures.

3.4 Identification Strategy

Following Ahern and Sosyura (2014), our main regression estimation uses a firm-deal fixed effects specification to capture the change in the acquirer's disclosure during merger negotiations, conditional on the sign and magnitude of any information spillovers between the acquirer and target firms. Specifically, we estimate the following regression:

$$\begin{aligned} Disclosure\ Tone_{i,t} &= \beta_1 Negotiation_{i,t} + \beta_2 Negotiation_{i,t} \times Information\ Spillover_i \\ &+ \beta_k Negotiation_{i,t} \times Controls_i + \delta_i + \gamma_q + \epsilon_{i,t}, \end{aligned} \quad (1)$$

where i and t index firms and days, respectively. $Disclosure\ Tone_{i,t}$ is a measure of the overall sentiment, or tone, of the disclosures initiated by firm i on day t . $Negotiation_{i,t}$ is an indicator variable for firm i that takes the value of one if the observation occurs after merger negotiations have begun and zero otherwise. In our main tests we proxy for $Information\ Spillover_i$ using *Returns Spillover*, converted into quintile ranks and scaled to range from -0.5 to 0.5.¹⁶ δ_i is a firm-deal fixed effect, which captures time-invariant characteristics of the acquirer or the merger, including observables such as historical disclosure tone, as well as unobservable firm characteristics that are stable during the relatively short time of the merger negotiation. γ_q is a year-quarter fixed effect, which captures systematic, time period-specific shocks present among all deals.¹⁷ $Controls_i$ represents a vector of control variables, measured prior to the pre-negotiation start date, shown to influence deal outcomes based on prior research (e.g., Jenter and Lewellen (2015)). Note that we do not include separate main effects for $Controls_i$ as they would be subsumed by the firm-deal fixed effects, but instead we interact $Controls_i$ with $Negotiation_{i,t}$ to allow for potential differential effects of these variables between the pre-negotiation and the negotiation periods. We employ two-

¹⁶ Using ranks ranging from -0.5 to 0.5 ensures that the third quintile of spillovers will serve as the control group, whose effect will be captured by the main coefficient on $Negotiation_{i,t}$ (i.e., β_1).

¹⁷ In untabulated analysis, we find that our main inferences are unchanged if we include year fixed effects, daily fixed effects, or exclude time fixed effects altogether.

way clustering at the firm-deal and year-quarter levels to adjust the standard errors for both time-series and cross-sectional dependence (Petersen (2009), Gow, Ormazabal and Taylor (2010)).¹⁸

All variables are described in detail in Appendix A.

The coefficient on the interaction term $Negotiation_{i,t} \times Information\ Spillover_i$ (i.e., β_2) captures the incremental change in the acquirer's disclosure from the pre-negotiation to the negotiation period, conditional on the sign and magnitude of any spillovers between the acquirer and target firms. We predict that $\beta_2 < 0$, indicating that when strong positive (negative) information spillovers exist between the acquirer and target firms, acquirers' disclosures become increasingly negatively (positively) biased during merger negotiations.

To further highlight the opposing predictions for acquirers with positive and negative information spillovers, we modify Equation 1 to separately display the effects for the respective groups. First, we partition our sample into three groups: (i) firms with positive spillovers (treatment firms), (ii) firms with negative spillovers (treatment firms), and (iii) firms with little or no spillover (control firms). We then estimate the following difference-in-differences regression:

$$\begin{aligned} Disclosure\ Tone_{i,t} &= \beta_1 Negotiation_{i,t} + \beta_2 Negotiation_{i,t} \times Positive\ Spillover_i \\ &+ \beta_3 Negotiation_{i,t} \times Negative\ Spillover_i + \beta_k Negotiation_{i,t} \\ &\times Controls_i + \delta_i + \gamma_q + \epsilon_{i,t}, \end{aligned} \quad (2)$$

where $Positive\ Spillover_i$ is an indicator variable equal to one if the economic link (e.g., *Returns Spillover*) between the acquirer and target firms is more than one-half of a standard deviation above zero, zero otherwise. Similarly, $Negative\ Spillover_i$ is an indicator variable equal to one if the

¹⁸ Two-way clustering in this fashion assumes no correlations across different firms in different time periods. But common shocks with effects beyond one period or correlated decisions among firms with effects for more than one period would violate this assumption. Moreover, two-way clustering requires that the smallest number of groups along any of the dimensions be large (p. 1150 of Conley, Gonçalves, and Hansen (2018)). For these reasons, Conley et al. (2018) point out that the common practice of using two-way clustering is often inappropriate and can result in poorly sized test statistics. Given these concerns, we also conduct tests clustering solely at the firm-deal level (untabulated) and find that the inferences from our main results are unchanged.

economic link between the acquirer and target firms is more than one-half of a standard deviation below zero, zero otherwise. All other variables are as described previously.

The inclusion of both positive and negative spillover groups is motivated from our prediction that strategic disclosure behavior should occur on both ends of the “extreme” spillover groups. This empirical design compares the disclosure behavior of the extreme spillover groups against deals that are neither positive nor negative. We refer to this group as the “zero spillover group”, which serves as our control group. The coefficient on the interaction term $Negotiation_{i,t} \times Positive\ Spillover_i$ (i.e., β_2) captures the difference-in-difference estimate of the positive spillover acquirer’s disclosure behavior relative to the zero spillover group during the negotiation period. Similarly, the coefficient on $Negotiation_{i,t} \times Negative\ Spillover_i$ (i.e., β_3) measures the changes in the negative spillover acquirer’s disclosure behavior relative to the zero spillover group.

Overall, the inclusion of firm-deal fixed effects in Equations 1 and 2 alleviates much of the concern that omitted firm or deal characteristics are driving the acquirer’s disclosure strategies, and isolates the effect of information spillovers on differences in disclosure behavior as the merger negotiations proceed. Another identification advantage of this design is that we make opposite directional predictions for the two extreme spillover groups (i.e., $\beta_2 < 0$ and $\beta_3 > 0$). In other words, for potential endogenous factors to pose identification issues (e.g., economy-wide shocks), they would have to affect the two extreme spillover groups in opposing directions. This nuanced prediction helps to reduce certain endogeneity concerns. Nonetheless, to further corroborate the inferences of our main findings, we perform a series of falsification tests that rule out other plausible interpretations of our results. We discuss the additional results in detail in Section 4.4.

3.5 Summary Statistics

Table 2, Panel A presents descriptive statistics for the relevant disclosure, spillover, firm, and deal variables. The first two disclosure variables listed are *Factiva Tone-Sentiment* and *Factiva*

Tone-CAR. The unit of observation is a firm-day, and each disclosure variable is set equal to one (minus one) if the day's disclosures qualify it as a good news (bad news) day. If the firm makes no disclosures on that day, both *Factiva Tone-Sentiment* and *Factiva Tone-CAR* are set equal to zero.¹⁹ The third disclosure variable is a composite measure, *Factiva Tone-Index*, constructed by taking the sum of *Factiva Tone-Sentiment* and *Factiva Tone-CAR* and scaling the result to range from minus one to one.

The average *Target Premium*_(-60,+2) equals 40.21%, whereas the average *Target Runup*_(-60,-16) equals 6.39%, consistent with prior work examining cash-based acquisitions (e.g., Boone, Lie, and Liu (2014) and Offenberg and Pirinsky (2015)). The mean value for *Returns Spillover* is positive (0.09), suggesting that acquirers are more likely to purchase target firms with whom they share positive economic links. The average values for *Target BTM* and *Target Firm Age* are 0.62 and 11.92 years, respectively, similar to the figures in Jenter and Lewellen (2015). However, the average value for *Target ROA* is -0.02, diverging somewhat from the corresponding figures in Jenter and Lewellen (2015), which range from 0.07 to 0.13. A likely explanation for the difference is that our sample includes only cash deals, whereas Jenter and Lewellen (2015) include cash, stock, and mixed payment deals. The mean (median) value of *Target Return* is 0.20 (0.18), slightly lower but comparable to the figure of 0.34 (0.22) in Boone et al. (2014). The average *Acquirer BTM* is 0.45, comparable to the average acquirer market-to-book ratio, 1.98, in Boone et al. (2014). The mean (median) values of *Relative Size* in our sample are 0.10 (0.05), corresponding closely to the values in Boone et al. (2014) of 0.10 (0.06). The share of deals between firms in the same industry (*Horizontal Merger*) is 0.45, whereas the share of deals between acquirers and targets in

¹⁹ As an example for how to interpret the disclosure variables, a mean value of 0.104 for *Factiva Tone-Sentiment* indicates more good news days (12,325) than bad news days (6,033) during the sample period (e.g., (12,325 good news days - 6,033 bad news days) / 60,528 total days = 0.104).

customer and supplier industries (*Vertical Merger*) is 0.29. These figures are obtained using industry classifications from the Bureau of Economic Analysis and are comparable to the respective figures in Ahern (2012).

Table 2, Panel B displays the relevant disclosure, firm, and deal characteristics for acquirers in the positive, zero, and negative spillover groups. Partitioning on *Returns Spillover* yields a positive spillover group containing 180 mergers, a zero spillover group containing 158 mergers, and a negative spillover group containing 43 mergers. The acquirer-target firm-pairs in the three groups have mean daily abnormal return correlations of 0.22, 0.01, and -0.16, respectively. The proportion of deals classified as *Horizontal Merger* and *Vertical Merger* reveals two main findings regarding variation in the economic relationships between the acquirer and target firms within each spillover group. First, the positive spillover group contains more horizontal (i.e., same industry) mergers than the other groups. Specifically, 55% of mergers in the positive spillover group are between firms in the same BEA industry, compared to 36% and 36% for the zero and negative spillover groups, respectively. Second, the negative spillover group contains more vertical mergers (i.e., mergers between a customer and supplier). In particular, 41% of negative spillover mergers qualify as vertical, compared to 32% for zero spillover mergers and 23% for positive spillover mergers.²⁰ Our main takeaway from these findings is that our positive and negative spillover groups do indeed capture mergers in which the acquirer and target firms are economically connected (horizontally or vertically), as compared to the zero spillover group.

4. Results

4.1 Changes in Acquirer Disclosures during Merger Negotiations

²⁰ In further analysis, we find that this pattern holds for both forward (i.e., downstream) vertical mergers as well as backward (i.e., upstream) vertical mergers. The percentage of deals classified as forward (backward) vertical mergers is 16% (25%), 14% (18%), and 12% (11%) for the negative, zero, and positive spillover groups, respectively.

Hypothesis 1 predicts that during merger negotiations, acquirers with strong positive spillovers initiate more negatively biased news, and acquirers with strong negative spillovers generate more positively biased news. In Table 3, we formally test H1 by estimating Equations 1 and 2. Table 3 displays the change in disclosure tone during the negotiation period, conditional on the *Returns Spillover* link between the acquirer and target firms. In the first column, *Factiva Tone-Sentiment* is constructed using the text-based classification of positive and negative words in Factiva articles. The negative coefficient on *Negotiation* \times *Returns Spillover Rank* (coef.= -0.029; t-stat.= -2.28) indicates that as information spillovers between the firms become more positive, acquirers are increasingly likely to disclose negatively biased news during merger negotiations relative to the pre-negotiation period. The second and third columns of Table 3 show similar results for two other measures of disclosure tone: *Factiva Tone-CAR* and *Factiva Tone-Index*.

In the fourth column, we estimate Equation 2 after partitioning the sample of deals into groups of positive spillover deals, negative spillover deals, and zero spillover deals, following the procedure described in Section 3.4. We predict and find opposite signs on the interaction terms *Negotiation* \times *Positive Returns Spillover* (coef.= -0.016; t-stat.= -1.95) and *Negotiation* \times *Negative Returns Spillover* (coef.= 0.050; t-stat.= 2.89), consistent with the nature of information spillovers influencing the direction of acquirers' disclosure bias. In terms of economic magnitude, the average trading day's press releases for positive (negative) spillover acquirers during the negotiation period are approximately 16% more negative (50% more positive) in tone, compared to the pre-negotiation period average.

Along with providing additional insight into the nature of the incentives created by information spillovers, estimating the effects for positive and negative spillover groups separately has the added benefit of strengthening our main inferences against potential alternative explanations. In particular, since we make opposite predictions for the two extreme spillover

groups, potential endogenous factors (e.g., economy-wide shocks) would have to affect the two extreme spillover groups in opposite directions to explain our results. Overall, the findings in Table 3 present evidence in support of H1.

4.2 Reversal of Acquirer Disclosures in the Post-Completion Period

The results in Table 3 provide evidence consistent with acquirers changing their disclosure to strategically exploit information spillovers. To help rule out the possibility that the disclosures reflect a change in underlying fundamentals, we next investigate how they change in the period following the merger's completion. The idea is that if the tone of the disclosures is strategic during the negotiation period, we expect a reversal to pre-negotiation levels once the merger is complete. In contrast, if the disclosures are driven by a missing factor (a change in performance, for example) we do not necessarily expect a reversal to pre-negotiation levels in the post-completion period.

In Table 4, we extend the analysis from Table 3 to include the post-merger completion period. Consistent with acquirers strategically altering the tone of their disclosure during the negotiation period, Table 4 provides evidence of a reversal in acquirers' disclosure tone back to the pre-negotiation disclosure level. In column 1, the coefficient for *Post-Completion* \times *Returns Spillover Rank* is insignificantly negative (coef.= -0.005; t-stat.= -0.26), indicating a reversion back to the pre-negotiation disclosure tone. The second and third columns of Table 4 show a similar effect with regard to our other two measures of disclosure tone: *Factiva Tone-CAR* and *Factiva Tone-Index*. In column 4 we predict and find insignificant coefficients on the interaction terms *Post-Completion* \times *Positive Returns Spillover* (coef.= -0.005; t-stat.= -0.44) and *Post-Completion* \times *Negative Returns Spillover* (coef.= -0.009; t-stat.= -0.45), indicating a reversal in acquirers' disclosure tone to baseline levels after the merger completion.²¹

²¹ Note that in a previous version of the paper, we examined acquirers' post-completion disclosures while excluding the pre-negotiation period and using the negotiation period as the benchmark period. The previous approach was based

In addition to providing insight into the incentive effects of information spillovers, the findings in Table 4 help mitigate concerns that the Table 3 results are simply capturing an unobserved factor around the negotiation date, such as deteriorating performance or an industry-wide shock such as in the reflection problem in Manski (1993). For the reflection problem (e.g., a correlated shock across firms in the same peer group) to explain acquirers' disclosure behavior during merger negotiations, it would also have to account for the observed reversal in disclosure behavior following the merger's completion. Moreover, it would have to explain the disclosure reversals in opposite directions for acquirers in the positive versus negative spillover groups. While such an effect is possible, we believe it is unlikely to fully explain our findings. Nonetheless, we provide some additional tests to mitigate this challenging issue in Section 4.4 below.

Figure 2 helps to illustrate the changes in acquirers' disclosure tone over the course of the merger process. The figure shows a rolling 10-day average of acquirers' disclosure tone for acquirers in the positive, zero, and negative spillover groups. The figure additionally shows disclosure tone averages for each group during the pre-negotiation, negotiation, and post-completion periods (i.e., the dotted horizontal lines). To assist in comparing the time trends, we adjust each group's average daily *Factiva Tone-Index* for its average disclosure tone during the pre-negotiation period, and center the average tone to be 0.0 at the start of the negotiation period ($t=-60$). The figure shows that the average tone of press releases by negative spillover acquirers becomes markedly more positive near the start of the negotiation period. In contrast, the average tone for positive spillover acquirers becomes somewhat more negative during merger negotiations, relative to the zero spillover (benchmark) group. However, in the post-completion period, the average disclosure tone for all three groups converges back to pre-negotiation period levels.

on the reversal analysis presented in Table VII of Ahern and Sosyura (2014), and we present our results using this alternative methodology in Table A2 in the [Internet Appendix](#).

Figure 3 displays a cumulative sum (as opposed to rolling average) of acquirers' disclosure tone, *Factiva Tone-Index*, for each of the positive, zero, and negative spillover groups. The figure shows that the cumulative sentiment of press releases by negative (positive) spillover acquirers diverges in a positive (negative) direction during merger negotiations, relative to the zero spillover group. Then in the post-completion period, acquirers' disclosure tone reverts back to pre-negotiation levels. Overall, Figures 2 and 3 provide visual evidence supplementing the findings from Tables 3 and 4. These results suggest that acquirers exploit existing economic linkages with target firms by strategically disclosing information during merger negotiations in an effort to reduce target firm value.²²

4.3 Target Returns during Merger Negotiations

Hypothesis 1 assumes a relation between the acquirer's disclosure content and the market value of the target. If the acquirer's underlying intention for strategically altering its disclosure tone during the negotiation period is to purchase the target at a discount, then we expect to see target stock prices decline during the negotiation period in equilibrium (our H2). To test H2, we estimate the following regression model:

$$Target\ Price_i = \beta_1 |Information\ Spillover_i| + \beta_k Controls_i + \gamma_q + \alpha_n + \epsilon_i, \quad (3)$$

where i and d index target firms and industries, respectively, and γ_{qtr} and α_n are year-quarter and (2-digit NAICS) target industry fixed effects. *Target Price_i* reflects one of two proxies: the target's cumulative abnormal returns from the start of the negotiation period until 16 days prior to the acquisition announcement date, *Target Runup_(-60,-16)*, or the cumulative abnormal returns from the

²² Interestingly, Figure 3 suggests that negative spillover firms increase good news disclosures more so than positive spillover firms increase bad news disclosures, but the effectiveness of the strategies in reducing target prices appears similar, as shown in Figure 4. One potential explanation for this finding is that while firms may be more willing to strategically disclose positive news than negative news because it is relatively less costly to do so, skeptical investors view good news disclosures as less credible than bad news disclosures, leading to a more muted effect on target stock price. We thank the referee for pointing this out.

start of the negotiation period until two days following the acquisition announcement date, *Target Premium*_(-60,+2).²³ *Controls*_{*i*} represents a vector of control variables thought to influence target takeover prices based on prior research (e.g., Jenter and Lewellen (2015)). In our main tests, the variable *|Information Spillover|* represents the absolute value of our *Returns Spillover* proxy for information spillover. We use the absolute value here because unlike our predictions for disclosure, which rely on both the magnitude and the direction of information spillovers, our predictions about target price depend solely on the spillovers' magnitude. Similar to our tests of acquirers' disclosure, we then convert *|Information Spillover|* into quintile ranks. Our prediction is that $\beta_1 < 0$, indicating that when strong (positive or negative) information spillovers exist between the acquirer and target firms, target firms experience lower returns during the merger negotiations period as well as lower total premiums.

Table 5 presents the results of estimating Equation 3. The first column shows a significantly negative coefficient on *|Returns Spillover| Rank* (coef.= -4.305; t-stat.= -2.63), indicating lower target returns during the negotiation period (*Target Runup*_(-60,-16)) when information spillovers between the acquirer and target firms are strong. In the second column, we examine target returns after partitioning the sample into deals with positive, negative, and zero spillovers, using the same approach as previously. In this case, we predict and find negative coefficients on both *Positive Returns Spillover* (coef.= -3.460; t-stat.= -2.22) and *Negative Returns Spillover* (coef.= -5.908; t-stat.= -2.60), indicating that target firms experience lower returns during merger negotiations among both of the extreme spillover groups.

²³ In Table A4 in the [Internet Appendix](#), we replace our measure of the target premium with two separate acquisition multiples: deal value to target book assets and deal value to target book equity (e.g., Officer (2007)). Our findings using these alternative proxies are consistent with those using the target premium: stronger information spillovers are associated with reduced acquisition multiples.

The third and fourth columns extend the window of cumulative abnormal returns through the public announcement date of the acquisition. The negative coefficient on */Returns Spillover/ Rank* in the third column (coef.= -7.022; t-stat.= -2.54) indicates that the deal premium is partially offset when target firms have strong information spillovers with acquirer firms. The fourth column shows that this result extends to targets in positive spillover deals (coef.= -7.702; t-stat.= -2.74) as well as those in negative spillover deals (coef.= -3.094; t-stat.= -0.66), although the effect is statistically insignificant for the latter group.

To get a sense of the economic significance of the results in Table 5, we note that the average *Target Premium*_(-60,+2) in our sample of deals is 40.2%. Since firms in the positive and negative spillover groups experience lower premiums by 3.1-7.7%, this implies an average *Target Premium*_(-60,+2) of 32.5-37.1%. Given that the mean (median) market capitalization of target firms is \$757 (\$213) million, the reduced premiums paid by acquirer firms in deals with strong information spillovers translates to a cost savings of approximately \$23-58 million (\$6-16 million).

Figure 4 presents graphical evidence consistent with our conjecture regarding target firm value. The figure displays a comparison of targets' cumulative abnormal returns (CAR) for those with positive, zero, and negative spillovers. Similar to Figure 2, the CAR for each group of target firms is adjusted for the group's average CAR during the pre-negotiation period, and centered to be 0.0 at the start of the negotiation period ($t=-60$). The figure shows that the average target CAR for the zero spillover group experiences a steady rise throughout the negotiation period leading up to the announcement, consistent with the typical trend documented in prior literature (Eckbo (2014)). In contrast, when strong positive or negative spillovers are present, the average target CAR appears to be relatively suppressed during the negotiation window, consistent with our H2.

Overall, the results in Table 5 and Figure 4 lend support to H2 by suggesting that acquirers in deals with strong information spillovers are able to successfully lower target valuations during merger negotiations and that they benefit from this effort by acquiring the target at a lower cost.²⁴

4.4 Additional Tests

4.4.1 Validation of Returns Spillover Measure

The *Returns Spillover* proxy relies on two implicit assumptions: first, that the overall comovement patterns between the acquirer and target firms' stock prices also governs how one firm's disclosure affects the other's stock price; and second, that the return comovement patterns between the firms persist throughout the merger negotiation process. In this subsection, we explicitly test both assumptions. First, we examine how target firms' 3-day cumulative abnormal returns respond to the tone of acquirers' press articles during the pre-negotiation and negotiation periods. Second, we examine the overall comovement between acquirer and target firms' daily abnormal returns during the same time periods.²⁵ In both tests, we examine firms in the positive, zero, and negative spillover groups separately, classified according to the *Returns Spillover* proxy.

Table 6 Panel A presents the results from examining how target firms' stock returns respond to acquirers' disclosure tone, and offers two key insights. The first insight relates to the coefficients on *Factiva Tone-Index*, which display the expected findings for each of the three spillover groups. The first column shows a positive coefficient (coef.= 0.149; t-stat.= 2.89) on

²⁴ We also study the impact of exploiting information spillovers on *acquirer* value (Table A5 in the [Internet Appendix](#)). During the negotiation window, we find that acquirers with more positive spillovers experience slightly lower returns (although the effect is statistically insignificant), consistent with those firms disclosing more negatively biased news. At the announcement of the deal, however, we find that acquirers with strong (positive or negative) information spillovers experience more positive market reactions. This finding is consistent with our argument that in deals with strong information spillovers, acquirers are able to acquire the targets at a lower premium.

²⁵ In another validation test, we examine whether targets' stock prices react to acquirers' historical quarterly earnings surprises in the direction and magnitude predicted by the *Returns Spillover* proxy. We find that as economic linkages, proxied for by *Returns Spillover*, become more positive, target firms' stock prices react more strongly in the same direction as the acquirers' earnings surprises. Further, we find that this result holds for both the positive and negative spillover groups, constructed using the *Returns Spillover* proxy (see Table A6 in the [Internet Appendix](#)).

Factiva Tone-Index indicating that in deals with positive information spillovers, the target's stock price moves in the same direction as the tone of the acquirer's disclosure. The second column shows an insignificant coefficient (coef.= -0.007; t-stat.= -0.14) on *Factiva Tone-Index*, indicating no relation between acquirer disclosure tone and target returns for the zero spillover group. And the third column shows a negative coefficient (coef.= -0.101; t-stat.= -2.23) on *Factiva Tone-Index* suggesting that in deals with negative information spillovers, the target's stock price moves in the opposite direction from the tone of the acquirer's disclosure. These results are consistent with our assumption that the comovement pattern between the acquirers' and targets' stock returns predicts how the targets' stock returns respond to acquirers' disclosures.

The second insight from Table 6 Panel A relates to the coefficients on the interaction term, *Negotiation* \times *Factiva Tone-Index*, which reflects the *change* in the response of target firms' stock prices to acquirer firms' disclosures during merger negotiations, relative to the pre-negotiation period. The coefficients shift from positive (column 1) to negative (column 3) as we move from positive to negative information spillovers, suggesting that the spillover effect between the two firms strengthens during the negotiation window. This finding raises the possibility that acquirers have some control over the magnitude of the spillover by altering their disclosure strategy, and they may choose to amplify the spillover effect when advantageous. We explore this possibility in more detail in Section 4.4.3.

Table 6 Panel B presents the results regarding the second implicit assumption behind the *Returns Spillover* proxy: that the overall comovement of acquirers' and targets' abnormal returns persists throughout the merger negotiations. The results suggest this assumption is valid. Further, consistent with the findings in Table 6 Panel A, the association between acquirers' and targets' returns becomes stronger in the predicted directions during merger negotiations. Overall, the

findings in Table 6 help to validate the two assumptions that the *Returns Spillover* proxy captures how one firm's disclosure affects another's stock price, and that this relation persists over time.

4.4.2 Alternative Proxies for Information Spillovers

In this section we repeat our primary analyses using three alternatives to our *Returns Spillover* proxy to measure information spillovers. First, we build on our findings in Section 4.4.1 by constructing a proxy based on the response of target firm stock returns to the acquirer's disclosure tone during merger negotiations. Specifically, we collect the deal-specific coefficients resulting from regressing the target's return response, *Target CAR*_(-1,+1) on the acquirer's disclosure tone, *Factiva Tone-Index* during merger negotiations, and use those coefficients to proxy for the degree and direction of information spillovers between the two firms (*PR Spillover*). Second, as an alternative to our stock return-based proxies, we use the correlation of acquirers' and targets' quarterly *earnings* (as opposed to stock returns), scaled by total assets, for the twelve quarters ending just prior to the start of the pre-negotiation period (*Earnings Spillover*). Third, we construct a proxy based on the historical response of target firms' stock prices to acquirer firms' quarterly earnings surprises. Employing twelve quarters ending just prior to the start of the pre-negotiation period for each deal, we regress *Target CAR*_(-1,+1) on the acquirer's quarterly earnings surprise and other control variables, yielding deal-specific coefficients on the acquirer's earnings surprise that we use to proxy for the nature of information spillovers between the firms (*EA Spillover*).²⁶ Similar to our approach in constructing the *Returns Spillover* proxy, we convert each of our alternative spillover proxies into quintile ranks.

Employing our three alternative proxies for information spillovers, we repeat our main analyses from Tables 3 and 5 and display the results in Panels A and B of Table 7. Panel A shows

²⁶ Details on the construction of all three alternative proxies are contained in Appendix A.

that when using each of our alternative spillover proxies, *PR Spillover*, *Earnings Spillover*, and *EA Spillover*, we observe the same pattern as in Table 3. In particular, we observe that as the information spillovers between the acquirer and target firms become more positive, acquirers disclose more negatively biased news during merger negotiations. In Panel B we find that our inference from Table 5, that acquirers' strategic disclosure results in reduced takeover premiums for target firms, is generally robust to the use of these three alternative spillover proxies. Together, the results from Table 7 help provide confidence that our main findings are robust to different ways of measuring information spillovers between the acquirer and target firms.

4.4.3 Changes in Acquirer News Type during Merger Negotiations

Although our primary findings in Table 3 indicate that acquirers strategically alter their disclosure tone during merger negotiations, the results so far leave unanswered the question of *how* exactly acquirers change their disclosures. In this subsection, we explore three possible dimensions. First, we consider changes in acquirers' disclosures along the extensive margin (i.e., whether firms choose to disclose or not). Second, we examine changes in acquirers' disclosures along the intensive margin (i.e., conditional on a firm having made a disclosure, how good or bad is the disclosed news). Since we wish to be able to examine the intensity of the disclosed news, we focus on measures of disclosure tone based on the acquirer's stock return response, *Factiva Tone-CAR* (an indicator variable to test the extensive margin) and *Acquirer CAR_(-1,+1)* (a continuous measure to test the intensive margin). The third dimension we consider is the change in the *content* of acquirer firms' disclosures, to examine whether firms attempt to amplify a spillover effect when advantageous. For instance, if an acquirer has a positive fundamental correlation with its intended target, the acquirer has additional incentive to emphasize when good news is idiosyncratic, and when bad news is systemic, with the intention of exacerbating the pre-existing spillover between the two firms.

The first two columns of Table 8 show our findings with regard to changes in acquirers' extensive margin of disclosure for good and bad news during merger negotiations. In column 1 (column 2), the dependent variable is set equal to one if the acquirer firm issued a press release and the acquirer's 3-day CAR was positive (negative), and equal to zero otherwise. As a result, the dependent variable captures the percentage of days that the acquirer issues good news (column 1) and bad news (column 2) during the negotiation period, relative to the pre-negotiation period. The coefficients on *Negotiation* \times *Returns Spillover Rank* suggest that as information spillovers become more positive, acquirers are more likely to withhold good news during merger negotiations (coef.= -0.037; t-stat.= -2.65 in column 1) while disclosing bad news more frequently, although the effect is not statistically significant with respect to bad news (coef.= 0.009; t-stat.= 1.26 in column 2). These findings suggest that acquirers adjust disclosures along the extensive margin (i.e., the frequency of disclosures), although the effect is weaker with respect to bad news.

In the third column of Table 8, we modify our dependent variable in two ways to better isolate and test acquirers' intensive margin of disclosure. First, we exclude days on which the acquirer issued no press releases so that the dependent variable captures the tone of the disclosure, *conditional on the firm having made a disclosure*. In addition, to take into account varying degrees of good and bad news, we replace the indicator variable with a continuous measure of tone – the acquirer's 3-day CAR around the disclosure date. The negative coefficient on *Negotiation* \times *Returns Spillover Rank* in column 3 (coef.= -0.439; t-stat.= -2.83) indicates that conditional on disclosing, acquirers disclose more severely negative news during merger negotiations as the information spillovers between the acquirer and target firms become more positive.

To examine potential changes in the content of acquirers' disclosure, we perform a systematic textual analysis of "macro-oriented" word usage.²⁷ To implement our analysis, we create a "macro-oriented" word list consisting of words with the following word stems: "macro", "market", "econom", "global", "industr", and "compet", and for each disclosure day we count the number of macro-oriented words used in a firm's press releases. Then, similar to our approach to measuring news sentiment, we classify each day as a macro-oriented news day (non-macro-oriented news day) if the number of macro-oriented words in the day's articles is above (below) the sample average. *Factiva Macro Content* is set equal to one (minus one) for macro-oriented (non-macro-oriented) news days, and used as our dependent variable in the fourth column of Table 8. The positive coefficient on *Negotiation* \times *Returns Spillover Rank* (coef.= 0.087; t-stat.= 2.55) indicates that as the information spillovers between acquirers and targets become more positive, acquirers are increasingly likely to disclose macro-oriented news during merger negotiations relative to the pre-negotiation period. This result is consistent with acquirers emphasizing the systemic nature of bad news when information spillovers are positive in an attempt to drive down the target's stock price, but focusing on the idiosyncratic nature of good news when information spillovers are more negative, presumably to highlight their firm-specific competitive advantage.

Overall, the findings in Table 8 shed light on *how* acquirers strategically change their disclosures during merger negotiations to exploit existing economic linkages. We find that acquirer firms adjust their disclosures along both the extensive margin (the frequency of disclosure) as well

²⁷ As a complementary approach to studying the content of disclosures, we provide anecdotal evidence by manually examining a number of acquirers' press releases during merger negotiations and presenting excerpts emphasizing the macro nature of news in Appendix C. As one example, in April of 2015, while Intel Corp. was in talks to purchase Altera Corp., a manufacturer of digital circuits, a press article reported by Dow Jones contained the following excerpts: "Intel Corp. continues to endure the pain of a declining market for personal computers, but larger machines are helping prop up the chip maker's bottom line", and "Intel traced those factors to the fact that...macroeconomic and currency conditions made PCs more expensive...". In this example, Intel appears to be highlighting market-level and macroeconomic factors that have major implications not only for Intel, but also for Intel's intended target, Altera Corp.

as the intensive margin (the intensity of disclosure). We further find that acquirers modify the disclosure content in ways to highlight the systemic or idiosyncratic nature of the news, depending on the incentives created by the economic linkages between the acquirer and target firms.

4.4.4 Robustness to RavenPack Sample and Two Falsification Tests

We have three objectives in this subsection. First, we seek to corroborate our primary findings using data from RavenPack PR Edition for which we can identify the news source and can thereby verify that the articles are firm-initiated. Next, we use the RavenPack data to perform two falsification tests. In our first falsification test, we examine the target's (as opposed to the acquirer's) disclosures during the negotiation period. In our second falsification test, we examine changes in acquirers' disclosures during merger negotiations of stock-for-stock deals.

A potential concern with our primary analysis of disclosures is that the newswires we use to collect articles from Factiva (i.e., *Dow Jones News Service*, *Business Wire*, *Reuters News*) may include media-initiated articles as well as firm-initiated press releases. For example, Guest (2018) provides evidence that articles distributed by the *Dow Jones News Service* include additional analyses supplementing the press releases directly issued by firms. To address this concern, we isolate firm-initiated news by limiting our sample of articles to those identified by RavenPack PR Edition as distributed through one of four major press release distribution services: *PR Newswire*, *Business Wire*, *GlobeNewswire*, and *Marketwire* (Blankespoor, deHaan, and Zhu (2018)).

After collecting firm-initiated articles from the press release wires, we construct a new proxy for disclosure tone, *RavenPack Tone-Index*, similar to our measure using Factiva articles. Parallel to *Factiva Tone-Index*, *RavenPack Tone-Index* consists of two components: a sentiment score-based component and a market reaction-based component. To construct the first component, *RavenPack Tone-Sentiment*, we use RavenPack's composite sentiment score (CSS) to classify each day as a good news day or bad news day (or neither, if no firm-initiated articles are issued)

based on whether the average CSS score of all articles issued on that day is above or below the average for all RavenPack press release days within our sample. The second component, *RavenPack Tone-CAR*, is set equal to one (minus one) if the 3-day CAR around each day containing a press release issuance is positive (negative) and zero if there are no press releases that day. Similar to *Factiva Tone-Index*, we create a parsimonious measure of disclosure tone, *RavenPack Tone-Index* by taking the sum of *RavenPack Tone-Sentiment* and *RavenPack Tone-CAR* and scaling the result to range from minus one to one. As such, *RavenPack Tone-Index* takes on three possible values: -1, 0, and +1.

The first column of Table 8 displays the results of estimating Equation 1 for acquirers' disclosures using *RavenPack Tone-Index* as our outcome variable. Note that our sample is reduced from 381 to 272 deals due to the coverage in RavenPack PR Edition, which begins in 2004 rather than 2000, and our inability to match some acquiring firms to RavenPack (see Table 1 for the sample selection procedure). Nevertheless, the result is consistent with that found using newswire articles collected from Factiva (i.e., the result in Table 3). In particular, the negative coefficient on *Negotiation* \times *Returns Spillover Rank* (coef.= -0.023; t-stat.= -3.70) indicates that as the information spillovers between acquirers and targets become more positive, acquirers are increasingly likely to disclose negatively-biased news during merger negotiations relative to the pre-negotiation period, consistent with acquirers altering their disclosure to reduce the value of the target firm.

In column 2 of Table 8 we examine the target's disclosures during the negotiation period. Although the transaction is the same for the acquirer and the target, which provides us with a falsification test at the deal level, the target's incentive is quite different. Specifically, the target seeks to maximize its own stock price, independent of the acquirer's stock price. In other words, the target's incentive is to disclose more favorable information regardless of the nature of the

spillover between the two firms. Consistent with our expectations, we find that targets disclose more positive news during merger negotiations and that this effect is independent of the strength of the information spillovers between the acquirer and target firms. Together with our main findings, this result suggests the two firms have opposing disclosure strategies: a target positively biases its disclosures to inflate its own price, while the acquirer strategically takes advantage of information spillovers to reduce that same stock price.

Beyond shedding light on targets' disclosure behavior during merger negotiations, the results with respect to targets' disclosure helps to alleviate concerns related to the reflection problem discussed above. To the extent that the acquirers' disclosure patterns during merger negotiations arise from the reflection problem (i.e., a correlated shock across peers), we would expect it to induce similar disclosure patterns among the target firms that are part of the very same deal. Yet we find that acquirers and targets in fact behave in different ways, consistent with their contrasting strategic disclosure incentives driving our results.

As a second falsification test, we repeat our original analysis of acquirer disclosures during merger negotiations, but instead of examining deals in which the consideration paid is 100 percent cash, we do so for deals in which the consideration is 100 percent stock. Our prediction is that when the acquirer uses its own stock as currency, the incentive to inflate the firm's own stock price will dominate the incentive to manipulate the target's stock price through information spillovers.²⁸

Using *RavenPack Tone-Index* to measure acquirers' disclosure tone, we present the results of our stock-for-stock merger analysis in the third column of Table 8. As expected, acquirers using

²⁸ It is plausible that the nature of information spillovers between firms influences the choice of payment. For instance, an acquirer with strong negative information spillovers may prefer to use its own stock because disclosing positive news carries the double benefit of inflating its own stock price while potentially reducing the target's price. However, we find no evidence of systematic differences between the nature of information spillovers in cash versus stock deals, suggesting that the choice of payment is determined primarily by other factors and is not influenced by information spillovers.

their own stock as payment disclose unusually large amounts of positive news during negotiations designed to increase their stock's value. This result is consistent with the findings in Ahern and Sosyura (2014). Most important for the inferences in our study, the positive bias in acquirer's disclosures in stock-for-stock transactions is not a function of information spillover incentives. The implication is that spillover incentives do not materially influence acquirer's disclosures when their own stock price incentives are temporarily more important.

Overall, the results of our falsification tests employing target firms' disclosures in cash deals and acquirer firms' disclosures in stock deals provide additional assurance that our primary results do not simply reflect omitted factors that drive the tone of news in the deals we investigate. In addition, these tests mitigate the concern that our results could reflect omitted factors that drive the acquirer's decision or a joint acquirer-target decision to self-select into a deal. Although we cannot entirely rule out potential self-selection concerns, our findings highlight that acquirers' and targets' disclosure choices are in line with their disclosure incentives.

4.4.5 Target Shareholder Activism Campaigns and Failed Deals

In our next analysis, we investigate potential costs to exploiting disclosure spillovers. These tests are based on the observation that an acquirer attempting to manipulate the target's stock price in order to lower the takeover price potentially opens itself to increased risks of target shareholders opposing the deal and perhaps losing the deal entirely.²⁹ Unfortunately, we cannot

²⁹ Although an activism campaign may derail an announced deal, they are not always successful. An example of an announced deal subject to information spillovers that triggered a target shareholder-initiated opposition campaign is the acquisition of Advent Software, Inc. (Advent) by SS&C Technologies Holdings, Inc., which was announced on Feb. 2, 2015. A week after the announcement, Iron Compass, LLC, a shareholder in Advent, wrote an open letter to the other Advent shareholders expressing its dissatisfaction with the terms of the deal. Among other points, Iron Compass's letter maintained that, "Advent is worth much more than \$44.25 to SS&C. They can – and should – pay a much higher price. SS&C has long desired to purchase Advent, as is readily apparent to most industry followers and participants. As one analyst put it more colorfully on the call announcing the deal, 'Congratulations, Bill, on bagging your white whale'...[SS&C] are also savvy and opportunistic negotiators." Source: "*Advent Software Shareholder Iron Compass Comments on Proposed Sale to SS&C*", PR Newswire, Feb. 9, 2015. In spite of Iron Compass's objections to the terms of the deal, it was approved by Advent shareholders and was completed on July 8, 2015.

observe potential deals in which negotiations took place but a deal was never announced. What we are able to observe is deals that were announced but never completed. Thus, to test our prediction that acquirers with strong information spillovers run the risk of a target shareholder opposition campaign and/or a failed takeover, we supplement our main sample of cash deals with 101 deals that were announced but never completed (i.e., failed deals). We then use this supplemented sample to estimate a modified Equation 3 in which we replace the outcome variable with *Activism Campaign*, an indicator variable for the existence of a target shareholder activist campaign opposing the merger, and *Failed Deal*, an indicator variable for mergers that were announced but never completed.³⁰

The first column of Table 10 displays the results of our test of target shareholder activism campaigns opposing the announced deal. The positive and significant coefficient on */Returns Spillover/ Rank* (coef.= 0.029; t-stat.= 1.79) indicates that announced mergers with information spillovers between the acquirer and target firms are more likely to experience a target shareholder activism campaign opposing the merger. Column 2 presents the results of the failed deal analysis. Consistent with our prediction, we find a positive and significant coefficient on */Returns Spillover/ Rank* (coef.= 0.129; t-stat.= 2.02), indicating a higher likelihood that the announced deal ultimately fails before being completed. Taken together, the findings in Table 10 suggest potential costs to acquirers from exploiting disclosure spillovers.

5. Conclusion

We study whether and to what extent managers recognize the potential influence their firms' disclosures have on the stock prices of other firms and strategically adjust their disclosures

³⁰ We use a linear probability model (LPM) as opposed to a non-linear limited dependent variable (LDV) model for our tests of shareholder activism and failed deals to enable easy interpretation of the coefficients and because we include fixed effects in our model (Angrist and Pischke 2009). The use of LPM does not impose potential bias or inconsistency on the coefficients and standard errors (Greene 2004). In Table A10 in the [Internet Appendix](#) we show that our inferences are unchanged when using a LDV model.

for gain. Using data on firm-initiated news around merger negotiations, we show that acquirers originate substantially more negatively biased (positively biased) news articles during merger negotiations when positive (negative) information spillovers occur between the two firms. The strategic disclosure behavior results in lower target returns during the negotiation, which substantially reduces the cost of the investment for the acquirer. Our estimates indicate that for acquirers with strong information spillovers, this strategy reduces the mean (median) cost of the takeover by approximately \$23-58 million (\$6-16 million).

Our results are consistent with managers internalizing disclosure spillovers because they can strategically disclose information with the intention of influencing other firms when doing so is beneficial. In the context of mergers, this behavior has a substantial impact on the relative wealth gains that acquirers and targets realize, highlighting a new role of strategic disclosure on merger outcomes. At the same time, we provide evidence that exploiting disclosure spillovers is potentially costly for acquiring firms, as it increases the risk of target shareholder opposition to the deal and ultimately increases the risk of a failed merger.

Our findings, however, should be interpreted with a few caveats in mind. First, while our findings are suggestive, they are not “smoking gun” evidence of acquirers using disclosures *intentionally* with the goal of depressing targets’ stock prices. While intent is an important part of our proposed narrative, the acquirers’ intentions are ultimately unobservable to us. Second, we cannot fully rule out the possibility that our proxies for information are related to the probability of acquisition success or failure (i.e., a survivorship bias). For example, acquirers and targets in the “extreme” spillover groups might represent firm-pairs with greater synergies and thus have a higher likelihood of successful deal completion, compared to the zero spillover control group. This possibility could call into question the validity of the control group as an appropriate benchmark as its effects may be biased towards zero. Third, our design cannot completely assuage certain

correlated omitted factors. For instance, if acquirers are able to perfectly time their transactions in anticipation of favorable economic circumstances (e.g., negative spillover acquirers initiate negotiations precisely before they expect positive economic events to take place), our findings may not necessarily reflect strategic disclosure, but rather the strategic timing of negotiations. As a final thought, we think it is plausible that our findings regarding the internalization of disclosure spillovers extend to corporate outcomes in other settings where negotiation takes place (e.g., supply chains). We leave these possibilities for future research.

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Appendix A: Variable Definitions

This appendix provides a detailed description of the procedures used to compute each of the variables used in our analyses. Our data are obtained from Compustat, CRSP, I/B/E/S, FactSet (SharkWatch), SDC Platinum, RavenPack, Factiva, the U.S. Bureau of Economic Analysis Input and Output tables, and firms' financial filings available on EDGAR. All continuous variables are winsorized at 1% and 99% of the distribution.

Primary outcome variables:

Variable	Definition
<i>Factiva Tone-Sentiment</i>	A variable equal to one (minus one) if the number of positive words minus the number of negative words in the firm's disclosures on that day is above (below) the sample average. On days with no firm disclosures, the variable is equal to zero. Words are categorized as positive or negative using the word list in the 2014 Master Dictionary available on Bill McDonald's website: http://www3.nd.edu/~mcdonald/Word_Lists.html (Loughran and McDonald (2011)).
<i>Factiva Tone-CAR</i>	A variable equal to one (minus one) if the disclosing firm's three-day cumulative abnormal returns (CAR) around the Factiva press article disclosure is positive (negative). On days with no firm disclosures, the variable is equal to zero. Abnormal returns are computed by adjusting for the value-weighted index.
<i>Factiva Tone-Index</i>	A variable equal to the sum of <i>Factiva Tone-Sentiment</i> and <i>Factiva Tone-CAR</i> , scaled to range from minus one to one. Thus it takes on three potential values: -1, 0, and +1.
<i>RP Tone-Index</i>	A variable equal to the sum of <i>RP Tone-Sentiment</i> and <i>RP Tone-CAR</i> (defined below), scaled to range from minus one to one. It takes on three potential values: -1, 0, and +1. <i>RP Tone-Sentiment</i> is equal to one (minus one) if the daily RavenPack sentiment score CSS is above (below) the sample average. On days with no firm disclosures, the variable is equal to zero. The daily CSS score is obtained by computing the average score of the RavenPack articles released on that day that are covered by the following sources: PR Newswire, Business Wire, GlobeNewswire, and Marketwire. <i>RP Tone-CAR</i> is equal to one (minus one) if the disclosing firm's three-day cumulative abnormal returns (CAR) around the RavenPack article disclosure is positive (negative). On days with no firm disclosures, the variable is equal to zero. Abnormal returns are computed by adjusting for the value-weighted index. The measure is computed for days on which the firm issues press releases that are covered by the following sources: PR Newswire, Business Wire, GlobeNewswire, and Marketwire.
<i>Target CAR_(-1,+1)</i>	The target's 3-day cumulative abnormal return. Abnormal returns are computed by adjusting for the value-weighted index.
<i>Acquirer CAR_(-1,+1)</i>	The acquirer's 3-day cumulative abnormal return. Abnormal returns are computed by adjusting for the value-weighted index.
<i>Macro Content</i>	A variable equal to one (minus one) if the number of macro-oriented words in the firm's disclosures on that day is above (below) the sample average. The complete list of macro-oriented words we use consists of all words beginning with the following word stems: "macro", "market", "econom", "global", "industr", and "compet".
<i>Target Runup_(-60,-16)</i>	The target firm's cumulative daily abnormal returns beginning with the negotiation period until 16 days prior to the public acquisition announcement date ($t=-60$ to $t=-16$ days relative to the announcement date). Abnormal returns are computed as the daily returns adjusted for the value-weighted index.
<i>Target Premium_(-60,+2)</i>	The target firm's cumulative daily abnormal returns beginning with the negotiation period through the public acquisition announcement date ($t=-60$ to $t=+2$ days relative to the announcement date). Abnormal returns are computed as the daily returns adjusted for the value-weighted index.
<i>Activism Campaign</i>	An indicator variable equal to one if the target shareholders initiate an activism campaign opposing the announced deal, zero otherwise. Shareholder activism campaign data comes from the FactSet (SharkWatch) database.
<i>Failed Deal</i>	An indicator variable equal to one if an announced deal never reaches completion, zero otherwise.

Appendix A (continued)

Information spillover proxies:

Variable	Definition
<i>Returns Spillover Rank</i>	A variable equal to the quintile rank of the Spearman correlation of the acquirer and the target firms' daily abnormal stock returns. The correlation is measured using daily returns adjusted for the value-weighted index from days $t=-300$ to $t=-181$ relative to the acquisition's public announcement date. The ranks are scaled to range from -0.5 to 0.5.
<i> Returns Spillover Rank</i>	A variable equal to the quintile rank of the absolute value of the Spearman correlation of the acquirer and the target firms' daily abnormal stock returns. The correlation is measured using daily returns adjusted for the value-weighted index from days $t=-300$ to $t=-181$ relative to the acquisition's public announcement date. The ranks are scaled to range from -0.5 to 0.5.
<i>Positive Returns Spillover</i>	An indicator variable equal to one if the Spearman correlation of the acquirer and the target firms' abnormal stock returns is more than one-half of a standard deviation above zero, equal to zero otherwise. The correlation is measured using daily returns adjusted for the value-weighted index from days $t=-300$ to $t=-181$ relative to the acquisition's public announcement date.
<i>Negative Returns Spillover</i>	An indicator variable equal to one if the Spearman correlation of the acquirer and the target firms' abnormal stock returns is more than one-half of a standard deviation below zero, equal to zero otherwise. The correlation is measured using daily returns adjusted for the value-weighted index from days $t=-300$ to $t=-181$ relative to the acquisition's public announcement date.
<i>PR Spillover</i>	A variable constructed from the coefficients resulting from regressing the target's return response, <i>Target CAR</i> _(-1,+1) , on the acquirer's disclosure tone, <i>Factiva Tone-Index</i> , during merger negotiation periods. This procedure yields deal-specific coefficients which are converted into quintile ranks, <i>PR Spillover Rank</i> , and scaled to range from -0.5 to 0.5.
<i>Earnings Spillover</i>	A variable equal to the Spearman correlation of the acquirer and the target firms' quarterly earnings. The correlation is measured using earnings before extraordinary items scaled by total assets for the twelve quarters ending prior to the beginning of the pre-negotiation period. This variable is converted into quintile ranks, <i>Earnings Spillover Rank</i> , and scaled to range from -0.5 to 0.5.
<i>EA Spillover</i>	<p>A variable constructed from the coefficients resulting from regressing the target's return response, <i>Target CAR</i>_(-1,+1), on the acquirer's quarterly earnings surprises and other control variables for the twelve quarters ending prior to the beginning of the pre-negotiation period, as follows:</p> $Target\ CAR_{(-1,+1)} = \alpha + \beta_1 Acquirer\ EA\ Surprise + \beta_k Controls + \epsilon$ <p>The acquirer's earnings surprise, <i>Acquirer EA Surprise</i>, is measured in two ways, depending on whether analyst forecast data is available in I/B/E/S for the acquiring firm. If analyst forecast data is available, earnings surprises are measured as the difference between actual EPS and the most recent median EPS forecast prior to an earnings announcement, scaled by the acquirer's share price from four quarters prior. If analyst forecast data is unavailable, earnings surprises are measured as the difference between current EPS and the prior year's EPS for the same quarter, scaled by the acquirer's share price from four quarters prior. EPS is calculated as basic EPS excluding extraordinary items, divided by the cumulative adjustment factor. <i>Controls</i> represents the same set of control variables as in Equation (1), as well as the acquirer's return response to the announcement, <i>Acquirer CAR</i>_(-1,+1), the number of analyst forecasts for the acquirer firm, and the number of analyst forecasts for the target firm. This procedure yields deal-specific coefficients, β_1, which are converted into quintile ranks, <i>EA Spillover Rank</i>, and scaled to range from -0.5 to 0.5.</p>

Appendix A (continued)

Additional variables:

Variable	Definition
<i>Negotiation</i>	An indicator variable equal to one (zero) if the firm-day falls within the 45-trading-day window stretching from $t=-60$ to $t=-16$ days (120-trading-day window stretching from $t=-180$ to $t=-61$ days) relative to the acquisition's public announcement date.
<i>Post-Completion</i>	An indicator variable equal to one (zero) if the firm-day falls within the 45-trading-day window stretching from $t=+2$ to $t=+46$ days relative to the acquisition completion date (45-trading-day window stretching from $t=-60$ to $t=-16$ days relative to the acquisition's public announcement date).
<i>Target BTM</i>	The ratio of the target firm's book value to market value of equity at fiscal year-end prior to the start of the pre-negotiation period.
<i>Target ROA</i>	The target firm's return on assets for the fiscal year ending prior to the beginning of the pre-negotiation period, where the return on assets is income before extraordinary items scaled by lagged total assets.
<i>Target Firm Age</i>	The target firm's age in years, where age is computed as the difference between the first date the firm appears in CRSP and the fiscal year-end prior to the start of the pre-negotiation period. Note that in our regressions, we control for the natural log of $1 + \text{Target Firm Age}$.
<i>Target Return</i>	Cumulative monthly returns over the fiscal year prior to the start of the pre-negotiation period.
<i>Acquirer BTM</i>	The ratio of the acquirer firm's book value to market value of equity at fiscal year-end prior to the start of the pre-negotiation period.
<i>Relative Size</i>	The ratio of the target's equity market value to the combined market value of the target and acquirer as of the fiscal year-end prior to the start of the pre-negotiation period.
<i>Horizontal Merger</i>	An indicator variable equal to one if the acquirer and target firms are members of the same industry, as defined by the U.S. Bureau of Economic Analysis (Ahern (2012)), and zero otherwise.
<i>Vertical Merger</i>	An indicator variable equal to one if the acquirer and target firms are members of customer and supplier industries, based on the input and output commodity flows between industries as provided by the U.S. Bureau of Economic Analysis, and zero otherwise. Following the methodology outlined in Ahern (2012), we classify vertical mergers as those in which the firms have unambiguous vertical relations.

Appendix B: Examples of Positive and Negative Information Spillover Deals

This appendix provides descriptions of two specific mergers in our sample: a merger in which the acquirer and target firms have positive information spillovers and a merger in which they have negative information spillovers.

Positive spillover deal: Avery Dennison Corporation acquires Paxar Corporation on June 15, 2007

Avery Dennison Corporation acquired Paxar Corporation in a 100 percent cash deal effective on June 15, 2007. Merger negotiations between the two firms began on December 28, 2006 and the deal was publicly announced on March 22, 2007. When comparing Avery Dennison's disclosures during the merger negotiation window to those during the pre-negotiation window, we observe a shift towards negatively biased news articles, even when the fundamentals did not seem to merit a negative spin.

For instance, on April 25, 2006 (during the pre-negotiation period) Avery Dennison reported earnings per share of \$0.69 in its 1st quarter 2006 results, with an optimistic outlook: "We delivered outstanding profit improvements this quarter, and are on track to achieve the savings we targeted from our cost reduction actions...we expect that emerging markets will continue to provide solid growth, and our expansion efforts...will deliver on their potential."³¹ Avery Dennison's stock experienced a 3-day increase of 174 basis points on the news. Paxar Corp, whose returns and earnings tend to co-move positively with Avery Dennison's, experienced a corresponding increase of 48 basis points upon the release of Avery Dennison's optimistic 1st quarter results.

Eight months later, on January 23, 2007 (during the negotiation period), Avery Dennison reported impressive 4th quarter results, including earnings per share of \$1.01, but the tone of the press release was unenthusiastic. The earnings announcement noted that their performance was driven by "solid sales in...international markets", but they were experiencing "sluggish demand in the U.S."³² A textual analysis using the Loughran and McDonald (2011) dictionary indicates that the negative-to-positive word ratio was twice as high for the 4th quarter press release as for the 1st quarter press release and that Avery Dennison's stock price experienced a modest drop of 2 basis points. Upon the release of Avery Dennison's report, which details a pessimistic view of industry demand, Paxar Corp's stock price dropped by 32 basis points. This illustrates how acquirers can strategically exploit their positive disclosure spillovers without disclosing firm-specific bad news, but rather selectively directing attention towards negative industry-wide news.

Negative spillover deal: Visa Inc. acquires CyberSource Corporation on July 21, 2010

Visa Inc. acquired CyberSource Corporation in a 100 percent cash deal effective on July 21, 2010. Merger negotiations between the two firms began on January 27, 2010 and the deal was publicly announced on April 21, 2010. When observing Visa's disclosures during the merger negotiations, we notice some unusual patterns.

For instance, Visa announced on March 12, 2010 (during negotiations) that it would soon introduce its new online shopping tool, "Rightcliq™ by Visa." The new technology was expected to enhance and personalize consumers' online shopping experiences, helping to drive Visa's broader mission to increase its presence in the e-commerce space.³³ A textual analysis of the announcement using the Loughran and McDonald (2011) dictionary indicates that the number of positive words outnumbered the number of negative ones by 15 to 1. Upon the announcement, Visa's stock price experienced a 3-day increase of 97 basis points. Cybersource, who was a direct competitor to Visa in this arena, experienced a stock price drop of 95 basis points upon Visa's announcement of its new tool.

We investigate other new product launches by Visa during the 2009-2015 time period and find that the Rightcliq announcement was unusual in that Visa does not typically disclose product information prior to the launch date. When searching for the keywords "Visa", "new" and/or "launch" on the Factiva database, we identified four new developments that took place over this period: Visa Data Center, Payclick, Visa Checkout, and VIMS. All four were first publicly disclosed on the product launch date.³⁴ The Rightcliq disclosure on March 12, 2010, however, occurred almost five months ahead of its eventual launch on August 2, 2010. This illustrates how acquirers can strategically exploit negative disclosure spillovers by strategically timing optimistic forward-looking disclosures that paint a negative picture for a competitor.

³¹ Source: "Avery Dennison reports first quarter 2006 results", Business Wire, April 25, 2006.

³² Source: "Avery Dennison swings to profit on prices, savings" Dow Jones Business News, Jan 23, 2007.

³³ Source: "Visa Previews Online Shopping Toll at Investor Conference", Business Wire, March 12, 2010.

³⁴ Note that Visa disclosed information about Rightcliq prior to its launch date, but chose not to disclose information about Payclick, a functionally similar tool also launched in the summer of 2010 (June 25th for Payclick, August 2nd for Rightcliq). The main difference between the two is that Rightcliq was intended for U.S. markets whereas Payclick was intended for international ones. Cybersource's business was heavily reliant on U.S. markets, with more than 90% of its revenue generated from U.S. sales. Thus, Rightcliq represented a potential threat to Cybersource's business.

Appendix C

Excerpts from Press Articles using Macro-Oriented Words

This appendix provides excerpts from selected articles initiated by acquirer firms in our sample during the merger negotiation period. Each excerpt contains examples of the use of macro-oriented words used to construct the variable, *Factiva Macro Content*, used in Table 7. Macro-oriented words consist of all words beginning with the following word stems: “macro”, “market”, “econom”, “global”, “industr”, and “compet”.

Article: Intel Cuts Nearly \$1B Off 1Q Sales Forecast, reported by Dow Jones, 3/12/2015

- *“The chip giant thinks smaller businesses aren't buying new machines in the wake of Microsoft (MSFT) stopping support for Windows XP to the extent which had been anticipated. But there's also ‘increasingly challenging macroeconomic and currency conditions, particularly in Europe.’”*

Article: Intel Reports 3% Rise in Earnings, reported by Dow Jones, 4/14/2015

- *“Intel Corp. continues to endure the pain of a declining market for personal computers, but larger machines are helping prop up the chip maker's bottom line.”*
- *“Intel traced those issues to the fact that... macroeconomic and currency conditions... made PCs more expensive... Intel's chief executive, told analysts... that shipments of chips for notebook computers rose for the fifth consecutive time in the first quarter, even as desktop PC sales fell.”*

Article: Agilent Technologies Reports Second Quarter 2009 Results, reported by Business Wire, 5/14/2009

- *“The global collapse of electronics production caused severe declines in our Electronic Measurement and Semiconductor & Board Test segments...we are moving very quickly to restructure these businesses to achieve double-digit profitability even at these severely depressed activity levels.”*
- *“Considering the very difficult macroeconomic environment, Bio-Analytical Measurement performed well in the second quarter.”*

Article: Warren Buffett's 2005 Letter to Berkshire Holders, reported by Dow Jones, 3/4/2006

- *“Berkshire had a decent year in 2005...Even our insurance business in its entirety did well, though Hurricane Katrina inflicted record losses on both Berkshire and the industry.”*
- *“...Both units performed well in 2005 considering the extraordinary hurricane losses that battered the industry.”*
- *“The star of our finance sector is Clayton Homes...Industry sales have stagnated at 40-year lows...In recent years, many industry participants have suffered losses, and only Clayton has earned significant money.”*
- *“Despite a large increase in customers, however, our U.S. operation dipped far into the red...We believe that our three largest competitors suffered similar problems...The combined value of the fleets managed by these three competitors, in any case, continues to be less valuable than the fleet that we operate.”*

Figure 1

Timeline of a typical merger

The figure below shows the length of time of each stage of the merger process as used in our tests. In the pre-negotiation and negotiation periods, the numbers represent trading days relative to the public announcement of the merger. In the post-completion period, numbers represent trading days relative to the completion of the merger.

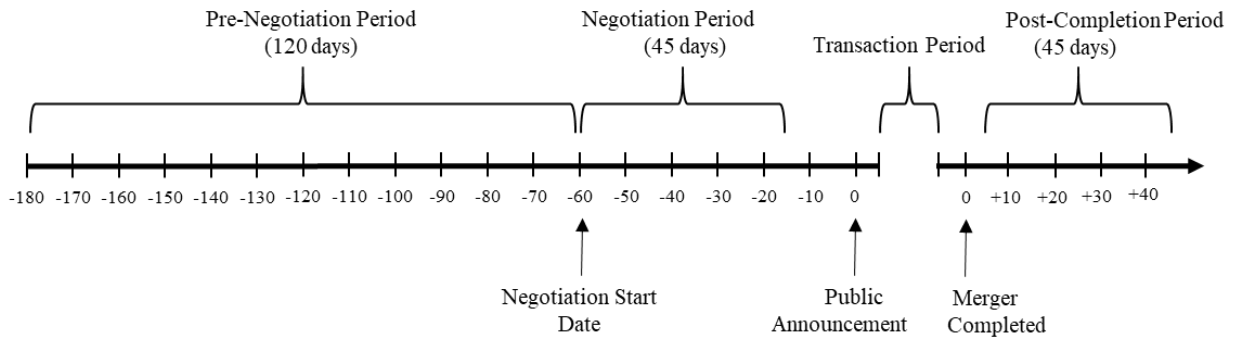


Figure 2

Average tone of acquirer press release articles during merger negotiations and following merger completion dates

In the figure below, the x-axis represents time in trading days ($t=-78$ days to $t=-16$ days relative to the acquisition's public announcement date, and $t=+2$ to $t=+46$ days relative to the acquisition's completion date), and the y-axis represents the acquirer's disclosure tone, *Factiva Tone-Index*. The average negotiation period length is 45 days (beginning on $t=-60$ and ending on $t=-16$ days relative to the public announcement date). The sample consists of 381 cash-only acquisitions, partitioned into three groups using the *Returns Spillover* proxy. The three lines labeled in the legend represent 10-day rolling averages for each group's average daily *Factiva Tone-Index*, which are adjusted for the group's average tone during the pre-negotiation period and centered to be 0.0 at the start of the negotiation period ($t=-60$). The three dotted horizontal lines (not labeled in the legend) represent period averages (pre-negotiation, negotiation, and post-completion periods) for each group's average adjusted daily *Factiva Tone-Index*. The time between day $t=-16$ relative to the acquisition announcement date and day $t=+2$ relative to the acquisition completion date includes the length of time in between the public announcement of the acquisition and its completion.

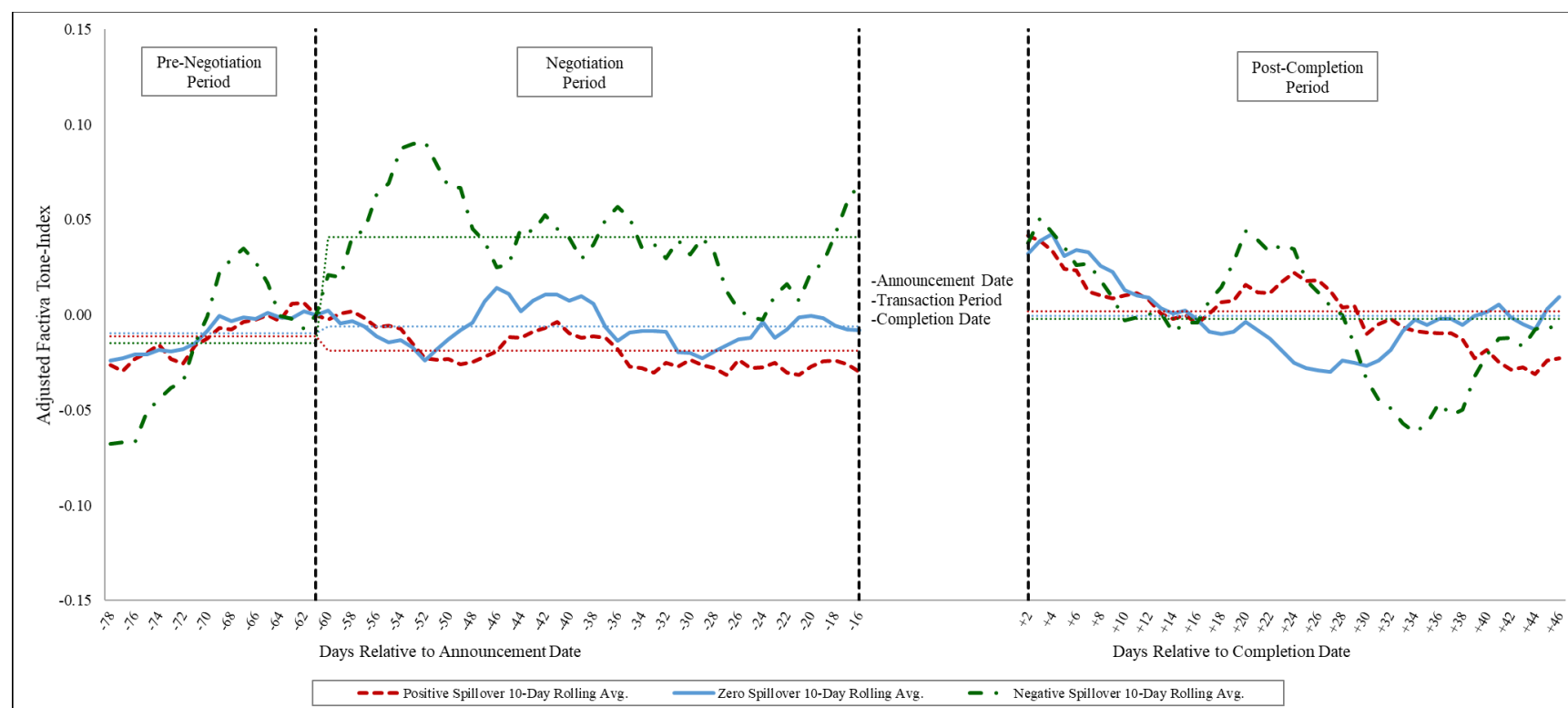


Figure 3

Cumulative tone of acquirer press release articles during merger negotiations and following merger completion dates

In the figure below, the x-axis represents time in trading days ($t=-78$ days to $t=-16$ days relative to the acquisition's public announcement date, and $t=+2$ to $t=+46$ days relative to the acquisition's completion date), and the y-axis represents the acquirer's disclosure tone, *Factiva Tone-Index*. The average negotiation period length is 45 days (beginning on $t=-60$ and ending on $t=-16$ days relative to the public announcement date). The sample consists of 381 cash-only acquisitions, partitioned into three groups using the *Returns Spillover* proxy. The three lines represent cumulative sums for each group's average daily *Factiva Tone-Index* beginning on day $t=-78$. Each group's average daily tone is adjusted for the group's average tone during the pre-negotiation period and centered to be 0.0 at the start of the negotiation period ($t=-60$). The time between day $t=-16$ relative to the acquisition announcement date and day $t=+2$ relative to the acquisition completion date includes the length of time in between the public announcement of the acquisition and its completion.

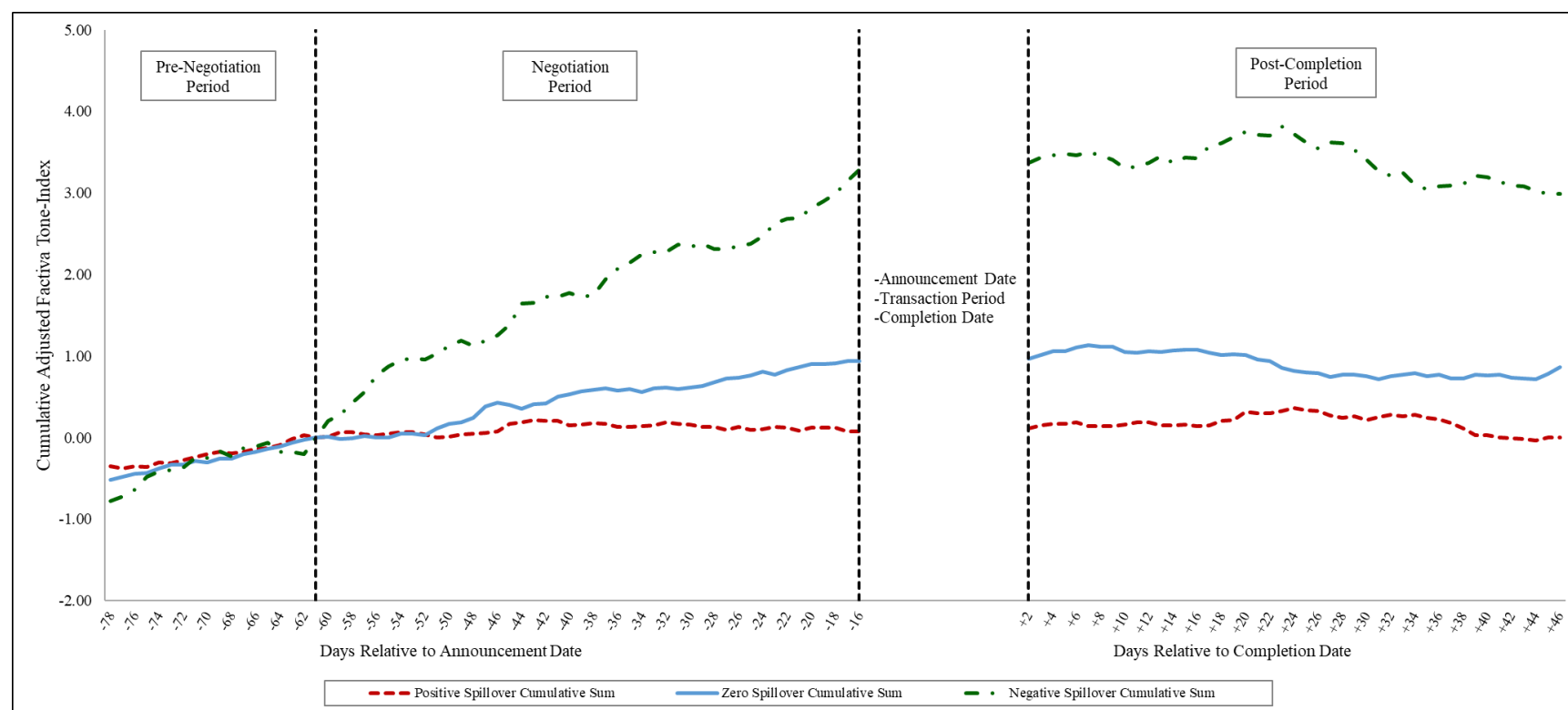


Figure 4

Target firm cumulative abnormal returns during merger negotiations

In the figure below, the x-axis represents time in trading days (the number of days relative to the acquisition's public announcement date) and the y-axis represents the target firm's cumulative abnormal returns, adjusted for the value-weighted index. The sample consists of 381 cash-only acquisitions, partitioned into three groups using the *Returns Spillover* proxy. The average negotiation period length is 45 days (beginning on $t=-60$ and ending on $t=-16$ days relative to the public announcement date). In this figure, the CAR for each group of targets is adjusted for the group's average CAR during the pre-negotiation period, and centered to be 0.0 at the start of the negotiation period ($t=-60$).

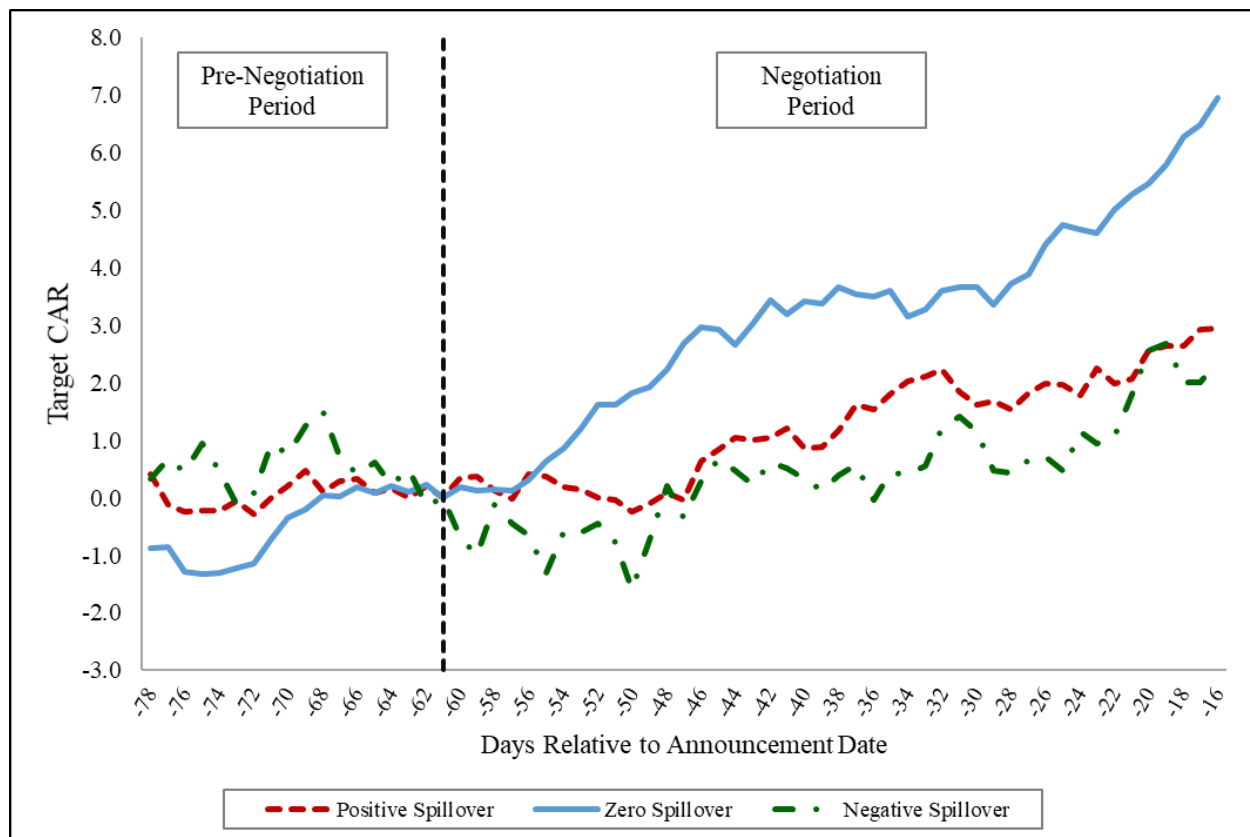


Table 1
Sample selection

Database:	Factiva	RavenPack PR Edition
News Sources:	Dow Jones News Service, Business Wire, Reuters News	PR Newswire, Business Wire, GlobeNewswire, Marketwire
Sample period:	Jan. 2000 - Dec. 2017	Jan. 2004 - Dec. 2017
Announced deals by US public bidders of US public targets using only cash	764	577
Exclude:		
Deal size less than \$10 million	(12)	(7)
Hostile bids	(12)	(7)
Deals with multiple bidders	(27)	(18)
Tender offers	(187)	(133)
Unable to match to RavenPack		(16)
Deals with fewer than five news days	(44)	(29)
Failed deals	(101)	(95)
	<u>381</u>	<u>272</u>
Press Articles:		
Number of days in pre-negotiation and negotiation periods	60,528	43,236
Number of press articles	64,146	8,323
Number of days with at least one article	18,348	6,605

Table 2
Descriptive statistics

Panel A presents descriptive statistics for the 381 all-cash deals in our sample. Values for the disclosure variables (*Factiva Tone-Sentiment*, *Factiva Tone-CAR*, *Factiva Tone-Index*, and *RP Tone-Index*) are shown for the acquirer firms at the firm-day level; values for *Target CAR*_(-1,+1), *Acquirer CAR*_(-1,+1), and *Macro Content* are shown for disclosure days only; and values for all other variables are shown at the deal level. Panel B presents mean values of key deal characteristics in each of our three groups of interest: positive spillover deals, zero spillover deals (the benchmark group), and negative spillover deals. The groups are formed by partitioning the sample of 381 all-cash deals using the daily correlation of abnormal returns between the acquiring and target firms (*Returns Spillover*). All variables are defined in Appendix A.

Panel A: Descriptive statistics for all deals

Variables	N	Mean	SD	P25	P50	P75
<u>Dependent variables:</u>						
<i>Factiva Tone-Sentiment</i>	60,528	0.104	0.541	0.000	0.000	0.000
<i>Factiva Tone-CAR</i>	60,528	0.096	0.445	0.000	0.000	0.000
<i>Factiva Tone-Index</i>	60,528	0.100	0.408	0.000	0.000	0.000
<i>RP Tone-Index</i>	43,236	-0.018	0.227	0.000	0.000	0.000
<i>Target CAR</i> _(-1,+1)	18,348	-0.027	2.810	-2.270	-0.123	2.130
<i>Acquirer CAR</i> _(-1,+1)	18,348	0.152	3.574	-1.662	-0.002	1.914
<i>Macro Content</i>	18,348	-0.399	0.916	-1.000	-1.000	1.000
<i>Target Runup</i> _(-60,-16)	381	6.39	17.04	-3.88	5.19	15.32
<i>Target Premium</i> _(-60,+2)	381	40.21	28.91	21.60	35.11	50.91
<i>Activism Campaign</i>	482	0.04	0.20	0.00	0.00	0.00
<i>Failed Deal</i>	482	0.23	0.42	0.00	0.00	0.00
<u>Independent variables:</u>						
<i>Returns Spillover</i>	381	0.09	0.17	-0.02	0.07	0.17
<i>PR Spillover</i>	381	0.07	0.45	-0.17	0.00	0.28
<i>Earnings Spillover</i>	360	0.09	0.40	-0.20	0.09	0.42
<i>EA Spillover</i>	360	0.49	10.51	-1.35	0.00	2.54
<i>Target BTM</i>	381	0.62	0.48	0.31	0.52	0.78
<i>Target ROA</i>	381	-0.02	0.17	-0.02	0.02	0.06
<i>Target Firm Age</i>	381	11.92	11.12	4.17	8.09	17.02
<i>Target Return</i>	381	0.20	0.49	-0.10	0.18	0.44
<i>Acquirer BTM</i>	381	0.45	0.29	0.25	0.41	0.59
<i>Relative Size</i>	381	0.10	0.13	0.01	0.05	0.14
<i>Horizontal Merger</i>	381	0.45	0.50	0.00	0.00	1.00
<i>Vertical Merger</i>	381	0.29	0.45	0.00	0.00	1.00

Table 2 (continued)

Panel B: Comparison of deals by spillover group

Returns Spillover Group:	Positive Spillover	Zero Spillover	Negative Spillover
	Mean	Mean	Mean
Number of deals	180	158	43
<u>Dependent variables:</u>			
<i>Factiva Tone-Index</i>	0.09	0.11	0.16
<i>Target Rumor</i> _(-60,-16)	5.53	8.13	3.60
<i>Target Premium</i> _(-60,+2)	35.54	44.38	44.42
<u>Independent variables:</u>			
<i>Returns Spillover</i>	0.22	0.01	-0.16
<i>Target BTM</i>	0.64	0.61	0.60
<i>Target ROA</i>	0.00	-0.05	-0.06
<i>Target Firm Age</i>	13.33	10.89	9.86
<i>Target Return</i>	0.19	0.18	0.26
<i>Acquirer BTM</i>	0.49	0.43	0.40
<i>Relative Size</i>	0.13	0.08	0.05
<i>Horizontal Merger</i>	0.55	0.36	0.36
<i>Vertical Merger</i>	0.23	0.32	0.41
<u>Additional merger detail:</u>			
<i>Neither Horizontal/Vertical Merger</i>	0.22	0.32	0.23
<i>Vertical Merger</i>	0.23	0.32	0.41
<i>Forward</i>	0.12	0.14	0.16
<i>Backward</i>	0.11	0.18	0.25

Table 3

Changes in acquirer disclosure tone during negotiation

This table presents the results from examining the change in the tone of the acquiring firm's press articles during merger negotiations, conditional on the nature of the information spillover between the acquirer and target firms. The unit of analysis in each column is a firm-day. *Negotiation* is an indicator variable equal to one (zero) if the firm-day falls within the 45-trading-day window from $t=-60$ to $t=-16$ days (120-trading-day window from $t=-180$ to $t=-61$ days) relative to the acquisition's public announcement date. All variables are defined in Appendix A. All specifications include firm-deal and year-quarter fixed effects. The t -statistics are reported below the coefficient estimates in parentheses and are calculated based on standard errors clustered by firm-deal and year-quarter. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed t -test.

Dependent Variable	Pr. Sign	<i>Factiva Tone-Sentiment</i>	<i>Factiva Tone-CAR</i>	<i>Factiva Tone-Index</i>	<i>Factiva Tone-Index</i>
<i>Negotiation</i>		-0.012 (-0.80)	-0.005 (-0.29)	-0.008 (-0.54)	-0.006 (-0.45)
<i>Negotiation</i> × <i>Returns Spillover Rank</i>	-	-0.029** (-2.28)	-0.046*** (-2.81)	-0.037*** (-2.89)	
<i>Negotiation</i> × <i>Positive Returns Spillover</i>	-				-0.016* (-1.95)
<i>Negotiation</i> × <i>Negative Returns Spillover</i>	+				0.050*** (2.89)
<i>Negotiation</i> × <i>Target BTM</i>		-0.004 (-0.43)	0.005 (0.47)	0.000 (0.04)	0.000 (0.05)
<i>Negotiation</i> × <i>Target ROA</i>		-0.067 (-1.44)	-0.038 (-0.64)	-0.053*** (-4.91)	-0.049*** (-4.11)
<i>Negotiation</i> × <i>Target Firm Age</i>		0.000 (0.03)	-0.006 (-1.07)	-0.003 (-0.65)	-0.003 (-0.65)
<i>Negotiation</i> × <i>Target Return</i>		-0.002 (-0.17)	0.001 (0.08)	-0.000 (-0.05)	-0.001 (-0.17)
<i>Negotiation</i> × <i>Acquirer BTM</i>		-0.047** (-2.39)	-0.021 (-1.34)	-0.034** (-2.20)	-0.034** (-2.25)
<i>Negotiation</i> × <i>Relative Size</i>		-0.021 (-0.50)	0.037 (0.60)	0.008 (0.22)	0.014 (0.37)
<i>Negotiation</i> × <i>Horizontal Merger</i>		0.001 (0.04)	-0.006 (-0.41)	-0.002 (-0.16)	-0.002 (-0.10)
<i>Negotiation</i> × <i>Vertical Merger</i>		0.010 (0.69)	-0.006 (-0.36)	0.002 (0.19)	0.003 (0.31)
Firm-deal fixed effects		Yes	Yes	Yes	Yes
Year-quarter fixed effects		Yes	Yes	Yes	Yes
S.E. clustered by firm-deal and year-quarter		Yes	Yes	Yes	Yes
No. of observations		60,528	60,528	60,528	60,528
No. of acquisitions		381	381	381	381
Adj. R-squared		7.0%	3.7%	6.5%	6.6%

Table 4

Reversal of acquirer disclosure tone following deal completion

This table presents the results from examining the changes in the tone of the acquiring firm's press articles in the negotiation period as well as in the post-completion period, relative to the pre-negotiation period. The unit of analysis in each column is a firm-day. *Negotiation* is an indicator variable equal to one if the firm-day falls within the 45-trading-day window from $t=-60$ to $t=-16$ days relative to the acquisition's public announcement date, and zero otherwise. *Post-Completion* is an indicator variable equal to one if the firm-day falls within the 45-trading-day window from $t=+2$ to $t=+46$ days relative to the acquisition completion date, and zero otherwise. All variables are defined in Appendix A. All specifications include firm-deal and year-quarter fixed effects. The t -statistics are reported below the coefficient estimates in parentheses and are calculated based on standard errors clustered by firm-deal and year-quarter. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed t -test.

Dependent Variable	Pr. Sign	<i>Factiva Tone-Sentiment</i>	<i>Factiva Tone-CAR</i>	<i>Factiva Tone-Index</i>	<i>Factiva Tone-Index</i>
<i>Negotiation</i>		0.011 (1.15)	0.017 (1.23)	0.014 (1.39)	0.018* (1.67)
<i>Negotiation</i> × <i>Returns Spillover Rank</i>	-	-0.034* (-1.93)	-0.056*** (-3.48)	-0.045*** (-3.46)	
<i>Negotiation</i> × <i>Positive Returns Spillover</i>	-				-0.017** (-2.10)
<i>Negotiation</i> × <i>Negative Returns Spillover</i>	+				0.047*** (3.05)
<i>Post-Completion</i>		0.015 (0.70)	0.001 (0.05)	0.008 (0.61)	0.011 (0.90)
<i>Post-Completion</i> × <i>Returns Spillover Rank</i>	0	-0.005 (-0.26)	-0.004 (-0.21)	-0.004 (-0.37)	
<i>Post-Completion</i> × <i>Positive Returns Spillover</i>	0				-0.005 (-0.44)
<i>Post-Completion</i> × <i>Negative Returns Spillover</i>	0				-0.009 (-0.45)
<i>Negotiation</i> × Controls		Yes	Yes	Yes	Yes
<i>Post-Completion</i> × Controls		Yes	Yes	Yes	Yes
Firm-deal fixed effects		Yes	Yes	Yes	Yes
Year-quarter fixed effects		Yes	Yes	Yes	Yes
S.E. clustered by firm-deal and year-quarter		Yes	Yes	Yes	Yes
No. of observations		77,128	77,128	77,128	77,128
No. of acquisitions		381	381	381	381
Adj. R-squared		6.3%	3.1%	5.9%	6.0%

Table 5

The effect of acquirer disclosures on target premiums

This table presents the results from examining the target firm's run-up and premium, conditional on the nature of the information spillover between the acquirer and target firms. The unit of analysis in each column is a completed acquisition. All variables are defined in Appendix A. The *t*-statistics are reported below the coefficient estimates in parentheses and are calculated based on standard errors clustered by year-quarter. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed *t*-test.

Dependent Variable	Pr. Sign	<i>Target Runup</i> _(-60,-16)		<i>Target Premium</i> _(-60,+2)	
<i>/Returns Spillover/ Rank</i>	-	-4.305*** (-2.63)		-7.022** (-2.54)	
<i>Positive Returns Spillover</i>	-		-3.460** (-2.22)		-7.702*** (-2.74)
<i>Negative Returns Spillover</i>	-		-5.908*** (-2.60)		-3.094 (-0.66)
<i>Target BTM</i>		2.011 (1.28)	2.135 (1.29)	12.604** (2.40)	12.398** (2.40)
<i>Target ROA</i>		6.022 (0.92)	5.758 (0.90)	-17.831 (-0.97)	-16.475 (-0.85)
<i>Target Firm Age</i>		0.233 (0.16)	0.150 (0.10)	1.076 (0.58)	0.946 (0.52)
<i>Target Return</i>		-0.832 (-0.26)	-0.642 (-0.19)	0.300 (0.08)	-0.028 (-0.01)
<i>Acquirer BTM</i>		-6.060** (-1.99)	-5.520* (-1.80)	-12.565 (-1.53)	-11.680 (-1.43)
<i>Relative Size</i>		6.786 (0.85)	5.244 (0.66)	-32.171** (-2.34)	-30.957** (-2.25)
<i>Horizontal Merger</i>		1.432 (0.56)	1.367 (0.54)	-0.383 (-0.17)	0.173 (0.07)
<i>Vertical Merger</i>		2.761 (1.00)	2.966 (1.12)	7.391 (1.42)	7.454 (1.48)
Year-quarter fixed effects		Yes	Yes	Yes	Yes
Industry fixed effects (NAICS 2-digit)		Yes	Yes	Yes	Yes
S.E. clustered by year-quarter		Yes	Yes	Yes	Yes
No. of observations		381	381	381	381
No. of acquisitions		381	381	381	381
Adj. R-squared		3.8%	4.2%	16.2%	16.7%

Table 6

Validation of returns spillover measure

Panel A presents the results from examining the target's return responses to the acquirer's disclosures prior to and during merger negotiations. The first (second, third) column shows the relationship between the tone of acquirers' disclosures and target firms' 3-day cumulative abnormal returns around those disclosures for positive (zero, negative) spillover deals. Panel B presents the results from examining the relationship between the acquirer and target firms' daily abnormal returns during merger negotiations for positive spillover (first column), zero spillover (second column), and negative spillover (third column) deals. The unit of analysis in each column is a firm-day on which the acquirer issued a disclosure. *Negotiation* is an indicator variable equal to one (zero) if the firm-day falls within the 45-trading-day window from $t=-60$ to $t=-16$ days (120-trading-day window from $t=-180$ to $t=-61$ days) relative to the acquisition's public announcement date. All variables are defined in Appendix A. All specifications include firm-deal and year-quarter fixed effects. The t -statistics are reported below the coefficient estimates in parentheses and are calculated based on standard errors clustered by firm-deal and year-quarter. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed t -test.

Panel A: Target return responses to acquirer disclosure tone

Dependent Variable Spillover Group	Pr. Sign	Target CAR _(-1,+1)		
		Positive Spillover	Zero Spillover	Negative Spillover
<i>Factiva Tone-Index</i>	+,0,-	0.149*** (2.89)	-0.007 (-0.14)	-0.101** (-2.23)
<i>Negotiation</i> × <i>Factiva Tone-Index</i>	+,0,-	0.226*** (3.20)	-0.103 (-0.91)	-0.274** (-2.32)
<i>Negotiation</i>		-0.032 (-0.20)	-0.086 (-0.73)	-0.149 (-1.08)
<i>Negotiation</i> × <i>Target BTM</i>		-0.324 (-0.60)	-0.052 (-0.34)	-0.260 (-1.06)
<i>Negotiation</i> × <i>Target ROA</i>		-1.712*** (-2.66)	0.551 (1.02)	0.042 (0.05)
<i>Negotiation</i> × <i>Target Firm Age</i>		-0.032 (-0.34)	0.132 (0.78)	-0.275 (-1.34)
<i>Negotiation</i> × <i>Target Return</i>		0.186 (1.62)	0.308** (2.01)	0.115 (1.00)
<i>Negotiation</i> × <i>Acquirer BTM</i>		-0.350 (-1.18)	-1.007*** (-3.28)	-0.087 (-0.17)
<i>Negotiation</i> × <i>Relative Size</i>		1.505*** (2.98)	-0.235 (-0.28)	-0.776 (-1.17)
<i>Negotiation</i> × <i>Horizontal Merger</i>		0.067 (0.59)	0.363 (1.52)	-0.190 (-1.58)
<i>Negotiation</i> × <i>Vertical Merger</i>		0.085 (0.62)	-0.259 (-1.12)	0.130 (0.43)
<i>Negotiation</i> × Controls		Yes	Yes	Yes
Firm-deal fixed effects		Yes	Yes	Yes
Year-quarter fixed effects		Yes	Yes	Yes
S.E. clustered by firm-deal and year-quarter		Yes	Yes	Yes
No. of observations		7,615	7,799	2,934
No. of acquisitions		180	158	43
Adj. R-squared		1.5%	1.7%	1.9%

Table 6 (continued)

Panel B: Target and acquirer returns correlation

Dependent Variable Spillover Group	Pr. Sign	Target Daily Abnormal Return		
		Positive Spillover	Zero Spillover	Negative Spillover
<i>Acquirer Daily Abnormal Return</i>	+,0,-	0.143*** (3.65)	0.029* (1.72)	-0.041** (-2.02)
<i>Negotiation × Acquirer Daily Abnormal Return</i>	+,0,-	0.184** (2.32)	0.059 (1.12)	-0.140** (-2.38)
<i>Negotiation</i>		0.087 (0.95)	0.051 (0.40)	-0.159 (-1.53)
<i>Negotiation × Target BTM</i>		0.112 (0.57)	0.121 (0.73)	-0.397*** (-2.74)
<i>Negotiation × Target ROA</i>		-0.422 (-1.05)	0.457 (1.00)	0.209 (0.51)
<i>Negotiation × Target Firm Age</i>		0.044 (0.79)	-0.027 (-0.26)	0.016 (0.19)
<i>Negotiation × Target Return</i>		0.157 (1.35)	0.008 (0.05)	0.006 (0.04)
<i>Negotiation × Acquirer BTM</i>		-0.443* (-1.90)	-0.313 (-1.61)	0.217 (0.68)
<i>Negotiation × Relative Size</i>		0.316 (1.27)	0.352 (0.90)	0.542 (1.18)
<i>Negotiation × Horizontal Merger</i>		0.010 (0.12)	0.118 (0.92)	-0.029 (-0.21)
<i>Negotiation × Vertical Merger</i>		-0.332 (-1.49)	-0.148 (-0.89)	0.189 (1.71)
<i>Negotiation × Controls</i>		Yes	Yes	Yes
Firm-deal fixed effects		Yes	Yes	Yes
Year-quarter fixed effects		Yes	Yes	Yes
S.E. clustered by firm-deal and year-quarter		Yes	Yes	Yes
No. of observations		28,591	25,115	6,822
No. of acquisitions		180	158	43
Adj. R-squared		0.7%	0.0%	0.0%

Table 7

Alternative proxies for information spillovers between acquirer and target firms

This table presents the results from repeating the analyses in Tables 3 and 5 using three alternative proxies for information spillovers between the acquirer and target firms. Panel A shows the results from examining the change in the tone of the acquiring firm's disclosures during merger negotiations. Panel B shows the results from examining the target firm's run-up and premium. In Panel A the unit of analysis is a firm-day, the specifications include firm-deal and year-quarter fixed effects, and the *t*-statistics reported below the coefficient estimates in parentheses are calculated based on standard errors clustered by firm-deal and year-quarter. In Panel B the unit of analysis is a completed acquisition, and the *t*-statistics reported below the coefficient estimates in parentheses are calculated based on standard errors clustered by year-quarter. All variables are defined in Appendix A. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed *t*-test.

Panel A: Acquirer disclosure tone during negotiation

Dependent Variable		<i>Factiva Tone-Index</i>		
Spillover Proxy	Pr. Sign	<i>PR Spillover</i>	<i>Earnings Spillover</i>	<i>EA Spillover</i>
<i>Negotiation</i>		-0.002 (-0.14)	-0.000 (-0.03)	-0.004 (-0.33)
<i>Negotiation</i> × <i>Spillover Rank</i>	-	-0.024** (-2.35)	-0.024** (-2.51)	-0.051*** (-3.60)
<i>Negotiation</i> × Controls		Yes	Yes	Yes
Firm-deal fixed effects		Yes	Yes	Yes
Year-quarter fixed effects		Yes	Yes	Yes
S.E. clustered by firm-deal and year-quarter		Yes	Yes	Yes
No. of observations		60,528	57,191	57,191
No. of acquisitions		381	360	360
Adj. R-squared		3.8%	3.5%	3.4%

Panel B: Effect of acquirer disclosures on target premiums

Dependent Variable		<i>Target Premium</i> _(-60,+2)		
Spillover Proxy	Pr. Sign	<i>PR Spillover</i>	<i>Earnings Spillover</i>	<i>EA Spillover</i>
<i> Spillover Rank</i>	-	-9.322*** (-2.59)	-12.715*** (-3.50)	-4.637 (-1.43)
Controls		Yes	Yes	Yes
Year-quarter fixed effects		Yes	Yes	Yes
Industry fixed effects (NAICS 2-digit)		Yes	Yes	Yes
S.E. clustered by year-quarter		Yes	Yes	Yes
No. of observations		381	360	360
No. of acquisitions		381	360	360
Adj. R-squared		17.2%	26.4%	19.9%

Table 8

Changes in acquirer news type during negotiation

This table presents the results from examining changes in the types of news disclosed by the acquirer during merger negotiations, including changes in both the extensive and intensive margins of disclosure, as well as the use of macro-oriented words in the disclosures. In the first (second) column, *Factiva Tone-CAR* is equal to one if the disclosing firm's three-day cumulative abnormal return around a disclosure is positive (negative), and zero otherwise. In the third column, *Acquirer CAR*_(-1,+1) is the disclosing firm's three-day cumulative abnormal return around a disclosure. In the fourth column, *Macro Content* is equal to one (minus one) if the number of macro-oriented words in the firm's disclosures on that day is above (below) the sample average. The unit of analysis in each column is a firm-day. The sample in the first two columns includes all trading days during the pre-negotiation and negotiation periods (regardless of whether there is a disclosure). The sample in the third and fourth columns include only trading days during the pre-negotiation and negotiation periods on which the acquirer firm makes a disclosure. *Negotiation* is an indicator variable equal to one (zero) if the firm-day falls within the 45-trading-day window from $t=-60$ to $t=-16$ days (120-trading-day window from $t=-180$ to $t=-61$ days) relative to the acquisition's public announcement date. All variables are defined in Appendix A. All specifications include firm-deal and year-quarter fixed effects. The t -statistics are reported below the coefficient estimates in parentheses and are calculated based on standard errors clustered by firm-deal and year-quarter. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed t -test.

Type of News Dependent Variable		Extensive Margin		Intensive Margin	Macro News
		<i>Factiva Tone-CAR</i>		<i>Acquirer CAR</i> _(-1,+1)	<i>Macro Content</i>
News Day Classification	Pr. Sign	Good News Days	Bad News Days	All News Days	All News Days
<i>Negotiation</i>		-0.009 (-0.70)	-0.004 (-0.76)	0.129 (0.65)	-0.032 (-1.11)
<i>Negotiation</i> × <i>Returns Spillover Rank</i>	-,+,+,+	-0.037*** (-2.65)	0.009 (1.26)	-0.439*** (-2.83)	0.087** (2.55)
<i>Negotiation</i> × <i>Target BTM</i>		-0.007 (-0.67)	-0.012** (-2.28)	0.455* (1.75)	0.008 (0.26)
<i>Negotiation</i> × <i>Target ROA</i>		-0.038 (-0.73)	0.001 (0.04)	0.078 (0.51)	-0.181 (-1.53)
<i>Negotiation</i> × <i>Target Firm Age</i>		-0.001 (-0.14)	0.006** (2.04)	-0.113 (-1.50)	-0.009 (-0.47)
<i>Negotiation</i> × <i>Target Return</i>		-0.007 (-0.57)	-0.008 (-1.11)	0.244* (1.83)	0.013 (0.54)
<i>Negotiation</i> × <i>Acquirer BTM</i>		-0.012 (-0.89)	0.009 (1.18)	-0.120 (-0.40)	0.139** (2.23)
<i>Negotiation</i> × <i>Relative Size</i>		0.008 (0.13)	-0.030 (-1.33)	1.085 (1.56)	-0.040 (-0.28)
<i>Negotiation</i> × <i>Horizontal Merger</i>		-0.002 (-0.20)	0.003 (0.53)	0.017 (0.12)	-0.007 (-0.17)
<i>Negotiation</i> × <i>Vertical Merger</i>		-0.016 (-1.30)	-0.010 (-1.39)	-0.100 (-0.43)	0.022 (0.64)
Firm-deal fixed effects		Yes	Yes	Yes	Yes
Year-quarter fixed effects		Yes	Yes	Yes	Yes
S.E. clustered by firm-deal and year-quarter		Yes	Yes	Yes	Yes
No. of observations		60,528	60,528	18,348	18,348
No. of acquisitions		381	381	381	381
Adj. R-squared		13.8%	10.3%	4.8%	26.8%

Table 9

Robustness to RavenPack PR sample and two falsification tests

This table presents the results of a robustness test examining the change in acquirer disclosure tone using RavenPack press releases (column 1) as well as the results of two falsification tests examining the change in target disclosure tone (column 2) and the change in acquirer disclosure tone in stock-for-stock deals (column 3). The firm-initiated press articles used in this table are identified by RavenPack as distributed through the following press release wires: *PR Newswire*, *Business Wire*, *Marketwire*, and *GlobeNewswire*. The samples used in this table include deals for which the start of the pre-negotiation period occurs on or after January 1st, 2004. The unit of analysis in each column is a firm-day. *Negotiation* is an indicator variable equal to one (zero) if the firm-day falls within the 45-trading-day window from $t=-60$ to $t=-16$ days (120-trading-day window from $t=-180$ to $t=-61$ days) relative to the acquisition's public announcement date. All variables are defined in Appendix A. All specifications include firm-deal and year-quarter fixed effects. The t -statistics are reported below the coefficient estimates in parentheses and are calculated based on standard errors clustered by firm-deal and year-quarter. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed t -test.

Dependent Variable		<i>RP Tone-Index</i>		
		Acquirer	Target	Acquirer
Disclosing Firm				
Deal Type	Pr. Sign	Cash Deals	Cash Deals	Stock Deals
<i>Negotiation</i>	0,+,+	-0.004 (-0.58)	0.006** (2.17)	0.004** (2.41)
<i>Negotiation</i> × <i>Returns Spillover Rank</i>	-,0,0	-0.023*** (-3.70)	-0.001 (-0.10)	0.000 (0.05)
<i>Negotiation</i> × <i>Target BTM</i>		0.001 (0.21)	0.001 (0.50)	-0.005 (-1.27)
<i>Negotiation</i> × <i>Target ROA</i>		0.005 (0.18)	0.027*** (3.42)	0.005 (0.27)
<i>Negotiation</i> × <i>Target Firm Age</i>		0.001 (0.25)	-0.002 (-1.63)	-0.000 (-0.00)
<i>Negotiation</i> × <i>Target Return</i>		0.000 (0.03)	0.000 (0.08)	-0.006 (-0.60)
<i>Negotiation</i> × <i>Acquirer BTM</i>		-0.006 (-0.72)	0.003 (0.45)	-0.002 (-0.27)
<i>Negotiation</i> × <i>Relative Size</i>		0.018 (1.06)	0.019 (1.43)	-0.012 (-0.81)
<i>Negotiation</i> × <i>Horizontal Merger</i>		0.011* (1.68)	-0.002 (-0.37)	-0.003 (-0.81)
<i>Negotiation</i> × <i>Vertical Merger</i>		-0.005 (-0.62)	-0.001 (-0.28)	0.009 (0.83)
Firm-deal fixed effects		Yes	Yes	Yes
Year-quarter fixed effects		Yes	Yes	Yes
S.E. clustered by firm-deal and year-quarter		Yes	Yes	Yes
No. of observations		43,236	36,073	32,602
No. of acquisitions		272	228	205
Adj. R-squared		2.1%	0.6%	2.2%

Table 10

The effect of information spillovers on activism campaigns and deal failures

This table presents the results from estimating an OLS regression to examine the likelihood that target shareholders initiate an activism campaign opposing an announced merger (column 1), and the likelihood of an announced deal failing to reach completion (column 2). The unit of analysis in each column is an announced acquisition. All variables are defined in Appendix A. The *t*-statistics are reported below the coefficient estimates in parentheses and are calculated based on standard errors clustered by year-quarter. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed *t*-test.

Dependent Variable	Pr. Sign	<i>Activism Campaign</i>	<i>Failed Deal</i>
<i>/Returns Spillover/ Rank</i>	+	0.029* (1.79)	0.129** (2.02)
<i>Target BTM</i>		-0.010 (-0.66)	-0.076* (-1.71)
<i>Target ROA</i>		-0.103*** (-3.05)	-0.172 (-1.43)
<i>Target Firm Age</i>		0.016** (2.07)	0.016 (0.66)
<i>Target Return</i>		0.014 (0.65)	-0.098*** (-2.97)
<i>Acquirer BTM</i>		-0.074** (-2.04)	-0.073 (-0.97)
<i>Relative Size</i>		0.105 (1.23)	0.688*** (3.53)
<i>Horizontal Merger</i>		0.013 (0.66)	-0.057 (-0.81)
<i>Vertical Merger</i>		0.028 (1.56)	-0.079 (-0.92)
Year-quarter fixed effects		Yes	Yes
Industry fixed effects (NAICS 2-digit)		Yes	Yes
S.E. clustered by year-quarter		Yes	Yes
No. of observations		482	482
No. of acquisitions		482	482
Adj. R-squared		4.4%	11.7%