

Deal Initiation in Mergers and Acquisitions

Ronald W. Masulis and Serif Aziz Simsir*

Abstract

We investigate the effects of target initiation in M&As. We find target-initiated deals are common and that important motives for these deals are target economic weakness, financial constraints, and negative economy-wide shocks. We determine that average takeover premia, target abnormal returns around merger announcements, and deal value to EBITDA multiples are significantly lower in target-initiated deals. This gap is not explained by weak target financial conditions. Adjusting for self-selection, we conclude that target managers' private information is a major driver of lower premia in target-initiated deals. This gap widens as information asymmetry between merger partners rises.

I. Introduction

Firms initiate mergers and acquisitions (M&As) to find a suitable merger partner to help them meet their strategic and financial objectives. Having identified an attractive partner, a common aim at the later stages of the M&A process is to structure a deal to realize the major goals of the merger partners. The mechanics of the later stages of the merger process and the incentives of key players in M&A transactions are well researched, given the availability of transaction-level data in M&A databases. Yet, the crucial initial stage of the merger process where bidders

*Masulis (corresponding author), ron.masulis@unsw.edu.au, University of New South Wales Australian School of Business; Simsir, simsir@sabanciuniv.edu, Sabanci University School of Management. This study began as a part of Simsir's Ph.D. dissertation at Cornell University. Simsir thanks his dissertation committee: Yaniv Grinstein, Yongmiao Hong, and especially his committee chair, Robert Masson. The paper has benefited from comments from an anonymous referee, Evrim Akdogu, Nihat Aktas (discussant at the 2008 AFFI conference), Jarrad Harford (the editor), Mark Humphery-Jenner, Koralai Kirabaeva, Rose Liao, Florencio Lopez-de-Silanes, Paul Malatesta (discussant at the 2013 CAFS conference), Roni Michaely, Harold Mulherin, Akin Sayrak, Henri Servaes (discussant at the 2015 Vanderbilt Law and Business Conference), Joshua Teitelbaum, and seminar and conference participants at the 2008 French Finance Association Annual Meeting, the 2008 EFMA Annual Meeting, the 2008 European Meeting of the Econometric Society, the 2008 EARIE Conference, the 2008 FMA Annual Meeting, the 2013 Chulalongkorn Accounting and Finance Symposium, the 2014 FIRN Corporate Finance Research Group Annual Meeting, the 2015 Vanderbilt Law and Business Conference, Sabanci University, Koc University, Cornerstone Research, Rutgers University, Singapore Management University, and the WHU Otto Beisheim School of Management. Simsir was supported by a Marie Curie International Reintegration Grant within the 7th European Community Framework Programme (grant number 256572).

and targets are matched has received relatively scant attention in the M&A literature. In this study, we investigate the deal initiation decisions of merger partners to further our understanding of deal partner incentives at this crucial initial stage of the M&A process.

The extant literature examining the initial phase of the sale process focuses on the impact of takeover competition on merger outcomes. In this literature, “auctions” (multiple-bidder negotiations) are distinguished from “negotiations” (single-bidder negotiations) to examine their impact on target premia (Boone and Mulherin (2007b), Aktas, de Bodt, and Roll (2010)), bidder announcement day returns (Boone and Mulherin (2008)), and the use of termination fees in merger agreements (Boone and Mulherin (2007a)). While these studies recognize the relevance of a deal initiation party in the context of takeover competition, they do not analyze the major economic drivers of target-initiated deals and treat these initiation decisions as external to the M&A decisions they are studying. Given that target-initiated deals represent about 35% of the U.S. M&A deals in our sample, it is important to understand how these deals differ from the more frequently observed acquirer-initiated deals. More specifically, we want to explore target motivations for initiating M&A deals, the economic conditions facing the merger partners when this occurs, and the effects of deal initiation decisions on takeover premia.

To preview our main results, we find that target shareholders receive significantly lower premia in target-initiated M&A deals than in bidder-initiated deals. The bid premia, defined as the percentage difference between the offer price and target firm’s prior stock price 63 trading days before the initial merger announcement date, averages 58% in bidder-initiated deals versus 48% in target-initiated deals. Target cumulative abnormal returns (CARs) measured over the $(-2, +2)$ and $(-63, +2)$ periods around the initial deal announcement dates, as well as excess deal value to earnings before interest, taxes, depreciation, and amortization (EBITDA) multiples reported in Officer (2007), also indicate significantly lower wealth effects in target-initiated deals as compared with bidder-initiated deals.

We consider two hypotheses to explain why targets initiate deals and why they receive lower premia relative to bidder-initiated deals. The first hypothesis argues that targets experiencing financial or competitive weakness have strong motives to search for potential buyers. Targets can face financial distress implying that shareholders and managers face significant losses if the firms go bankrupt. Similarly, target firms may initiate mergers to relieve a binding financial constraint. The second hypothesis posits that industry-specific or economy-wide shocks, such as technological innovations, deregulation, and changes in key input prices, may necessitate a reallocation of assets among firms within an industry. During this consolidation process, the managers and owners of weaker, less efficient firms can find it optimal to be acquired by larger, more efficient firms, rather than attempt to survive the industry shock on its own and risk further loss of market share and even financial distress.

Empirically, we find that targets are financially weaker in target-initiated deals compared to bidder-initiated deals, regardless of whether we measure financial weakness by Altman’s Z-scores, interest coverage ratios, Standard & Poor’s (S&P) long-term credit ratings, or low stock price levels. In addition, target firms

in target-initiated deals underperform their stock market benchmarks both 1 and 3 years prior to the deal announcement, while targets in bidder-initiated deals do not. Our investigation also reveals that a firm's financial constraint measured by the SA index (Hadlock and Pierce (2010)) or by the WW index (Whited and Wu (2006)) is, on average, significantly higher for targets in target-initiated deals. Finally, the frequency of target-initiated deals relative to bidder-initiated deals is higher in the 2001 economic recession. Overall, these results are consistent with target-initiated deals being associated with financial and competitive weaknesses, binding financial constraints, and industry-specific and economy-wide shocks.

The economic factors embedded in our first two hypotheses capture major motivations for targets to initiate deals and provide some interesting testable predictions. Yet, the lower bid premia and target CARs found in target-initiated deals cannot be easily explained by these factors. If targets initiate deals and accept lower premia primarily due to these conditions, then the effect of target initiation on bid premia should diminish when we control for these factors. Contrary to expectations, the coefficient for target-initiated deals remains significantly negative, even after considering target financial distress, pre-announcement stock and operating performance, target financial constraints, and industry-specific and economy-wide shocks in our analysis. We also find weak associations when we interact the target-initiated indicator with measures for the previously listed factors. Specifically, the coefficients of the interaction variables, which capture the marginal effects of these factors on target-initiated takeover premia, are, for the most part, statistically insignificant. These results may be, in part, due to rational investors having previously discounted the price of a target's stock for these problems.

Our last major hypothesis, which we label the *Information Asymmetry Hypothesis*, emphasizes the informational disadvantages acquirers face due to target firms' superior information about their internal valuations. This information asymmetry between merger partners presents acquirers with an adverse selection problem, causing them to rationally offer lower acquisition prices for target firms as the risk of purchasing a lemon rises (Akerlof (1970)).

Since target firms self-select to initiate deals with bidders, their observable and unobservable characteristics could be quite different from targets that do not initiate deals. To adjust for such self-selection, we specify a Heckman (1979) selection model to identify the underlying factors that could be driving the low premia in target-initiated deals. Following the prior empirical literature summarized in Prabhala and Li (2008), we interpret the inverse Mills ratio as capturing the target board's private information about its value, as well as the effects of any omitted variables. We find that the inverse Mills ratio is significantly negatively correlated with the bid premia. Our findings are consistent with target deal initiations signaling to bidders that target boards have negative private information, causing rational bidders to reduce takeover premia. In other words, deal initiation is a manifestation of negative private information held by a target that bidders infer when a target publicly announces its willingness to sell.

To assess whether the adverse selection problem between merging firms is driving our results, we evaluate whether the effect is more severe when target firms are more difficult to value. To test this proposition, we create a measure of

information asymmetry between merger partners. We employ many of the commonly used asymmetric information measures found in the literature and use factor analysis to create a single information asymmetry factor that captures a significant portion of the common variability among these asymmetric information measures. We then divide our sample into high and low information asymmetry targets based on whether the information asymmetry measure is above its median. We separately estimate the Heckman (1979) selection models for the two subsamples and find that the inverse Mills ratio, the target's private information measure, has a significantly more negative coefficient in high information asymmetry firms. That is to say, the average takeover premium is significantly lower in target-initiated deals with high target information asymmetry. Similar results hold when we reclassify high and low information asymmetry subsamples using individual information asymmetry measures. These results provide further support for the Information Asymmetry Hypothesis.

Finally, we examine whether deal-initiating target firms have any incentives to signal their true values to bidders to reduce the aforementioned initiation discount. We find that the negative effect of target private information on bid premia in high information asymmetry deals gets much weaker when targets accept acquirer stock as payments or retain due diligence advisers. We argue that these actions are credible signals that can convey valuable information to bidders and can be used to mitigate the negative effect of target initiation on bid premia.

Our investigation of deal initiation in the context of M&As is important for several reasons. First, we document the size and statistical significance of differences in deal premia across target- and bidder-initiated deals for a large sample of U.S. deals over an extended sample period from 1997 to 2012. In addition, we investigate firm-level determinants of the deal initiation decisions by target firms. While some studies of takeover competition, target CEO compensation, and golden parachutes include an indicator for target-initiated deals as a control variable and report a negative impact of target initiation on bid premia, nearly all of these studies treat seller initiation as exogenous and they generally do not explore the economic motivations for targets initiating deals.¹ In contrast, our primary objective is to investigate target incentives for initiating deals and to explore the importance of information asymmetry between the acquirer and the target as a major factor driving bid premia differences across samples.

Aktas et al. (2010) examine some determinants of target initiation for a specialized sample of single-bidder negotiated deals. Our study examines a much broader sample of M&A deals, which also includes multiple-bidder negotiated deals (which represent 58% of the deal sample), to assess the ability of our hypotheses to explain both the effect of target initiation on takeover premia and the underlying economic channels that affect these premia. Moreover, we provide a new perspective on M&A deal-making mechanics by bringing to light some important elements of the initial private negotiations phase of the M&A process. While a vast majority of M&A studies analyze takeovers starting with the

¹These controls are used in several studies of takeover competition (Boone and Mulherin (2007b), Aktas et al. (2010)), target CEO option and equity grants (Fich, Cai, and Tran (2011), Heitzman (2011)), and golden parachutes (Fich, Tran, and Walking (2013)).

initial bid date, companies actually make crucial decisions well before an M&A agreement is reached and publicly announced. We shed new light on this process. Finally, our study provides new insights into the interplay of supply and demand factors in takeover markets.

II. Hypotheses

A. Drivers of Target Deal Initiation

A number of prior studies in the corporate finance literature view bankruptcy reorganization filings and mergers as alternative choices for surviving financial distress. Shrieves and Stevens (1979), Hotchkiss (1995), and Hotchkiss and Mooradian (1997), (1998) argue that acquisitions dominate Chapter 11 filings as a means of redeploying financially distressed firm assets. Their empirical evidence indicates that acquirers improve the operations of financially distressed firms, while distressed firms that remain independent continue to struggle after going bankrupt. Pastena and Ruland (1986) find that distressed firms with low leverage and high ownership concentration tend to prefer mergers to bankruptcy.^{2,3}

Less severe forms of financial distress can also lead targets to seek an acquirer. In periods of economic distress, firms often lose market share to competitors and experience sales declines, rising costs, and possibly negative operating income, while remaining solvent and fully able to pay their debts. In such circumstances, targets can be motivated to seek a buyer if they expect the economic weakness to continue. Consistent with this view, targets generally exhibit significantly negative abnormal stock returns prior to the merger (Asquith (1983), Martin and McConnell (1991), and Kini, Kracaw, and Mian (1995), (2004)), low valuations (Edmans, Goldstein, and Jiang (2012), Bates, Becher, and Lemmon (2008)), and inferior operating performance (Palepu (1986), Cremers, Nair, and John (2009), and Berger and Ofek (1996)).⁴

Financially constrained target firms with limited financing options can also find it beneficial to initiate deals with cash-rich bidders to obtain additional equity capital. By merging with a financially stronger firm, a target can gain access to additional capital.⁵ For example, a target can sell new equity to the buyer as the acquisition method. Consistent with this view, Erel, Jang, and Weisbach (2015) find

²Financially distressed firms can sell some assets to meet liquidity needs and avoid bankruptcy rather than sell the entire firm (Asquith, Gertner, and Scharfstein (1994), Brown, James, and Mooradian (1994), and Hotchkiss (1995)). However, if the industry is also depressed, then asset sales can represent selling at fire sale prices, which can be below their book values, thereby limiting any benefit that can be obtained.

³In the Oler and Smith (2008) analysis of firms that publicly express an interest in being taken over (labeled as “take-me-over,” or TMO, firms), these firms privately look for a potential buyer first and, if that fails, announce a willingness to be sold. Oler and Smith find TMO firms tend to exhibit financial weakness relative to industry- and size-matched peers. Note that target-initiated deals do not always result in TMO announcements.

⁴However, in a survey of studies of target performance prior to merger announcements, Agrawal and Jaffe (2003) report that many studies fail to find empirical support for the target underperformance hypothesis.

⁵Note that having a financial constraint is a distinctly different condition from having a financial or competitive weakness. While financially distressed targets are likely to face financial constraints, the reverse is not necessarily true. Financially constrained targets can be able to meet their financial

that European target firms, on average, are financially constrained before mergers and their financial constraints ease after they merge. Liao (2014) finds that financially constrained target firms are more likely to be targets of minority share acquisitions. Fee, Hadlock, and Thomas (2006) find that firms are more likely to hold minority stakes in their suppliers when suppliers are suffering from financial difficulties.⁶

The deal initiation decisions of merger partners can be related to the interaction of demand (i.e., bidder firms actively seeking acquisition targets) and supply conditions (i.e., target firms actively seeking potential buyers) in the M&A market. When an economic shock, such as deregulation, tax rate increases and reduced deductions, technological cascades, tariff reductions, or changes in key input prices, hits an industry, firms may find it optimal to reorganize to mitigate the shock's adverse effects (Mitchell and Mulherin (1996), Mulherin and Boone (2000), Andrade, Mitchell, and Stafford (2001), Andrade and Stafford (2004), and Harford (2005)). Smaller, weaker, and less efficient firms can find it optimal to sell their businesses to larger, financially stronger, and more efficient firms in the industry. The fact that target shareholders and managers expect to receive offer premia for their shares (Betton, Eckbo, and Thorburn (2008), Hartzell, Ofek, and Yermack (2004)), especially when industry prospects are unfavorable, serves as a lubricant for such mergers. Hence, economy-wide or industry-specific shocks can increase the supply of takeover targets resulting in a higher frequency of target-initiated deals.⁷

Our analysis of the deal initiation determinants leads to the following hypotheses:

Hypothesis 1. Target firms with financial and competitive weaknesses initiate M&A deals. Financially distressed firms initiate mergers with financially strong acquirers to avoid bankruptcy costs. Underperforming target firms initiate mergers to avoid continued subpar operating performance. Financially constrained target firms initiate deals with cash-rich bidders, who can help them finance their valuable investment projects.

Hypothesis 2. The frequency of target-initiated deals relative to bidder-initiated deals rises after negative industry-specific or economy-wide shocks as weaker firms seek to strengthen their competitive positions.

B. Drivers of Premia Paid to Target Firms

There are two opposing views regarding how bid premia are affected by the economic factors represented in the preceding hypotheses. The first view

obligations and, thus, face minimal bankruptcy risk, and yet they must forego profitable investment opportunities that exceed their ability to internally finance them.

⁶A related strand of literature investigates whether a major motivation behind conglomerate mergers is the transfer of resources within firms through internal capital markets (Weston (1970), Stein (1997), and Matsusaka and Nanda (2002)). Hubbard and Palia (1999) study the 1960s merger wave and find that bidders experienced higher announcement returns when financially unconstrained bidders acquired financially constrained targets. Masulis, Pham, and Zein (2011), (2014) argue that a major purpose of business groups is to allow transfers of capital from cash-rich to high-growth cash-poor affiliates.

⁷In the 2008 banking crises, Bear Stearns, Lehman Brothers, Merrill Lynch, and Countrywide Financial, who faced severe liquidity problems, actively searched for buyers (Davidoff (2009)).

predicts that target firms are willing to accept lower premia when they initiate deals, primarily because they wish to avoid the costs associated with financial distress, financial constraints, and economic disruptions due to industry-specific or economy-wide shocks. These costs, which are easily identified by bidders, lower a target firm's reservation price and diminish its bargaining power during merger negotiations. Due to the need for rapid action, target firms experiencing these conditions may fail to structure a competitive sale process. In addition, the market conditions in the target firm's industry may amount to a fire sale, which may suppress the industry peer's willingness to participate in the sale process (Shleifer and Vishny (1992), Pulvino (1998), Officer (2007), and Eckbo and Thorburn (2008)).

An alternative view emphasizes the costs associated with financial distress, financial constraints, and shocks that could be avoided by a target merging with a bidder having ample financial resources. That is to say, the magnitude of the wealth created by the merger, which is driven by the removal of these costs, is not bidder specific. The common value flavor of this setting implies a high level of competition for such target firms. Even though targets end up negotiating with a limited number of bidders due to time pressure, previous research indicates that the premia received by target firms are comparable to premia received in competitive auctions (Boone and Mulherin (2007b), Aktas et al. (2010)).

We treat the first view as our null hypothesis, so that rejection of the null hypothesis provides support for the alternative competitive corporate control market view.

Hypothesis 3. Target firms accept lower premia in target-initiated deals to avoid the costs of i) financial distress, ii) financial constraints, or iii) the adverse effects of industry-specific or economy-wide shocks.

C. Information Asymmetry between Merging Firms

Hypothesis 3 rests on the existence of information asymmetry between merger partners. As discussed in Genesove (1993), buyers are exposed to an adverse selection problem when i) sellers possess superior information about their goods relative to buyers and ii) buyers cannot fully protect themselves from the effects of information asymmetry by employing contracting technologies. These two conditions are likely to hold in takeover markets (Hansen (1987), Marquez and Yilmaz (2008), and Officer, Poulsen, and Stegemoller (2009)). As is commonly conjectured in the extant literature, target firm managers should generally possess superior information about their firms' market values, financial projections, and operational and financial risks, which a typical bidder's due diligence process is unlikely to fully uncover. Further, contract clauses used by merging firms, such as representations, guarantees, warranties, escrows, and earnouts, have limited scope and capacity to fully protect bidders from this adverse selection problem, especially if the litigation costs of enforcement are considered.

Akerlof (1970) argues that it is optimal for buyers to offer discounted prices to sellers when buyers are at an informational disadvantage. These discounted prices are unattractive to sellers of good-quality products causing them to withdraw from the market, while these prices are still attractive to sellers of lower-quality products. Thus, in takeover markets, the act of initiating a deal causes acquirers to update their beliefs negatively about a target's quality since

undervalued target firms rationally prefer to remain independent when their stock prices fail to reflect their true fundamental values, while “overvalued” target firms are readily put up for sale.⁸ In fact, this argument could be considered an extension of the well-known adverse selection effects of seasoned equity offers (Myers and Majluf (1984)).⁹

The frequencies of buyer- and seller-initiated trades, which are assumed to be driven by information events, are used in market microstructure models to explain stock market dynamics (Easley and O’Hara (1992), Easley, Kiefer, O’Hara, and Paperman (1996), and Easley, Kiefer, and O’Hara (1997)) and particularly to assess the impact of large block sales or trades on stock prices (Keim and Madhavan (1996), Madhavan and Cheng (1997), Gemmill (1996), Saar (2001), and Booth, Lin, Martikainen, and Tse (2002)). For example, Keim and Madhavan find the effects of seller- and buyer-initiated block trades on stock prices can range from -4.32% to 2.8% . In their theoretical model, when an informed trader holds private information about a stock’s value and then initiates a buy (sell) order, market participants can infer the sign of this private information. Thus, trade initiations release new information about a stock’s true value and permanently affect its market price.

The adverse selection problem created by information asymmetry between merging parties can vary in severity depending upon a target’s characteristics. For instance, information asymmetry between them is expected to be high when target firms are difficult to value (e.g., volatile stock prices, larger fraction of intangible assets, and higher analyst earnings forecast errors). In these cases, bidders are exposed to a greater adverse selection risk of acquiring a low-quality target firm, particularly when the target approaches the bidders to sell itself. However, bidders can accurately assess the qualities of easy-to-value target firms during negotiations and, as such, do not discount their prices simply because a target firm initiates the deal.

Hypothesis 4. Information asymmetry about targets leads bidders to offer lower purchase prices when targets initiate deals since high-quality or undervalued targets have incentives to avoid selling at such discounted prices. Greater information asymmetry amplifies this effect.

Bidding managers can possess private information regarding the economic gains from mergers, such as potential synergies, and the values of target firm assets under buyer manager control. Any positive private information held by bidders can lead them to initiate a takeover bid, which can strengthen a target’s negotiating position. Thus, the average bid premia in bidder-initiated deals is likely to be larger when a bidder is expected to have superior private information relative to when targets initiate deals. These two information asymmetry scenarios yield similar implications for the effect of deal initiation on bid premia. We test

⁸Kitching ((1973), p. 188) surveys acquirers about factors affecting post-merger performance and concludes, “If you buy a company because it approaches you, you are more likely to have a ‘lemon’ on your hands than a ‘superstar.’”

⁹Myers and Majluf ((1984), p. 219) take a more extreme view: “A firm that actively seeks to be bought out may end up a wallflower. The more actively management seeks to sell, the less an outsider will assume their firm is worth.”

Hypothesis 4 by selecting information asymmetry metrics likely to capture a target's information advantage over a bidder. These metrics are discussed in Section VI.¹⁰

III. Data

A. Sample Formation

We extract deals from the Securities Data Company (SDC) Platinum M&As database that meet the following sample criteria: i) "Deal value" exceeds \$5 million, ii) both acquirer and target are publicly listed and U.S. domiciled and are not in the financial services or utility industries, iii) the transaction's legal form is either a "merger" or "acquisition of majority interest," iv) the deal announcement occurs in the 1997–2012 period, and v) the deal status is "completed."¹¹

SDC M&A data are matched with the Center for Research in Security Prices (CRSP) and Compustat databases to yield a total sample of 1,639 deals. To obtain the identity of the initiation party, we search the EDGAR database for acquirer and target filings for each deal. When available, initiation data are extracted from the "Background of the Merger" or "Material Contacts and Board Deliberations" sections of the DEFM14A, PREM14A, 14D9, TO-T, and S-4 company filings. The background section summarizes past contact and negotiations between the acquirer and the target including who initiated the merger, how senior managers of the two firms first met, how negotiations unfolded, relevant board of directors' decisions, and the identity of investment banks, among other details.

While official U.S. Securities and Exchange Commission (SEC) documents do not reveal the main motivations of merging firms, the actions taken during the takeover process are accurately reported. The main information sources for the deal initiator are the reported actions taken by the two parties. If a target is interested in selling itself, then it considers "strategic alternatives" to operating as an independent firm and typically hires an investment bank to evaluate its options. In this case, target firm management, or their investment bankers, contact potential acquirers to solicit their interest. In this type of deal, target firms intend to sell themselves prior to any offer from a bidder. Thus, we designate these deals as

¹⁰In untabulated results, we also investigate target manager incentives to initiate deals with bidders. We find that target-initiated deals are more likely to occur when the target CEO's share of ownership is higher than the sample average, when targets are classified as family owned, and when targets have large blockholders. These additional factors do not change the significant negative effect of target initiation on bid premia. Nevertheless, our sample size shrinks significantly when we control for the target manager and corporate governance characteristics in the analysis.

¹¹Financial and utility firms are excluded since accounting statements of financial firms differ substantially from non-financials, and both financials and utilities are heavily regulated in the United States. The minimum deal size is set at \$5 million to expand the coverage of transactions to smaller deals where information asymmetry between merging firms is likely to be higher. The legal form of acquisition is restricted to the two major categories to ensure that the merger substantially changes the ownership of the merging firms. We also drop the deals where the acquirer holds more than 50% of the target's shares before the merger or less than 50% of the target firm's shares after the merger. We start our sample at the beginning of 1997 as public companies are required to submit their filings through EDGAR as of May 6, 1996. Finally, we limit our sample to public acquirers to investigate how acquirers fare in target- and bidder-initiated deals. We do not find an effect of deal initiation on acquirer CARs in univariate and multivariate analysis. As such, we leave these results untabulated.

target initiated. In a typical bidder-initiated deal, a target is not seeking to sell its business. A bidder or its investment banker approaches a target's top management to express an interest in exploring a "strategic combination" of the firms. Target management takes this offer to its board and then conveys its board's decision back to the bidder. In some cases, targets negotiate with the bidder and end up being bought, while in other cases, they contact potential "White Knights" or just say no and fight the takeover bid. Appendix A provides examples of bidder- and target-initiated deals.

When a target firm is eventually bought by the initial bidder, even when competing bidders participate in the process, we classify it as a bidder-initiated deal. Thus, the cases where a target firm puts itself up for sale primarily because it receives an unsolicited bid by a losing bidder are also classified as bidder initiated. These cases are distinct from target-initiated deals since the target managers do not exhibit any evidence of wanting to sell their firms prior to the unsolicited bid. Unsuccessful bids are also distinct from cases where an acquirer initiates a bid that eventually becomes successful. The hypotheses that we construct in this analysis rest on the observation that targets reveal valuable private information to potential bidders through their deal initiation decisions. Since targets involved in these bidder-initiated unsuccessful deals do not initially seek to sell themselves, but only act in reaction to "being put into play," categorizing these bids as bidder initiated enables us to more cleanly test our adverse selection hypothesis.¹²

Deal initiation information is not available for all of the deals in our sample. In 81 deals, the required SEC documents for merging firms could not be located, and in 290 cases, we are unable to discern which party initiated the deal, even with access to the merging firms' disclosure documents.¹³ As a result, a total of 371 deals (out of 1,639) in our sample lack clear initiation information, leaving us with 1,268 deals with a known deal initiator.

One complication is that deals can be initiated by parties other than the merging firms, such as investment banks or activist shareholders. In theory, third party-initiated deals may serve as an interesting sample to test the relevance of the adverse selection hypothesis. Unfortunately, practical implementation of these tests proves problematic. Investment banks are rarely mentioned as deal initiators in SEC documents. Although data availability is not a major issue for activist-driven deals, this sample is unlikely to provide clean results as shareholder activism occurs far in advance of a typical bid announcement, when it becomes publicly known through activist 13D filings, and often triggers significant market reactions. These price reactions strongly suggest changing market expectations about

¹²We also investigate the effect of unsuccessful bidder-initiated deals on our results. We find that 44% of bidder-initiated auction deals are initiated by unsuccessful bidders. The average bid premia for unsuccessful bidder-initiated auction deals are lower than the average bid premia in successful bidder-initiated auction deals, while they are higher than the average bid premia in target-initiated deals. The pairwise bid premia gaps between these three bid samples is only statistically significant for successful bidder-initiated deals compared to target-initiated deals and not for the bid premia gaps of the two intermediate pairs. When we exclude unsuccessful bidder-initiated deals from the sample, ordinary least squares (OLS) and Heckman regressions produce similar statistically significant results to those reported in subsequent sections.

¹³We also exclude merger-of-equals deals, as the classification of acquirer and target is less clear-cut.

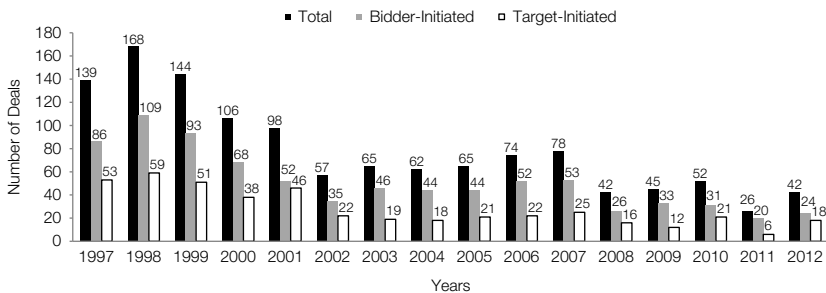
subsequent corporate events including a potential merger. Thus, the wealth effects of activist-initiated deals are unlikely to be adequately captured by conventional short-run event windows used to measure wealth effects in other types of bids.

B. Construction of Variables and Data Summary

We define a target-initiated indicator variable to take a value of 1 if the deal is target initiated and 0 if the deal is bidder initiated. A total of 35.4% of the identified deals are target initiated and the remaining 64.6% are bidder initiated. Annual numbers of bidder- and target-initiated deals based on initial announcement dates are displayed in Figure 1.

FIGURE 1
Deal Initiation over Time

Figure 1 illustrates the distribution of bidder- and target-initiated deals over time. We draw our sample from the SDC database using the following restrictions: deal value is greater than \$5 million, both acquirer and target are non-financial and non-utility public firms located in the United States, the form of the transaction is either merger or acquisition of majority interest, deal status is completed, and the deal announcement date falls between Jan. 1, 1997 and Dec. 31, 2012. This sample is then matched with the CRSP and Compustat databases. Deal initiation data come from the SEC filings of the merging firms.



We calculate abnormal returns to acquirer and target stocks around the offer announcement dates using a conventional 1-factor market model. We estimate market model parameters for trading days $(-316, -64)$ relative to Event Day 0, defined as the initial announcement date, and use these parameter estimates to calculate abnormal daily returns for the 5-day event window $(-2, +2)$. Of course, the market reaction on a merger announcement does not reflect the full rise in target shareholder wealth if the deal is partially anticipated by investors as some expected benefits are capitalized into the stock price earlier.

Deal anticipation could be more serious for target-initiated deals as targets initiating deals may publicize their intentions to be sold well before a formal deal is announced (e.g., retention of investment banks). To mitigate this concern, we follow Mulherin and Simsir (2015) and use the “Original Date Announced” (ODA) field in the SDC to capture market reactions to these earlier merger-related events. That is, we extend our event period to include the market reaction on the ODA whenever it precedes the merger announcement date. As an additional remedy, we use longer event windows for target CARs starting 63 trading days before the initial merger announcement dates (Schwert (1996), (2000)). We estimate the

bid premium as the offer price divided by the target stock price measured 63 days prior to the bid announcement, minus 1.¹⁴

Hypothesis 1 predicts that bid premia received by financially distressed targets are lower than those of financially healthy targets. Since capital markets can partially anticipate potential insolvency, expected bankruptcy costs should reduce target stock prices prior to merger announcements. As a result, this effect could lead to biased market-based premium estimates. We follow Officer (2007) and use the excess deal value to EBITDA multiple (DEAL_VALUE_TO_EBITDA) as our fourth takeover premium measure. This ratio is a standard measure used by M&A investment bankers and it has the advantage of not depending on the market's past or current assessment of a target's market value. We calculate DEAL_VALUE_TO_EBITDA multiple as the percentage difference between a deal's multiple and the mean multiple of a reference portfolio of industry- and size-matched deals occurring in the 18 months prior to the bid date. Measurement of this multiple, along with market-based premium measures, is explained in detail in Appendix B.¹⁵

Panel A of Table 1 reports the average announcement CARs of 26.4% and -1.9% for target and acquirer stocks, respectively, over the (-2, +2) bid event window. Target firms experience an average 36.6% abnormal stock return over the (-63, +2) event window. The average (median) bid premium for target firms in our sample is 53.8 (44.2%), while the excess DEAL_VALUE_TO_EBITDA multiple has a mean (median) value of 90.9% (-3.5%).¹⁶

The extant literature finds that many deal and firm characteristics have cross-sectional associations with merger partner announcement returns. This motivates our choice of controls in analyzing target announcement returns and their relationship to the deal-initiating party including method of payment (Travlos (1987), Chang (1998)), acquisition legal form (Jensen and Ruback (1983), Huang and Walkling (1987)), asset relatedness (Morck, Shleifer, and Vishny (1990)), toehold size (Betton and Eckbo (2000)), relative deal size (Asquith, Bruner, and Mullins (1983)), termination fees (Bates and Lemmon (2003), Officer (2003)), and merger partner characteristics such as Tobin's Q (Lang, Stulz, and Walkling (1991), Servaes (1991)), leverage (Maloney, McCormick, and Mitchell (1993)), cash flow (Lang, Stulz, and Walkling (1989)), cash holdings (Harford (1999)), and equity capitalization (Moeller, Schlingemann, and Stulz (2004)). Deal and merger partner characteristics are shown in Panels B–D of Table 1. Of our M&A sample, 22% are tender offers, 64.2% are within-industry deals, and 58.3% use an auction

¹⁴In untabulated results, we measure target abnormal returns over the alternative event windows (-1, +1) and (-5, +5). Results using event window (-1, +1) or (-5, +5) are very similar to CAR (-2, +2).

¹⁵Ang and Mauck (2011) analyze the relation of financial distress and market-based premia in crises and non-crises periods. Their investigation shows the market-based premia measures' sensitivity to the firm and market conditions.

¹⁶Consistent with Officer (2007), the distribution of deal value to EBITDA multiples is positively skewed. To limit the influence of outliers, we winsorize the multiples at the 2% and 98% levels.

TABLE 1
Data Summary

Table 1 summarizes the selected variables used in our analysis. We draw our sample from the SDC database using the following restrictions: deal value is greater than \$5 million, both acquirer and target are public companies located in the United States and they are not finance or utility firms, the form of the transaction is either merger or acquisition of majority interest, deal status is completed, and the deal announcement date falls between Jan. 1, 1997 and Dec. 31, 2012. This sample is then matched with the CRSP and Compustat databases. Deal initiation data come from the SEC filings of the merging firms. ACQUIRER_CAR(-2, +2) (TARGET_CAR(-2, +2)) is the abnormal returns to acquirer (target) firms over the (-2, +2) period. TARGET_CAR(-63, +2) is calculated similarly. The normal returns are calculated using the market model with an estimation window of (-316, -64). BID_PREMIUM is the offer price divided by the target stock price 63 trading days before the announcement of the merger, minus 1. The DEAL_VALUE_TO_EBITDA variable is the ratio of the deal value to the EBITDA value minus the average of the deal value to the EBITDA value of the group of benchmark deals, minus 1. The event study procedure and the construction of the BID_PREMIUM and the DEAL_VALUE_TO_EBITDA variables are explained in Appendix B. Due to space limitations, the definition and calculation of the deal and financial characteristics of the merging firms are explained in Appendix C.

Variables	N	Mean	Median	Std. Dev.	Min.	Max.
<i>Panel A. Return and Premium Variables</i>						
BID_PREMIUM	1,571	0.538	0.442	0.601	-0.610	3.429
TARGET_CAR(-2, +2)	1,636	0.264	0.219	0.269	-0.286	1.307
TARGET_CAR(-63, +2)	1,636	0.366	0.331	0.443	-0.831	1.868
DEAL_VALUE_TO_EBITDA	694	0.909	-0.035	3.003	-0.940	16.391
ACQUIRER_CAR(-2, +2)	1,637	-0.019	-0.012	0.102	-0.625	0.688
<i>Panel B. Deal Characteristics</i>						
PERCENT_CASH	1,588	0.447	0.321	0.451	0	1
TENDER	1,639	0.220	0	0.414	0	1
ASSET_RELATEDNESS	1,639	0.642	1	0.480	0	1
RELATIVE_SIZE	1,634	0.269	0.121	0.358	0	1.870
ACQUIRER_TERMINATION_FEE	1,639	0.006	0.000	0.017	0	0.209
TARGET_TERMINATION_FEE	1,639	0.052	0.046	0.049	0	0.635
TOEHOLD	1,639	0.007	0.000	0.048	0	0.483
AUCTION	1,268	0.583	1	0.493	0	1
<i>Panel C. Acquirer Characteristics</i>						
TOBINS_Q	1,626	2.632	1.953	2.100	0.640	13.253
BOOK_LEVERAGE	1,620	0.478	0.482	0.216	0.066	1.077
ROA	1,629	0.077	0.099	0.144	-0.568	0.340
SALES_GROWTH	1,617	0.301	0.115	0.699	-0.487	4.990
SIZE	1,629	11,732	2,000	24,249	18	130,730
<i>Panel D. Target Characteristics</i>						
TOBINS_Q	1,609	2.133	1.583	1.695	0.539	11.197
BOOK_LEVERAGE	1,607	0.460	0.429	0.263	0.058	1.457
ROA	1,617	-0.027	0.053	0.270	-1.405	0.289
SALES_GROWTH	1,604	0.276	0.091	0.749	-0.581	5.073
SIZE	1,617	1,286	214	3,759	10	28,355

sales method.¹⁷ Consistent with the prior research, targets are smaller, are less profitable, and have lower sales growth and Tobin's Q than acquirers.

To assess whether a target is experiencing financial distress, we analyze its Altman's (1968) Z -score, its interest coverage, its liquidity and leverage ratios, the S&P credit rating on its bonds, and its stock price 63 trading days prior to the merger announcement.¹⁸ We also analyze targets with current ratios below and leverage ratios above industry medians since these firms are more likely to face short-term liquidity problems and high long-term debt obligations (Pulvino (1998)).

¹⁷Auctions are more likely in target-initiated deals than in negotiated deals as 76% (48%) of the target-initiated (bidder-initiated) deals are auctions. These estimates are similar to those reported in Aktas et al. (2010).

¹⁸Garlappi and Yan (2011) find that firms with stock prices below \$5 have higher financial distress risk.

To identify underperforming targets, we estimate changes in their annual industry-adjusted return on assets (ROA), Tobin's Q , and sales growth rates for 1 and 3 calendar years prior to the merger announcement. We also calculate a target stock's buy-and-hold abnormal annual returns for 1 and 3 calendar years prior to the merger announcement.

We investigate whether target firms operate in highly competitive industries where operating inefficiencies could lead to weak or negative earnings. One well-known product market competition measure is the Herfindahl–Hirschman index (HHI) estimated by Hoberg and Phillips (2016) using a network-based industry classification. We create an indicator variable that is 1 if the HHI of the target industry is above the median industry HHI across all industries. Our second product competition measure is the percentage change in the target market share in the 1 and 3 years prior to the merger announcement. To measure product market share, we divide a firm's annual sales by the sum of the annual sales of the other Compustat firms in its industry.

Kaplan and Zingales (KZ) (1997) and Whited and Wu (WW) (2006) develop alternative measures of firm financial constraints based on linear combinations of financial ratios. These indices are higher for more financially constrained firms. In a recent study, Hadlock and Pierce (2010) evaluate the performances of these financial constraint measures and find that a simple (SA) index that uses firm size and age is superior to the KZ and WW indices. For comparison, we calculate all three measures and analyze their interactions with the deal initiation indicator.

We use several industry-level variables to capture industry shocks. Harford (2005) finds that industry-specific shocks result in significant changes in industry-level net income/sales, asset turnover, ROA ratios, R&D expenses and capital expenditures, and employee and sales growth rates. Following Harford (2005), we create an industry shock index based on the first principal component of these seven variables. To capture the time-series dynamics in these seven variables, we create a set of indicator variables that take a value of 1 if the change in the respective variable is above the 75th percentile of its industry distribution across the full 1986–2012 sample period. Since industry-specific shocks can trigger mergers, we control for target industry M&A activity in the bid year (Schlingemann, Stulz, and Walkling (2002)).

Finally, we measure economy-wide shocks using indicator variables for the 2001 and 2008 economic recessions from the National Bureau of Economic Research (NBER). Since mergers are planned and negotiated several months ahead of their public announcements, the effects of economic recessions on M&A bids could begin several months before the start of a recession and their effects could continue for several months after the end of the recession. To take this into account, we extend the formal NBER recession periods by 6 months both before and after the recession period. Thus, our 2001 and 2008 economic recession indicators take a value of 1 for deals announced from Sept. 2000 to May 2002 and June 2007 to Dec. 2009, respectively. In Appendix C, we explain in detail the construction of all of the variables in this section.

C. Takeover Premia and Deal Initiation Parties: Univariate Tests

As shown in Table 2, bidder- and target-initiated deals differ significantly in terms of target CARs, bid premia, and DEAL_VALUE_TO_EBITDA multiples, indicating that target firm returns are significantly higher if deals are bidder initiated. In particular, Panel A indicates that the BID_PREMIUM averages 48.7% in target-initiated deals and 58.5% in bidder-initiated deals.¹⁹ The mean difference in bid premia of 9.8% is statistically significant at the 1% level.

Panels B and C of Table 2 report the averages for our bid announcement return measures, TARGET_CAR(-2, +2) and TARGET_CAR(-63, +2).

TABLE 2
Deal Initiation and the Wealth Effects of Mergers on Target Shareholders

Table 2 compares the CARs and bid premia received by target firms in bidder- and target-initiated deals. We draw our sample from the SDC database using the following restrictions: deal value is greater than \$5 million, both acquirer and target are public companies located in the United States and they are not finance or utility firms, the form of the transaction is either merger or acquisition of majority interest, deal status is completed, and the deal announcement date falls between Jan. 1, 1997 and Dec. 31, 2012. This sample is then matched with the CRSP and Compustat databases. Deal initiation data come from the SEC filings of the merging firms. TARGET_CAR(-2, +2) is the abnormal returns to the target firms over the (-2, +2) period. TARGET_CAR(-63, +2) accumulates abnormal returns over the (-63, +2) period. The normal (expected) returns are calculated using the market model with an estimation window of (-316, -64). BID_PREMIUM is the offer price divided by the target stock price 63 trading days before the announcement of the merger, minus 1. The DEAL_VALUE_TO_EBITDA variable is the ratio of the deal value to the EBITDA value minus the average of the deal value to the EBITDA value of the group of benchmark deals, minus 1. The event study procedure and the construction of the BID_PREMIUM and DEAL_VALUE_TO_EBITDA variables are explained in Appendix B. ALL_EQUITY consists of deals in which 100% of the total payment is paid with equity. ALL_CASH consists of deals in which 100% of the total payment is paid with cash. TENDER consists of only tender-offer deals, and all other offers are classified as MERGER. *p*-values are estimated using cross-sectional variations only. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Variables	TARGET_INITIATED (T)			BIDDER_INITIATED (B)			Difference (T - B)			
	<i>N</i>	Mean	Median	<i>N</i>	Mean	Median	Mean	<i>p</i> -Value	Median	<i>p</i> -Value
<i>Panel A. BID_PREMIUM</i>										
ENTIRE_SAMPLE	424	0.487	0.388	796	0.585	0.491	-0.098***	0.005	-0.103***	0.000
ALL_EQUITY	136	0.457	0.328	227	0.608	0.510	-0.150**	0.042	-0.182***	0.002
ALL_CASH	139	0.508	0.422	293	0.597	0.487	-0.089*	0.087	-0.065**	0.032
TENDER	84	0.588	0.438	216	0.626	0.537	-0.038	0.605	-0.098	0.168
MERGER	340	0.462	0.378	580	0.570	0.473	-0.108***	0.008	-0.094***	0.000
<i>Panel B. TARGET_CAR(-2, +2)</i>										
ENTIRE_SAMPLE	448	0.227	0.179	818	0.300	0.247	-0.073***	0.000	-0.068***	0.000
ALL_EQUITY	145	0.161	0.113	233	0.241	0.200	-0.081***	0.003	-0.087***	0.001
ALL	145	0.310	0.276	297	0.363	0.320	-0.053*	0.058	-0.043**	0.045
TENDER	85	0.376	0.321	216	0.383	0.333	-0.007	0.852	-0.012	0.782
MERGER	363	0.192	0.156	602	0.270	0.227	-0.078***	0.000	-0.072***	0.000
<i>Panel C. TARGET_CAR(-63, +2)</i>										
ENTIRE_SAMPLE	448	0.335	0.284	818	0.409	0.366	-0.074***	0.004	-0.081***	0.001
ALL_EQUITY	145	0.262	0.174	233	0.375	0.309	-0.113**	0.022	-0.135***	0.005
ALL_CASH	145	0.407	0.358	297	0.484	0.426	-0.077*	0.070	-0.068*	0.096
TENDER	85	0.526	0.493	216	0.507	0.446	0.019	0.733	0.047	0.947
MERGER	363	0.290	0.250	602	0.374	0.334	-0.084***	0.003	-0.083***	0.001
<i>Panel D. DEAL_VALUE_TO_EBITDA</i>										
ENTIRE_SAMPLE	181	0.438	-0.166	363	1.022	0.062	-0.583**	0.026	-0.222***	0.003
ALL_EQUITY	54	0.489	-0.072	99	0.818	-0.130	-0.329	0.459	-0.058	0.559
ALL_CASH	58	0.866	-0.085	140	1.254	0.147	-0.387	0.446	-0.232	0.222
TENDER	29	0.703	-0.263	107	0.578	0.058	0.124	0.795	-0.321	0.359
MERGER	152	0.388	-0.125	256	1.207	0.074	-0.819***	0.009	-0.199***	0.005

¹⁹In contrast, Betton et al. ((2008), Table 5) report mean and median bid premia estimates of 48% and 39%, respectively. Their premia are based on pre-bid target stock prices on trading day -42 instead of -63, and our initial bid date is based on SDC's "Original Date Announced" field as opposed to the "Date Announced" field.

The first row of Panel B reveals that the target average announcement return, $TARGET_CAR(-2, +2)$, is 22.7% in target-initiated deals and 30% in bidder-initiated deals. Similarly, the longer window average target announcement return, $TARGET_CAR(-63, +2)$, is 33.5% in target-initiated deals and 40.9% in bidder-initiated deals. The difference in mean returns is statistically significant at the 1% level for both CAR measures.

Differences in mean premia across initiating parties remain significant after we also categorize deals by payment method and acquisition legal form. There is one exception. The difference in mean premia for tender offers is no longer statistically significant, which may reflect the smaller sample of tender offers compared to other deal types.

Offenberg and Pirinsky (2015) argue that high levels of bidder-specific synergies can lead bidders to initiate deals with targets using cash tender offers to reduce the likelihood of competing bids. This behavior yields a negative relationship between target-initiation and tender-offer indicators. To control for a possible confounding tender-offer effect on bid premia, we include a tender-offer indicator in our subsequent regressions, along with a target-initiated indicator. As we demonstrate in the next section, a statistically significant negative effect of target initiation on bid premia continues to hold after controlling for tender offers.

Finally, we compare the two initiating party samples by $DEAL_VALUE_TO_EBITDA$ ratios. Row 1 of Panel D of Table 2 reveals that the average $DEAL_VALUE_TO_EBITDA$ ratio is 43.8% in target-initiated deals and 102% in bidder-initiated deals. The 58.3-percentage-point difference is significant at the 5% level. Median values of the $DEAL_VALUE_TO_EBITDA$ multiples are -16.6% and 6.2% for target- and bidder-initiated deals, respectively, and the difference between the two numbers is again significant but is considerably lower than their mean values, indicating the influence of large outliers in the distribution.

IV. Determinants of Deal Initiation Party

A. Univariate Analysis

In Panel A of Table 3, we compare measures of target financial distress across the two initiation samples and find significant differences. In target-initiated deals, targets have lower Altman's Z-scores, interest coverage ratios, and S&P long-term credit ratings than in bidder-initiated deals. The percentage of targets with stock prices below \$5 (63 trading days before the bid announcement) is significantly higher in target-initiated deals as well.

Panel B of Table 3 summarizes our operating and stock performance measures in the pre-merger period for the two deal initiation samples. We see that targets in target-initiated deals appear to underperform their benchmarks in the stock market. The average target buy-and-hold abnormal return in the 3 years prior to the merger announcement (adjusted for the control portfolio buy-and-hold return) is 12.6% for target-initiated deals and 29% for bidder-initiated deals. The difference in means between bidder- and target-initiated samples is statistically significant at the 5% level. One year target buy-and-hold abnormal returns are also significantly lower for target-initiated deals relative to bidder-initiated deals. Except for industry-adjusted ROA, inferior target stock performance in target-initiated

TABLE 3
Target Financial and Competitive Weakness, Financial Constraints, and Industry and Economic Shocks by Deal Initiation Party

Table 3 summarizes the relation between target financial and competitive weakness, financial constraints, and industry-specific and economy-wide shock measures with respect to the deal initiation groups. We draw our sample from the SDC database using the following restrictions: deal value is greater than \$5 million, both acquirer and target are public companies located in the United States and they are not finance or utility firms, form of the transaction is either merger or acquisition of majority interest, the deal status is completed, and the deal announcement date falls between Jan. 1, 1997 and Dec. 31, 2012. This sample is then matched with the CRSP and Compustat databases. Deal initiation data come from the SEC filings of the merging firms. The definitions of financial distress, operating and stock performance, financial constraints, and shock variables are explained in Appendix C. The p -values of the two sample mean comparison tests and the Wilcoxon rank sum tests are reported in the respective parts of the table. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	TARGET_INITIATED (T)			BIDDER_INITIATED (B)			Difference (T – B)			
	N	Mean	Median	N	Mean	Median	Mean	p -Value	Median	p -Value
<i>Panel A. Target Financial Distress Measures</i>										
ALTMANS_Z_SCORE	439	3.618	2.812	790	4.838	3.216	-1.220**	0.011	-0.404***	0.004
INTEREST_COVERAGE_RATIO	358	-24.464	2.261	631	1.763	3.641	-26.22**	0.014	-1.380***	0.001
LIQUIDITY	443	0.545	0.572	803	0.563	0.580	-0.018	0.226	-0.007	0.287
BOOK_LEVERAGE	447	0.479	0.431	802	0.461	0.440	0.018	0.250	-0.010	0.838
S&P long-term credit rating	84	12.44	13.00	176	11.40	12.00	1.043**	0.013	1.000***	0.006
Current ratio below industry median and book leverage above industry median	450	0.291	0	818	0.253	0	0.038	0.143		
Stock price on day –63 less than \$5	450	0.331	0	818	0.233	0	0.098***	0.000		
<i>Panel B. Target Operating and Stock Performance Measures</i>										
<i>Over the Past 3 Years</i>										
CHANGE_IN_ROA	434	-0.246	-0.013	778	-0.086	0.040	-0.161***	0.000	-0.053***	0.003
CHANGE_IN_TOBINS_Q	376	1.227	0.258	684	1.373	0.136	-0.146	0.576	0.122	0.564
SALES_GROWTH	385	1.147	0.043	718	1.293	0.065	-0.146	0.641	-0.022	0.501
MARKET_SHARE_GROWTH	385	1.108	0.153	718	1.253	0.153	-0.145	0.604	0.000	0.417
BHAR	336	0.126	-0.042	646	0.290	0.043	-0.164**	0.037	-0.086**	0.025
<i>Over the Past 1 Year</i>										
CHANGE_IN_ROA	447	-0.090	0.001	809	-0.027	0.018	-0.063***	0.000	-0.016**	0.014
CHANGE_IN_TOBINS_Q	445	0.285	-0.038	804	0.381	-0.022	-0.096	0.268	-0.016	0.568
SALES_GROWTH	443	0.162	-0.001	803	0.162	0.004	-0.001	0.985	-0.005	0.285
MARKET_SHARE_GROWTH	443	0.203	0.047	803	0.206	0.049	-0.003	0.949	-0.002	0.299
BHAR	417	-0.013	-0.039	741	0.054	-0.014	-0.067**	0.028	-0.026**	0.038
<i>Panel C. Target Financial Constraints and Deal Initiation</i>										
SA_INDEX	447	-2.875	-2.935	809	-2.991	-3.046	0.116***	0.000	0.112***	0.000
WW_INDEX	443	-0.245	-0.239	789	-0.267	-0.260	0.022***	0.000	0.021***	0.000
KZ_INDEX	424	-8.345	-1.040	749	-7.608	-1.205	-0.737	0.642	0.165	0.384
<i>Panel D. Industry and Economic Shocks and Deal Initiation</i>										
INDUSTRY_SHOCK_INDEX	450	-0.001	0.027	818	0.004	0.029	-0.005	0.813	-0.002	0.544
M&A activity (value)	450	0.101	0.073	818	0.102	0.072	0.000	0.937	0.002	0.742
M&A activity (number)	450	0.474	0.403	818	0.457	0.399	0.017	0.222	0.004	0.379
2001_ECONOMIC_RECESSION	450	0.162	0	818	0.110	0	0.052***	0.008		
2008_ECONOMIC_RECESSION	450	0.096	0	818	0.105	0	-0.010	0.590		
<i>Time-Series Shock Indicators</i>										
Net income/Sales shock	450	0.318	0	818	0.333	0	-0.015	0.593		
Asset turnover shock	450	0.382	0	818	0.344	0	0.039	0.169		
R&D shock	450	0.313	0	818	0.296	0	0.017	0.517		
Capital expenditure shock	450	0.291	0	818	0.253	0	0.038	0.143		
ROA shock	450	0.318	0	818	0.284	0	0.034	0.203		
Employee growth shock	450	0.409	0	818	0.373	0	0.036	0.208		
Sales growth shock	450	0.369	0	818	0.358	0	0.011	0.705		

deals does not carry over to the operating performance measures we examine; the average 1- and 3-year changes in industry-adjusted Tobin's Q , sales, and market share growth rates are statistically not different from each other in the two deal initiation groups.

Panel C of Table 3 presents means and medians for our three financial constraint measures, namely, the SA, KZ, and WW indices for the two deal initiation samples. The SA index has a mean (median) of -2.87 (-2.93) for target-initiated

deals and -2.99 (-3.04) for bidder-initiated deals. Mean and median differences are 0.12 and 0.11, respectively, which are statistically significant at the 1% level. The results are similar using the WW index. However, the KZ index produces just the opposite findings.²⁰ Using the SA and WW indices, we conclude that the typical target firm in the target-initiated sample is more financially constrained than that in the bidder-initiated sample.

Finally, in Panel D of Table 3, we analyze how proxies for industry-specific and economy-wide shocks affect firms in the two deal initiation samples. The industry shock index, the time-series indicators for industry shock indices (Harford (2005)), and the two industry M&A activity measures are not statistically different from each other. However, in the 2001 economic recession, a significant difference is observed, where 11% of bidder-initiated deals are announced, while a larger 16.2% of target-initiated deals are announced.

B. Probit Regressions

To address potential selection issues regarding deal-initiating party choice, we estimate a probit regression model for target-initiated deals. Control variables are grouped into five categories: target financial distress measures (ALTMANS_Z_SCORE, LIQUIDITY), target performance measures (CHANGE_IN_ROA_OVER_PAST_3_YEARS, BHAR_OVER_PAST_1_YEAR), target industry competition (HIGH_HHI indicator), target financial constraint measures (SA_INDEX), and economic shock measures (INDUSTRY_SHOCK_INDEX, 2001_ and 2008_ECONOMIC_RECESSION indicators).

The probit regressions also include a control for PRIOR_INDUSTRY_TARGET_INITIATED_DEAL_& AUCTION_ACTIVITY to capture the added incentives for target firms to initiate deals so as to choose a friendly acquirer. This variable is measured by the total number of target-initiated or auction deals in a target's industry (defined by 2-digit Standard Industrial Classification (SIC) codes) divided by the total number of completed mergers in the industry in the 2 years prior to the initial merger announcement date (ODA field in the SDC M&A database). Aktas et al. (2010) use a target's institutional ownership measures and Tobin's Q to predict target-initiated deals. They find that a target's institutional ownership (percentage of shares owned) and institutional shareholder concentration (HHI of institutional shareholdings) have significant predictive power for target-initiated deals. Thus, we include these variables in our set of controls. The final set of control variables includes industry fixed effects. Since economic recession indicators are highly correlated with specific year fixed effects, we exclude year fixed effects from these regressions.

The results of our selection regressions are summarized in Table 4. Regressions in Columns 1 and 2 are identical, except column 1 excludes the target's two institutional ownership variables and Tobin's Q . Interestingly, neither institutional ownership variable is significant. One concern with this specification is that the target Tobin's Q values are correlated with Altman's Z -scores (correlation

²⁰As discussed by Hadlock and Pierce (2010), correlations between the SA and WW indices are quite high (the correlation in our sample is 0.78, which is close to Hadlock and Pierce's estimate of 0.8), but the correlation of the SA and the KZ indices is negligible (our sample produces a correlation coefficient of -0.11).

TABLE 4
Predicting Target-Initiated Deals

Table 4 presents the results of the probit regressions. The dependent variable is target initiated, which takes a value of 1 if the deal is classified as target initiated, and 0 if bidder initiated. We draw our sample from the SDC database using the following restrictions: deal value is greater than \$5 million, both acquirer and target are public companies located in the United States and they are not finance or utility firms, the form of transaction is either merger or acquisition of majority interest, deal status is completed, and the deal announcement date falls between Jan. 1, 1997 and Dec. 31, 2012. This sample is then matched with the CRSP and Compustat databases. Deal initiation data come from the SEC filings of the merging firms. Due to space limitations, the construction of the control variables is explained in Appendix C. z-values are in parentheses, below the reported coefficients. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. All regressions include industry dummies (coefficients not reported).

Variables	TARGET_INITIATED	
	1	2
ALTMANS_Z_SCORE	-0.0006 (-0.118)	0.0013 (0.192)
LIQUIDITY	-0.472** (-2.167)	-0.458** (-2.068)
CHANGE_IN_ROA_OVER_PAST_3_YEARS	-0.131* (-1.847)	-0.150** (-2.009)
BHAR_OVER_PAST_1_YEAR	-0.132 (-1.620)	-0.132 (-1.559)
HIGH_HHI	0.162** (1.964)	0.176** (2.095)
SA_INDEX	0.329*** (3.276)	0.303** (2.013)
INDUSTRY_SHOCK_INDEX	0.052 (0.491)	0.044 (0.404)
2001_ECONOMIC_RECESSION	0.253** (2.170)	0.246** (2.076)
2008_ECONOMIC_RECESSION	-0.104 (-0.667)	-0.095 (-0.604)
PRIOR_INDUSTRY_TARGET_INITIATED_DEAL_& AUCTION_ACTIVITY	0.652** (1.991)	0.665** (2.020)
INSTITUTIONAL_SHAREHOLDING_CONCENTRATION		0.061 (0.209)
INSTITUTIONAL_OWNERSHIP		-0.002 (-0.011)
TOBINS_Q		-0.0137 (-0.398)
Constant	0.645* (1.720)	0.601 (1.146)
No. of obs.	1,067	1,049
LR χ^2 statistic	44.86	45.48
Prob > LR χ^2	0.0001	0.0005
Industry dummies (1-digit SIC)	Yes	Yes

of 0.59), which may raise multicollinearity concerns. Thus, we estimate probit regressions with and without these variables to assess their impact on our results.

The significant variables in column 1 of Table 4 are LIQUIDITY, CHANGE_IN_ROA_OVER_PAST_3_YEARS, the HIGH_HHI indicator, the SA_INDEX, PRIOR_INDUSTRY_TARGET_INITIATED_DEAL_& AUCTION_ACTIVITY, and the 2001_ECONOMIC_RECESSION indicator. Holding all of the other variables at their means, a 1-standard-deviation increase in the financial constraint measure, the SA_INDEX (a 0.49 increase), raises the probability of a target-initiated deal by 6%. For other variables, the marginal effects are a 6.1-percentage-point increase for the HIGH_HHI indicator (for an incremental change from 0 to 1) and a 3.1-percentage-point decrease for the CHANGE_IN_ROA_OVER_PAST_3_YEARS variable (for a 1-standard-deviation

increase). The deals announced during the 2001 economic recession are 10 percentage points more likely to be target-initiated deals than those at other times. However, the 2008 economic recession indicator is not a significant predictor of deal initiation. As such, the two economic recessions have quite different impacts on takeover market dynamics.²¹ These results are consistent with our first two hypotheses. Target financial and competitive weakness (Hypothesis 1) and negative industry-specific and economy-wide shocks (Hypothesis 2) increase the likelihood of a target-initiated deal.

Column 2 includes three additional controls, but they all are insignificant. In contrast, Aktas et al. (2010) report significant negative coefficients for a target's institutional ownership and Tobin's Q and a significantly positive coefficient for the institutional shareholding concentration. However, estimating a regression model analogous to Aktas et al., we are unable to replicate their results. This disparity could be due to the different sample selection criteria in their study (e.g., they require deal value to exceed \$100 million).²²

V. Determinants of Premia Paid to Target Firms

In Section III.C, we find that the deal-initiating party has a significant association with the bid premia. We now re-visit the effects of deal initiation choice on bid premia, target CARs, and DEAL_VALUE_TO_EBITDA multiples in a multivariate framework, where we include variables to test Hypothesis 3. Control variables are grouped into seven categories: deal characteristics (PERCENT_CASH, TENDER, ASSET_RELATEDNESS, ACQUIRER_TERMINATION_FEE, TARGET_TERMINATION_FEE, TOE_HOLD, and RELATIVE_SIZE), acquirer characteristics (ROA, TOBINS_Q), target performance measures (CHANGE_IN_ROA_OVER_PAST_3_YEARS, BHAR_OVER_PAST_1_YEAR), target financial distress measures (ALTMANS_Z_SCORE, LIQUIDITY), target industry competitiveness (HIGH_HHI indicator), a target financial constraint measure (SA_INDEX), and a target industry-specific shock measure (INDUSTRY_SHOCK_INDEX). Year and industry fixed effects are also included as controls.²³

²¹This may be due to their different economic magnitudes or particular industries, which are more adversely affected by the downturn, and M&A activity tends to be concentrated in a small number of changing industries.

²²Finally, we investigate whether target financial weakness and financial constraints (Hypothesis 1) are more relevant during industry-specific or economy-wide shock periods (Hypothesis 2). For instance, financially distressed target firms may be particularly vulnerable to shocks and have greater incentives to contact potential acquirers in these periods. To test the significance of this effect, we interact several of the target financial weakness and financial constraint measures with economic shock measures and include them as control variables in our probit regressions. Consistent with this conjecture, the results indicate that underperforming targets (measured by CHANGE_IN_ROA_OVER_PAST_3_YEARS) and financially constrained targets (measured by the SA_INDEX) initiate deals more often during the 2001 economic recession. A similar effect is present when the INDUSTRY_SHOCK_INDEX variable is interacted with a target's ALTMANS_Z_SCORE and BHAR_OVER_PAST_1_YEAR. Due to space constraints, these results are provided in Table A-1 of the Supplementary Material.

²³We exclude target size since it is highly correlated with the SA index. We also exclude the auction deal indicator, although the results are very similar with its inclusion.

Table 5 presents regression estimates of bid premia, deal announcement CARs, and excess deal multiples. The dependent variables in columns 1–4 are `BID_PREMIUM`, `TARGET_CAR(-2, +2)`, `TARGET_CAR(-63, +2)`, and a `DEAL_VALUE_TO_EBITDA` multiple, respectively. Regression estimates indicate that the deal initiation party significantly affects offer premia and this result holds across different bid premium measures. In column 1, `BID_PREMIUM` is significantly reduced economically for `TARGET_INITIATED` deals. The -0.126 coefficient estimate indicates that targets, on average, receive 12.6 percentage points lower premia when they initiate deals. `TARGET_INITIATED` coefficients in columns 2 and 3 are also economically and statistically significant. In column 4, we find that `DEAL_VALUE_TO_EBITDA` multiples are 48.5 percentage points lower in target-initiated deals, although statistical significance of the coefficient estimate is marginal.^{24,25}

All four regressions in Table 5 include variables capturing the two types of economic factors posited by Hypotheses 1 and 2 to motivate targets to initiate deals. Since the `TARGET_INITIATED` indicator is statistically significant and economically large, even after controlling for all of these economic motives, we conclude that these economic factors have a limited capacity to explain the lower premia in target-initiated deals. If the reverse were true (as in a typical omitted variable bias case), then including these control variables should lower the `TARGET_INITIATED` deal coefficient in the offer premium regressions. Thus, Table 5 fails to support Hypothesis 3.

However, a weaker form of Hypothesis 3 could still hold. Although these three economic factors that motivate target deal initiation cannot fully explain takeover premia, they could mitigate or exacerbate the premia received in target-initiated deals. For instance, the premium gap between target- and bidder-initiated deals may be much larger for financially distressed vs. financially healthy target firms. To examine if the effect of the `TARGET_INITIATED` indicator on the takeover premia depends upon these three economic factors or other deal initiation factors, we interact the `TARGET_INITIATED` indicator with each of these factors separately and re-estimate the same regressions shown in Table 5 with each interaction term included as an extra control.

Table 6 reports these regression results. In Panel A, we interact the `TARGET_INITIATED` indicator with the target's `ALTMANS_Z_SCORE`. The control variables, also used in Table 5, are suppressed to conserve space. In this model, we expect a positive interaction term, which indicates that the negative marginal effect of target initiation rises as a target's Altman Z-score falls (since scores rise with a firm's financial health). Thus, a positive interaction term indicates that the premium gap between target- and bidder-initiated deals is lower for financially healthy targets. However, as the estimates indicate, the interaction

²⁴We replicate these regressions after excluding all of the control variables capturing target financial and competitive weakness, target financial constraints, and industry-specific shocks (Table A-2 in the Supplementary Material). As the first row of Table A-2 indicates, the `TARGET_INITIATED` indicator yields very similar results to the estimates reported in Table 5.

²⁵In untabulated analysis, we find that the results shown in Table 5 continue to hold with alternative measures of target financial distress, operating and stock performance, financial constraints, and industry shocks.

TABLE 5
Multivariate Analysis of Target Premia

Table 5 presents the results of the OLS regressions. The dependent variables are BID_PREMIUM (column 1), TARGET_CAR(-2, +2) (column 2), TARGET_CAR(-63, +2) (column 3), and DEAL_VALUE_TO_EBITDA (column 4). We draw our sample from the SDC database using the following restrictions: deal value is greater than \$5 million, both acquirer and target are public companies located in the United States and they are not finance or utility firms, the form of transaction is either merger or acquisition of majority interest, deal status is completed, and the deal announcement date falls between Jan. 1, 1997 and Dec. 31, 2012. This sample is then matched with the CRSP and Compustat databases. Deal initiation data come from the SEC filings of the merging firms. TARGET_CAR(-2, +2) is the abnormal returns to the target firms over the (-2, +2) period. TARGET_CAR(-63, +2) accumulates abnormal returns over the (-63, +2) period. The normal (expected) returns are calculated using the market model with an estimation window of (-316, -64). BID_PREMIUM is the offer price divided by the target stock price 63 trading days before the announcement of the merger, minus 1. The DEAL_VALUE_TO_EBITDA variable is the ratio of the deal value to the EBITDA value minus the average of the deal value to the EBITDA value of the group of benchmark deals. The event study procedure and the construction of the BID_PREMIUM and DEAL_VALUE_TO_EBITDA variables are explained in Appendix B. TARGET_INITIATED is 1 if the deal is classified as target initiated, and 0 if bidder initiated. Due to space limitations, the construction of the control variables are explained in Appendix C. *t*-values are in parentheses, below the reported coefficients. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Regressions include year and industry dummies (coefficients not reported).

Variables	BID_PREMIUM 1	TARGET_CAR (-2, +2) 2	TARGET_CAR (-63, +2) 3	DEAL_VALUE_ TO_EBITDA 4
TARGET_INITIATED	-0.126*** (-3.415)	-0.074*** (-4.399)	-0.109*** (-4.449)	-0.485 (-1.621)
PERCENT_CASH	-0.019 (-0.224)	0.052** (2.060)	0.047 (1.260)	1.088** (2.145)
TENDER	0.024 (0.506)	0.073*** (2.991)	0.052 (1.591)	-0.814* (-1.909)
ASSET_RELATEDNESS	0.040 (1.114)	0.005 (0.314)	0.003 (0.118)	0.230 (0.934)
ACQUIRER_TERMINATION_FEE	1.512 (1.322)	-0.489 (-1.138)	0.645 (0.911)	-6.015 (-0.634)
TARGET_TERMINATION_FEE	3.503*** (4.793)	0.254 (1.587)	1.707*** (4.868)	5.774 (1.101)
TOEHOLD	0.727 (1.073)	-0.286 (-1.196)	0.219 (0.648)	2.409 (0.606)
ln(RELATIVE_SIZE)	-0.056*** (-4.951)	-0.028*** (-4.743)	-0.061*** (-7.881)	-0.0267 (-0.251)
ACQUIRER_TOBINS_Q	-0.003 (-0.303)	0.0008 (0.199)	-0.012* (-1.770)	0.179 (1.626)
ACQUIRER_ROA	-0.145 (-0.818)	0.046 (0.613)	-0.012 (-0.109)	-4.452** (-2.257)
ALTMANS_Z_SCORE	-0.004* (-1.791)	-0.0034*** (-3.825)	-0.005*** (-3.321)	0.0715*** (2.824)
LIQUIDITY	0.061 (0.573)	0.029 (0.611)	0.041 (0.614)	1.314 (1.576)
CHANGE_IN_ROA_OVER_PAST_1_YEAR	0.051 (1.276)	0.019 (1.130)	0.038 (1.405)	-1.051* (-1.955)
BHAR_OVER_PAST_1_YEAR	-0.089** (-2.125)	-0.069*** (-4.999)	-0.280*** (-10.64)	0.116 (0.325)
HIGH_HHI	0.015 (0.423)	0.001 (0.062)	-0.014 (-0.585)	-0.356 (-1.272)
SA_INDEX	0.066 (1.160)	0.035 (1.390)	0.045 (1.257)	-0.097 (-0.219)
INDUSTRY_SHOCK_INDEX	-0.083 (-1.160)	-0.020 (-0.881)	-0.074* (-1.788)	-0.338 (-0.575)
Constant	0.353 (1.624)	0.173* (1.897)	0.225 (1.625)	-1.013 (-0.569)
No. of obs.	1,005	1,037	1,037	453
Adj. <i>R</i> ²	0.187	0.183	0.300	0.136
Industry dummies (1-digit SIC)	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes

TABLE 6
Multivariate Analysis of Target Premia with Interaction Variables

Table 6 presents results of the OLS regressions with interaction variables. The dependent variables are BID_PREMIUM (column 1), TARGET_CAR(-2, +2) (column 2), TARGET_CAR(-63, +2) (column 3), and DEAL_VALUE_TO_EBITDA (column 4). We draw our sample from the SDC database using the following restrictions: deal value is greater than \$5 million, both acquirer and target are public companies located in the United States and they are not finance or utility firms, the form of transaction is either merger or acquisition of majority interest, deal status is completed, and the deal announcement date falls between Jan. 1, 1997 and Dec. 31, 2012. This sample is then matched with the CRSP and Compustat databases. Deal initiation data come from the SEC filings of the merging firms. TARGET_CAR(-2, +2) is the abnormal returns to the target firms over the (-2, +2) period. TARGET_CAR(-63, +2) accumulates abnormal returns over the (-63, +2) period. The normal (expected) returns are calculated using the market model with an estimation window of (-316, -64). BID_PREMIUM is the offer price divided by the target stock price 63 trading days before the announcement of the merger, minus 1. The DEAL_VALUE_TO_EBITDA variable is the ratio of the deal value to the EBITDA value minus the average of the deal value to the EBITDA value of the group of benchmark deals. The event study procedure and the construction of the BID_PREMIUM and DEAL_VALUE_TO_EBITDA variables are explained in Appendix B. TARGET_INITIATED is 1 if the deal is classified as target initiated, and 0 if bidder initiated. Regressions contain the control variables that are shown in Table 5, though their coefficients are not reported due to space limitations. The construction of the interacting variables is explained in Appendix C. *t*-values are in parentheses, below the reported coefficients. *F*-tests determine whether the coefficients of the TARGET_INITIATED indicator and the interaction term are jointly equal to 0. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	BID_PREMIUM	TARGET_CAR (-2, +2)	TARGET_CAR (-63, +2)	DEAL_VALUE_ TO_EBITDA
<i>Regression 1. Financial Distress Measure: ALTMANS_Z_SCORE</i>				
TARGET_INITIATED	-0.104** (-2.00)	-0.077*** (-3.73)	-0.109*** (-3.49)	-0.133 (-0.403)
ALTMANS_Z_SCORE	-0.002 (-0.72)	-0.003*** (-3.34)	-0.004*** (-2.65)	0.092*** (2.920)
ALTMANS_Z_SCORE × TARGET_INITIATED	-0.005 (-0.89)	0.001 (0.30)	0.000 (-0.03)	-0.075** (-2.29)
<i>N</i>	1,005	1,037	1,037	453
<i>F</i> -test <i>p</i> -value	0.000	0.000	0.000	0.022
<i>Regression 2. Target Performance Measure: BHAR_OVER_PAST_1_YEAR</i>				
TARGET_INITIATED	-0.110*** (-2.98)	-0.075*** (-4.50)	-0.110*** (-4.53)	-0.496* (-1.732)
BHAR_OVER_PAST_1_YEAR	-0.079 (-1.58)	-0.077*** (-5.02)	-0.283*** (-8.97)	0.256 (0.589)
BHAR_OVER_PAST_1_YEAR × TARGET_INITIATED	0.007 (0.09)	0.027 (0.89)	0.048 (0.92)	-0.611 (-1.075)
<i>N</i>	1,051	1,085	1,085	470
<i>F</i> -test <i>p</i> -value	0.005	0.000	0.000	0.132
<i>Regression 3. Financial Constraints Measure: SA_INDEX</i>				
TARGET_INITIATED	-0.323 (-1.14)	-0.097 (-0.86)	-0.347** (-1.97)	-1.698 (-1.012)
SA_INDEX	0.090 (1.54)	0.038 (1.30)	0.074* (1.89)	0.049 (0.087)
SA_INDEX × TARGET_INITIATED	-0.067 (-0.74)	-0.008 (-0.21)	-0.081 (-1.43)	-0.402 (-0.752)
<i>N</i>	1,005	1,037	1,037	453
<i>F</i> -test <i>p</i> -value	0.002	0.000	0.000	0.231
<i>Regression 4. Shock Measure: INDUSTRY_SHOCK_INDEX</i>				
TARGET_INITIATED	-0.130*** (-3.60)	-0.069*** (-4.09)	-0.102*** (-4.17)	-0.432* (-1.702)
INDUSTRY_SHOCK_INDEX	-0.123 (-1.62)	-0.026 (-1.12)	-0.089** (-2.05)	-0.672 (-1.285)
INDUSTRY_SHOCK_INDEX × TARGET_INITIATED	0.086 (0.72)	-0.036 (-0.87)	0.046 (0.66)	0.342 (0.501)
<i>N</i>	1,005	1,037	1,037	453
<i>F</i> -test <i>p</i> -value	0.001	0.000	0.000	0.234

term's coefficient is statistically indistinguishable from 0, suggesting that target financial health does not moderate the effect.

We interact a TARGET_INITIATED indicator with the BHAR_OVER_PAST_1_YEAR and the SA_INDEX and the INDUSTRY_SHOCK_INDICES in

the remaining panels of Table 6. The results indicate that the interaction terms are statistically insignificant.²⁶ In untabulated results, we perform a similar analysis with alternative measures of target financial distress, pre-merger operating performance, and financial constraints, and we observe similar findings. Given these results, we conclude that target financial and economic weakness, financial constraints, and negative economic shocks have weak power to explain the lower takeover premia in target-initiated deals (Hypothesis 3), possibly because the market previously discounted target firm stock prices for these problems.

VI. Information Asymmetry Hypothesis

The results of the OLS regressions in Table 5 indicate that target firms receive significantly lower premia, deal announcement CARs, and deal value to EBITDA multiples when they initiate deals. One potential concern with this finding is that target firms are optimally deciding to initiate deals. Thus, target firms are self-selecting into the two deal initiation samples. If unobservable factors, such as target manager private information, which can motivate target deal initiations, also affect takeover premia, then the target-initiated deal coefficient would capture the effects of these unobserved factors. Endogeneity of the target-initiation decision can create a correlation with the error term in the bid premium equation, which left unaddressed could bias the coefficient estimates of the explanatory variables. We use a Heckman (1979) 2-step model to address this potential self-selection bias. The first step involves estimating a selection equation for the target-initiation decision. The second step involves estimating the effects of the control variables and the estimated inverse Mills ratio on the bid premia.²⁷

The selection equation error term represents a part of a target's deal initiation decision not captured by the observable explanatory variables. As such, the error term captures a target's private information, as well as the effects of other omitted or unobservable determinants. As Prabhala and Li (2008) demonstrate, the expected value of the error term, conditional upon the target's deal initiation decision, is equal to the inverse Mills ratio. Thus, testing for self-selection bias is equivalent to testing for the existence of private information held by target firm managers.

Interpreting the results of the self-selection model as reflecting an estimate of target managers' private information enables us to directly test the Information Asymmetry Hypothesis (Hypothesis 4), which predicts that target firms receive lower premia when they initiate deals as this decision reveals to potential bidders the target's negative private information. A significantly negative inverse Mills

²⁶When we include measures for both hypotheses in a single regression, all of the interaction terms are insignificant.

²⁷In the original Heckman (1979) model, the outcome variable is observable only for the selection subsample. As such, the outcome equation is estimated for this subsample. In our case, the outcome variable, BID_PREMIUM, is observed in both target- and bidder-initiated deals. Thus, we estimate the outcome equation using the entire sample of deals. The only modification to the Heckman procedure is the need to include the estimated inverse Mills ratio for the non-selected group (bidder-initiated deals) and a standard error correction to the coefficients in the outcome equation (Greene (1981)). For similar applications of the Heckman model, see Puri (1996), Gande, Puri, Saunders, and Walter (1997), Gande, Puri, and Saunders (1999), and Golubov, Petmezas, and Travlos (2012).

ratio in the outcome equation indicates that private information held by target managers has, on average, a negative effect on takeover premia.

Our identifying instrument in this first-step equation is `PRIOR_INDUSTRY_TARGET_INITIATED_DEAL_&_AUCTION_ACTIVITY`, which passes the IV relevance condition given its significant positive relation to the target-initiation decision (shown in column 1 of Table 4). To pass the exclusivity condition, the IV must only affect the target offer premia through the target-initiation decision. Firms that operate within the same industry may face similar motivations and trade-offs before putting their firms up for sale. Thus, their deal initiation decisions are likely to be positively related to the frequency of prior target-initiated and auction deals in their industries. Furthermore, there is no clear economic rationale for `PRIOR_INDUSTRY_TARGET_INITIATED_DEAL_&_AUCTION_ACTIVITY` affecting the target firm's offer premium directly as the effect of deal initiation on offer premia is captured by the target-initiated indicator. In the second-step equation, we regress target premia on the control variables in Table 5's OLS regressions, augmented by the first-step inverse Mills ratio.²⁸

In estimating the second-step regressions, we use each of our four measures of target premia as the dependent variable. Since the choice of target premia affects the number of available observations, we re-estimate the first-step regression with the same set of observations used in the second-step equation to obtain the appropriate inverse Mills ratio estimates for each of the four target premia measures. The key coefficient estimate of interest in the second-step regressions is the inverse Mills ratio, denoted as the `TARGET_PRIVATE_INFORMATION` variable.

Examining Table 7, we find that in all four regressions, the `TARGET_PRIVATE_INFORMATION` variable and the correlations of the error terms in the selection and outcome equations (ρ) are significantly negative. These results are consistent with a target manager's private information leading them to initiate deals, and this very same private information leads to lower target premia. The types of valuable private firm-specific information that target managers could possess include undisclosed sales and profit forecasts, R&D projects and outcomes, financing issues, legal liabilities, and indications of financial difficulties, among others.^{29,30}

²⁸Since inclusion of the institutional ownership variables in probit regressions reduces the sample size without providing additional insight into why target firms initiate deals, we calculate the inverse Mills ratio using the model estimates in column 1 of Table 4, which excludes the institutional ownership variables.

²⁹A bidder's adverse selection problem can be more severe when targets are larger. We control for this effect in our regressions by including a target's relative size to the acquirer. In untabulated tests, we also estimate OLS and self-selection regressions using greater deal value limits, such as \$100 million and \$500 million. The results are similar to those reported here, particularly for market-based bid premia measures.

³⁰We run further tests to assess whether the prior results are driven by the behavior of in-play target firms. First, we use Mulherin and Simsir's (2015) expanded "Hand-Collected Original Date Announced" (HODA) data set to identify in-play target firms not captured by the ODA field in the SDC. We find that 41.7% (33.5%) of HODA (non-HODA) events are target initiated. While target initiation and early HODA dates may seem positively associated, our key findings hold if such in-play target firms are excluded (Table A-3 in the Supplementary Material). Second, we estimate target CARs

TABLE 7
Selection Bias, Deal Initiation, and Target Premia

Table 7 presents the results of the multivariate regressions that control for the selectivity bias. The dependent variables are BID_PREMIUM (column 1), TARGET_CAR(-2, +2) (column 2), TARGET_CAR(-63, +2) (column 3), and DEAL_VALUE_TO_EBITDA (column 4). We draw our sample from the SDC database using the following restrictions: deal value is greater than \$5 million, both acquirer and target are public companies located in the United States and they are not finance or utility firms, the form of transaction is either merger or acquisition of majority interest, deal status is completed, and the deal announcement date falls between Jan. 1, 1997 and Dec. 31, 2012. This sample is then matched with the CRSP and Compustat databases. Deal initiation data come from the SEC filings of the merging firms. TARGET_CAR(-2, +2) is the abnormal returns to the target firms over the (-2, +2) period. TARGET_CAR(-63, +2) accumulates abnormal returns over the (-63, +2) period. The normal (expected) returns are calculated using the market model with an estimation window of (-316, -64). BID_PREMIUM is the offer price divided by the target stock price 63 trading days before the announcement of the merger, minus 1. The DEAL_VALUE_TO_EBITDA variable is the ratio of the deal value to the EBITDA value minus the average of the deal value to the EBITDA value of the group of benchmark deals. The event study procedure and the construction of the BID_PREMIUM and the DEAL_VALUE_TO_EBITDA variables are explained in Appendix B. TARGET_PRIVATE_INFORMATION is the inverse Mills ratio estimated in the first-step probit regressions. Due to space limitations, the construction of the control variables are explained in Appendix C. t-values are in parentheses, below the reported coefficients. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Regressions include year and industry dummies (coefficients not reported).

Variables	BID_PREMIUM	TARGET_CAR (-2, +2)	TARGET_CAR (-63, +2)	DEAL_VALUE_ TO_EBITDA
	1	2	3	4
TARGET_PRIVATE_INFORMATION	-0.078*** (-3.61)	-0.045*** (-4.49)	-0.067*** (-4.58)	-0.310* (-1.834)
PERCENT_CASH	-0.011 (-0.22)	0.052** (2.16)	0.047 (1.35)	1.089** (2.590)
TENDER	0.023 (0.51)	0.073*** (3.35)	0.052 (1.63)	-0.818** (-2.270)
ASSET_RELATEDNESS	0.039 (1.10)	0.005 (0.32)	0.002 (0.11)	0.227 (0.811)
ACQUIRER_TERMINATION_FEE	1.519 (1.36)	-0.485 (-0.92)	0.651 (0.85)	-5.930 (-0.697)
TARGET_TERMINATION_FEE	3.502*** (9.95)	0.253 (1.56)	1.705*** (7.23)	5.731* (1.762)
TOEHOLD	0.727* (1.88)	-0.285* (-1.68)	0.219 (0.89)	2.399 (0.708)
ln(RELATIVE_SIZE)	-0.056*** (-4.72)	-0.028*** (-5.07)	-0.061*** (-7.68)	-0.026 (-0.287)
ACQUIRER_TOBINS_Q	-0.003 (-0.30)	0.0008 (0.17)	-0.012* (-1.74)	0.179** (2.179)
ACQUIRER_ROA	-0.146 (-0.98)	0.046 (0.68)	-0.013 (-0.13)	-4.458*** (-2.780)
ALTMANS_Z_SCORE	-0.004* (-1.85)	-0.003*** (-2.88)	-0.005*** (-2.90)	0.073*** (3.977)
LIQUIDITY	0.082 (0.87)	0.041 (0.94)	0.059 (0.93)	1.406* (1.914)
CHANGE_IN_ROA_OVER_PAST_3_YEARS	0.055* (1.71)	0.021 (1.44)	0.042* (1.93)	-1.097*** (-2.856)
BHAR_OVER_PAST_1_YEAR	-0.083** (-2.45)	-0.066*** (-4.14)	-0.276*** (-11.79)	0.139 (0.488)
HIGH_HHI	0.007 (0.21)	-0.003 (-0.19)	-0.020 (-0.85)	-0.402 (-1.455)
SA_INDEX	0.051 (1.06)	0.026 (1.17)	0.031 (0.98)	-0.158 (-0.397)
INDUSTRY_SHOCK_INDEX	-0.084 (-1.49)	-0.022 (-0.84)	-0.076** (-2.01)	-0.355 (-0.755)
Constant	0.259 (1.44)	0.117 (1.39)	0.142 (1.17)	-1.394 (-0.949)
No. of obs.	1,005	1,037	1,037	453
Adj. R ²	0.187	0.183	0.300	0.137
Industry dummies (1-digit SIC)	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes

Significantly negative TARGET_PRIVATE_INFORMATION coefficients in Table 7 are consistent with the Information Asymmetry Hypothesis (Hypothesis 4). To further test the implications of this hypothesis, we assess whether target-initiated offer premia are lower when acquirer-target information asymmetry is relatively high. For instance, the acquirer's adverse selection problem can be worse when targets are more difficult to value. If Hypothesis 4 is true, then we should find a larger negative TARGET_PRIVATE_INFORMATION coefficient for targets with this trait.

To measure the information asymmetry between merging firms, we construct variables correlated with the information asymmetry between target insiders and outside investors. Our conjecture is that this information asymmetry is similar to that between target insiders and acquirers. We use several well-known information asymmetry measures in our analysis:

- i) Idiosyncratic volatility of target stock returns. Moeller, Schlingemann, and Stulz (2007) and Officer et al. (2009) measure information asymmetry with it.
- ii) Dispersion and accuracy of analyst forecasts of target earnings. High forecast dispersion and analyst forecast errors indicate larger disagreement among analysts and greater manager–investor information asymmetry (Krishnaswami and Subramaniam (1999), Thomas (2002)).
- iii) Target size (total assets). Larger firms typically experience greater information production activity by investors, analysts, and outsiders, which should help bidders more accurately value larger targets (Barth, Kasznik, and McNichols (2001)).
- iv) Target R&D expenses (Officer et al. (2009)). Higher R&D intensity firms tend to be in early stages of risky investment projects that are more difficult to value.
- v) The number and quality of acquirer financial advisors (Rau (2000), Bao and Edmans (2011), and Krishnan and Masulis (2013)). The bidder's use of more high-quality advisors is expected to lessen the adverse selection problems they face.
- vi) Target tangible asset intensity (Leary and Roberts (2010), Barth et al. (2001)). The value of a target's intangible assets may not be accurately captured by its financial statements. Thus, serious differences of opinion about intangible asset values may exist.
- vii) Target firm abnormal accruals (Kothari, Leone, and Wasley (2005)). Financial statements of targets are generally less informative when abnormal accruals are high (Lee and Masulis (2009)).

using longer pre-announcement windows, such as over $(-126, +2)$, and find similar results to CARs estimated over $(-63, +2)$ (Table A-4 in the Supplementary Material). Third, we confirm in Table A-5 that target CARs using conventional event dates ("Date Announced" field in the SDC) yields similar results. Hence, we conclude that the negative effect of target initiation on bid premia is driven by factors other than the behavior of in-play target firms.

- viii) Distance from merger partner headquarters measured in miles. Geographically closer firms facilitate more informed bidding and give bidders better access to local private information about a target (Coval and Moskowitz (2001), Uysal, Kedia, and Panchapagesan (2008)).

Next, we take an approach similar to Karpoff, Lee, and Masulis (2013) and use factor analysis to create a combined information asymmetry factor, which avoids an obvious multicollinearity problem that using multiple information asymmetry measures entail. The objective of factor analysis is to uncover the common underlying factor or factors captured by the information asymmetry measures discussed above. Details on the construction of the information asymmetry factor are provided in Table A-6 of the Supplementary Material.

To identify high and low information asymmetry subsamples, we calculate the sample median for the information asymmetry factor. Deals with above median information asymmetry measures are classified as high information asymmetry deals and the remainder as low information asymmetry deals. We estimate the Heckman (1979) procedure separately for the two subsamples using an identical set of control variables to that of Table 7. Because we have four target premium measures, we must estimate a total of eight regressions. The regressions estimates are displayed in Panel A of Table 8. Due to space limitations, we omit the coefficients on the control variables, which are consistent with those reported in Table 5.

Regression estimates indicate that the TARGET_PRIVATE_INFORMATION coefficient is significantly different for the high and low information asymmetry subsamples. While the coefficient estimate for this variable is significantly negative in all of the regressions, its magnitude is much larger in the high information asymmetry subsample. For instance, TARGET_PRIVATE_INFORMATION has a coefficient of -0.102 in the high information subsample and is only -0.049 in the low information asymmetry subsample (in columns 1 and 2). The results are similar when the alternative target premium measures are used as dependent variables. In a majority of cases, the coefficient estimates of the TARGET_PRIVATE_INFORMATION variable in the high information asymmetry subsample are significantly more negative than their counterparts in the low information asymmetry subsample.

To investigate which of our information asymmetry proxies are driving the results in Panel A of Table 8, we create high and low information asymmetry subsamples based on whether individual information asymmetry measures are above or below their respective median values. In Panels B–D, information asymmetry subsamples are based on target analyst forecast errors, acquirer financial advisor quality, and target idiosyncratic volatility. The results indicate that TARGET_PRIVATE_INFORMATION is, on average, significantly negative in the high information asymmetry subsample but is either insignificant or less negative for low information asymmetry firms.

Note that conventional information production methods employed during merger negotiations, such as internal screening and hiring due diligence advisors, investment banks, and consultants, are likely to provide very useful information to potential acquirers. However, full discovery of a target manager's private

TABLE 8
Relation of Target Firm Information Asymmetry to Bid Premium

Table 8 presents the results of the multivariate regressions that are run on specific subsamples, which are created with respect to the information asymmetry between merging parties. The dependent variables are BID_PREMIUM (columns 1 and 2), TARGET_CAR(-2, +2) (columns 3 and 4), TARGET_CAR(-63, +2) (columns 5 and 6), and DEAL_VALUE_TO_EBITDA (columns 7 and 8). We draw our sample from the SDC database using the following restrictions: deal value is greater than \$5 million, both acquirer and target are public companies located in the United States and they are not finance or utility firms, the form of transaction is either merger or acquisition of majority interest, deal status is completed, and the deal announcement date falls between Jan. 1, 1997 and Dec. 31, 2012. This sample is then matched with the CRSP and Compustat databases. Deal initiation data come from the SEC filings of the merging firms. TARGET_CAR(-2, +2) is the abnormal returns to the target firms over the (-2, +2) period. TARGET_CAR(-63, +2) accumulates abnormal returns over the (-63, +2) period. The normal (expected) returns are calculated using the market model with an estimation window of (-316, -64). BID_PREMIUM is the offer price divided by the target stock price 63 trading days before the announcement of the merger, minus 1. The DEAL_VALUE_TO_EBITDA variable is the ratio of the deal value to the EBITDA value minus the average of the deal value to the EBITDA value of the group of benchmark deals. The event study procedure and the construction of the BID_PREMIUM and DEAL_VALUE_TO_EBITDA variables are explained in Appendix B. TARGET_PRIVATE_INFORMATION is the inverse Mills ratio estimated in the first-step probit regressions. The sample consists of high (low) information asymmetry deals in the odd (even) numbered columns. The names of the information asymmetry proxies are stated in the heading of each panel. In Panels A, B, and D, high information asymmetry deals have proxy values greater than the sample median. In Panel C, high asymmetric information deals have proxy values less than the sample median. The control variables used in the regressions are identical to the set of control variables used in Table 7. Due to space limitations, the coefficients of the control variables are not reported. *t*-values are in parentheses, below the reported coefficients. Standard errors of coefficients are estimated using the procedure outlined in Heckman (1979) and Greene (1981). *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. The final row in each panel tests whether the TARGET_PRIVATE_INFORMATION coefficient (denoted by *m*) in the low asymmetry subsample is smaller than that of the high information subsample. All regressions include year and industry dummies (coefficients not reported).

	Takeover Premium							
	BID_PREMIUM		TARGET_CAR (-2, +2)		TARGET_CAR (-63, +2)		DEAL_VALUE_ TO_EBITDA	
	Information Asymmetry Level							
	High 1	Low 2	High 3	Low 4	High 5	Low 6	High 7	Low 8
<i>Panel A. Asymmetry Index</i>								
TARGET_PRIVATE_INFORMATION	-0.102*** (-2.71)	-0.049** (-2.21)	-0.064*** (-4.03)	-0.027** (-2.20)	-0.094*** (-3.96)	-0.047** (-2.69)	-0.697** (-2.24)	-0.156 (-0.98)
Same controls as in Table 7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	487	477	508	488	508	488	201	235
Adj. R ²	0.131	0.304	0.195	0.197	0.277	0.312	0.208	0.035
H ₀ : m _{high} > m _{low} (p-value)		0.119		0.035		0.058		0.060
<i>Panel B. Forecast Error</i>								
TARGET_PRIVATE_INFORMATION	-0.130*** (-3.90)	-0.039* (-1.85)	-0.059*** (-3.64)	-0.026** (-2.09)	-0.109*** (-4.44)	-0.040** (-2.39)	-0.251 (-0.749)	-0.447** (-2.03)
Same controls as in Table 7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	411	423	429	429	429	429	138	247
Adj. R ²	0.178	0.336	0.200	0.172	0.269	0.348	0.057	0.225
H ₀ : m _{high} > m _{low} (p-value)		0.012		0.059		0.011		0.312
<i>Panel C. Acquirer Advisor</i>								
TARGET_PRIVATE_INFORMATION	-0.125*** (-3.80)	-0.012 (-0.45)	-0.070*** (-4.66)	-0.027** (-2.06)	-0.093*** (-4.15)	-0.033* (-1.82)	-0.301 (-1.24)	-0.307 (-1.38)
Same controls as in Table 7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	495	510	514	523	514	523	231	222
Adj. R ²	0.160	0.249	0.183	0.223	0.255	0.381	0.143	0.210
H ₀ : m _{high} > m _{low} (p-value)		0.005		0.016		0.022		0.492
<i>Panel D. Target Volatility</i>								
TARGET_PRIVATE_INFORMATION	-0.121*** (-3.08)	-0.038* (-2.03)	-0.056*** (-3.34)	-0.047*** (-4.13)	-0.102*** (-4.00)	-0.041*** (-2.90)	-0.376 (-1.13)	-0.126 (-0.74)
Same controls as in Table 7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	484	521	507	530	507	530	184	269
Adj. R ²	0.146	0.274	0.158	0.234	0.274	0.345	0.082	0.200
H ₀ : m _{high} > m _{low} (p-value)		0.028		0.323		0.019		0.252

information is unlikely as targets are particularly cautious about revealing sensitive information to bidders about their cost structures, production technologies, R&D projects, sales projections, or the evolution of consumer behavior in their markets. Thus, the ultimate information asymmetry between merging firms is likely to be large enough to reflect itself in a substantially lower offer price.

VII. Signaling of Private Information by Target Firms

If the adverse selection problem between merging firms has a negative impact on bid premia, then target firm managers and shareholders with more positive information should have incentives to signal their private information to bidders during merger negotiations (Spence (1973)). While the optimal signaling device may depend upon target and acquiring firm characteristics, some observable approaches could be employed, enabling us to investigate ways target firms signal their private information to bidders. We consider two signaling methods. First, target shareholders would be adversely affected by post-merger valuation declines in target assets if they receive acquirer firm stock as a payment. Thus, stock payments could signal a target firm's willingness to share the risk with a bidder and would indicate that target managers have no seriously negative information about the target's asset values. In addition, targets could retain due diligence advisors (auditors) at an additional expense to certify the accuracy of their financials, operations, and other business characteristics that may affect their values. Even though acquiring firms may want to rely on the opinions of their own due diligence advisors, they may still benefit from the opinions of target firm due diligence advisors, especially when the target advisors have access to information that is not easily accessible by outside advisors.

Target firms have stronger signaling incentives when information asymmetry between the merging firms is high. As such, we first classify deals as having high information asymmetry when their information asymmetry factor is high (top quartile of targets) and further classify them by method of payment (all cash vs. any stock) and target advisor retention status (retained vs. not retained). As a final step, we run self-selection regressions to determine whether a target's private information has similar effects on bid premia in these subsamples. If target firms manage to signal their private information to acquirers when there is high information asymmetry between the two, then the adverse effect of a target's private information on bid premia should be mitigated compared to those cases where target firms do not take any signaling action.

As Table 9 indicates, TARGET_PRIVATE_INFORMATION has large and significantly negative coefficients in all cash deals, while it has mostly small and insignificant coefficients for any stock deals. In other words, the adverse effect of a target's private information on bid premium is high when the target demands cash as the acquisition financing method, while its effect is lower when a target signals its quality by accepting stock as the method of payment. The other signaling method in Panel B reveals that the adverse effect of a target's private information

TABLE 9
Signaling under Asymmetric Information

Table 9 presents the results of the self-selection regressions in high information asymmetry subsamples. Information asymmetry is measured using the combined information asymmetry factor explained in Table A-6 of the Supplementary Material. High information asymmetry deals have information asymmetry factor values greater than the 75th percentile of the distribution. The dependent variables are BID_PREMIUM (column 1), TARGET_CAR(-2, +2) (column 2), TARGET_CAR(-63, +2) (column 3), and DEAL_VALUE_TO_EBITDA (column 4). In Panel A, signal refers to the subsample of deals where the target accepts the acquirer stock as payment. No signal represents deals in which payment is 100% cash. In Panel B, signal refers to the subsample of deals where target firms retain a due diligence advisor. No signal represents deals in which the target does not retain any due diligence advisor. We draw our sample from the SDC database using the following restrictions: deal value is greater than \$5 million, both acquirer and target are public companies located in the United States and they are not finance or utility firms, the form of the transaction is either merger or acquisition of majority interest, deal status is completed, and the deal announcement date falls between Jan. 1, 1997 and Dec. 31, 2012. This sample is then matched with the CRSP and Compustat databases. Deal initiation data come from the SEC filings of the merging firms. TARGET_CAR(-2, +2) is the abnormal returns to the target firms over the (-2, +2) period. TARGET_CAR(-63, +2) accumulates abnormal returns over the (-63, +2) period. The normal (expected) returns are calculated using the market model with an estimation window of (-316, -64). BID_PREMIUM is the offer price divided by the target stock price 63 trading days before the announcement of the merger, minus 1. The DEAL_VALUE_TO_EBITDA variable is the ratio of the deal value to the EBITDA value minus the average of the deal value to the EBITDA value of the group of benchmark deals. The event study procedure and the construction of the BID_PREMIUM and DEAL_VALUE_TO_EBITDA variables are explained in Appendix B. TARGET_PRIVATE_INFORMATION is the inverse Mills ratio. The control variables used in the regressions are identical to the set of control variables used in Table 7. Due to space limitations, the coefficients of the control variables are not reported. *t*-values are in parentheses, below the reported coefficients. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	Takeover Premium							
	BID_PREMIUM		TARGET_CAR (-2, +2)		TARGET_CAR (-63, +2)		DEAL_VALUE_ TO_EBITDA	
	Signal	No Signal	Signal	No Signal	Signal	No Signal	Signal	No Signal
	1	2	3	4	5	6	7	8
<i>Panel A. Signal: Target Firms Accept Acquirer Stock as Payment</i>								
TARGET_PRIVATE_INFORMATION	-0.0959 (-1.096)	-0.169** (-2.591)	-0.0495* (-1.662)	-0.0868** (-2.339)	-0.0710 (-1.332)	-0.142*** (-3.439)	0.165 (0.424)	-0.565 (-0.798)
Same controls as in Table 7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	148	106	164	108	164	108	43	36
Adj. <i>R</i> ²	0.0579	0.114	0.109	0.111	0.120	0.464	-0.170	0.112
<i>Panel B. Signal: Target Firms Retain Due Diligence Advisors</i>								
TARGET_PRIVATE_INFORMATION	-0.0529 (-0.539)	-0.212*** (-3.036)	-0.0641* (-1.794)	-0.0667** (-2.069)	-0.0540 (-0.922)	-0.144*** (-3.008)	-0.352 (-0.980)	-0.380 (-0.582)
Same controls as in Table 7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	106	148	119	153	119	153	34	45
Adj. <i>R</i> ²	0.121	0.0436	-0.00751	0.100	0.145	0.201	0.294	0.0789

on bid premia is higher when target firms do not retain any due diligence advisor than when they do.^{31,32}

The results suggest that target firms may use the method of payment and due diligence advisors to reduce bid premia discounts in target-initiated deals, especially if information asymmetry is severe. However, we do not claim that these signaling decisions are always positive net present value actions as we do

³¹ Another possible signaling device is contingent payment bid or earnout. The use of earnouts in public-public deals is rare (e.g., there are 11 earnouts in our sample). We also investigate whether prior strategic alliances, joint ventures, or equity stakes between merger partners appear to be used to reduce asymmetric information. There are 106 deals where merging firms have such a prior relationship, but the sample size drops to 14 when we focus on high information asymmetry deals, which precludes a serious statistical analysis of this issue.

³² The results are weaker when high information asymmetry deals are defined based on the sample median. This evidence suggests that target firms use signaling devices only when the adverse selection problem is severe.

not have enough information about how costly these signaling actions are to target firms.

VIII. Conclusion

From 1997 to 2012, about 35% of the deals in our sample are initiated by target firms. In target-initiated deals, target firms contact potential bidders and express their willingness to be sold. Our study investigates the factors that lead target firms to initiate a sale of control and the subsequent merger outcomes that follow from such decisions.

Target firms often show signs of financial and economic distress and binding financial constraints prior to their deal initiation. The relative frequency of target-initiated deals also increases during economic recessions. These results are consistent with the hypotheses that financially distressed targets seek to avoid expected bankruptcy costs, financially constrained targets seek to merge with cash-rich or financially strong partners, and underperforming and inefficient target firms are more willing to be taken over during economic recessions.

Deal-initiating target firms receive significantly lower bid premia, announcement CARs, and deal value to EBITDA multiples compared to targets in bidder-initiated deals. We investigate whether the factors that motivate targets to initiate deals also explain the low premia in target-initiated deals. While we find evidence that financially distressed target firms receive modestly lower deal multiples, the target-initiated deal indicator remains significantly negative even after controlling for target financial distress. Thus, we conclude that target financial weakness is not the primary cause of the premium gap between bidder- and target-initiated deals. Likewise, inclusion of a target financial constraint or negative industry-specific and economy-wide shock indicators does not significantly diminish the effect of target initiation on takeover premia.

Target firms self-select to initiate deals with bidders. As a result, targets initiating M&A deals have different characteristics from targets in bidder-initiated deals. Controlling for sample selection bias using a Heckman's (1979) 2-step procedure, we estimate the unobservable factors motivating target deal initiation decisions from the inverse Mills ratio of the first-step self-selection model. We find that this ratio is associated with significantly lower bid premia and target bid announcement CARs. These findings are consistent with the Information Asymmetry Hypothesis, which posits that information asymmetry between merger partners leads to an adverse selection problem for potential buyers causing them to discount bid prices. We also find the self-selection problem is more severe for deals characterized by high target information asymmetry. This evidence provides added support for the Information Asymmetry Hypothesis.

One explanation for the weak explanatory power of adverse target financial and competitive conditions to explain the low takeover premia observed in target-initiated deals is that target stock prices have incorporated most of the negative information associated with their poor current economic situation prior to the deal announcements. Yet, the fact that among those firms with similar publicly known weaknesses a particular target firm decides to sell itself, when its stock price is seriously depressed, can reveal additional negative private information held by

target managers. Moreover, it is also possible that firms with a weak financial or competitive position are more vulnerable to added negative news. Finally, our financial distress and weakness measures are drawn from historical data, which may poorly measure the current financial condition of target firms during deal negotiations. We leave the answers to these questions for future research.

Appendix A. Examples of Bidder- and Target-Initiated Deals

1. Bidder-Initiated Deal

“International Paper Company” acquiring “Union Camp Corporation.” From S-4 filed to the SEC on 3/30/1999.

Beginning in June 1998, Mr. John T. Dillon, International Paper’s Chairman and Chief Executive Officer, discussed, on several occasions, with International Paper’s board of directors the competitive trends in the forest products industry and the importance of focusing on areas where International Paper could develop a more competitive position. During these discussions, Mr. Dillon identified and compared domestic and international competitors, finally focusing on an intensive review of five or six domestic competitors as candidates for merger or acquisition [...] To pursue these objectives, Mr. Dillon secured the board of directors’ approval to investigate the possibility of a merger with another forest products company.

Ultimately, Mr. Dillon concluded that a combination transaction with Union Camp was the most compelling and strategic choice, as he viewed Union Camp as providing the best fit and requiring the least restructuring in a combination with International Paper [...].

On Oct. 13, 1998, International Paper’s board of directors reviewed the advisability of a merger with Union Camp. After this review, it authorized Mr. Dillon to pursue a transaction by contacting Union Camp.

On Oct. 21, 1998, Mr. Dillon called Mr. W. Craig McClelland, Union Camp’s Chairman and Chief Executive Officer, to express International Paper’s interest in combining with Union Camp and to advise Mr. McClelland that he was sending a letter to him proposing a transaction [...].

2. Target-Initiated Deal

“Eastern Enterprises” acquiring “Colonial Gas Company.” From S-4 filed to SEC on 12/16/1998.

During the past several years, the Colonial Board had periodically evaluated Colonial’s long-term position and strategic alternatives in view of the trend toward deregulation and consolidation in the gas distribution industry [...].

The Colonial Board retained Salomon Smith Barney in Mar. 1998 to assist it in exploring its strategic options [...].

In its assessment of strategic options, Colonial, with the assistance of Salomon Smith Barney, identified six companies, including Eastern, that fit one or more of its strategic combination objectives. Preliminary discussions with these six companies took place in June and July 1998. From these discussions, Colonial identified three companies, including Eastern, with which it might have an interest in pursuing a business combination transaction, depending on whether the terms of such a transaction would meet the objectives of achieving benefits for stockholders, customers, and employees.

Following a meeting of the Colonial Board on July 15, 1998, Colonial invited the three companies to engage in a diligence investigation after signing confidentiality agreements with Colonial [...].

On Sept. 23, 1998, the Eastern Board met and authorized Eastern's management to proceed with an offer to acquire Colonial based upon the terms and conditions as presented at the meeting. Representatives of Merrill Lynch, Pierce, Fenner, & Smith, Incorporated, Eastern's financial advisor, were present at the meeting and gave a preliminary presentation to the Eastern Board regarding the proposed offer price and the terms and conditions of the proposed acquisition.

Appendix B. Definitions of ABNORMAL_RETURNS, BID_PREMIA, and Deal Value to EBITDA Multiples

We estimate market model parameters $(\hat{\alpha}_i, \hat{\beta}_i)$ by estimating an OLS regression over the estimation period:

$$(B-1) \quad R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t},$$

where $R_{i,t}$ is the return to firm i at day t , $R_{m,t}$ are the returns to the value-weighted CRSP market portfolio at day t , and $\varepsilon_{i,t}$ is the zero mean constant variance error term. Following Schwert (2000), we set the estimation period as $(-316, -64)$ trading days relative to the announcement day of the merger (day 0).

The abnormal returns in the event period are calculated as:

$$(B-2) \quad \text{CAR}_i^k = \sum_{t=-k}^k \text{AR}_{i,t},$$

$$(B-3) \quad \text{AR}_{i,t} = R_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i R_{m,t}),$$

where $2k + 1$ is the event window size, $\text{AR}_{i,t}$ are the abnormal returns to firm i on day t , and CAR_i^k is the cumulative abnormal returns to firm i in the event window. We choose $k = 2$ and accumulate abnormal returns over $(-2, +2)$. As an alternative measure, we calculate CARs over the $(-63, +2)$ period. If the target firm is involved in a merger-related activity within the $(-126, -63)$ period, we extend the event window for that deal to capture the "Original Date Announced" field in the SDC (Mulherin and Simsir (2015)).

The bid premium (BID_PREMIUM) is defined as follows:

$$(B-4) \quad \text{BID_PREMIUM} = \frac{\text{Offer price}}{\text{Target stock price at trading day } -63} - 1,$$

where trading day -63 is with respect to the ODA field in the SDC.

We follow the same procedure as in Officer (2007) for creating the DEAL_VALUE_TO_EBITDA multiple. For each deal in our sample, we download from the SDC the portfolio of deals satisfying the following criteria: i) The reference target firm is in the same 2-digit SIC code of the target firm, ii) the reference target firm is public (the target firms in our sample are all public), iii) the deal value (excluding the assumed liabilities) of the reference deal is within 20% of the deal value, iv) the announcement date of the reference deal is within the past 18 months of the announcement date of the deal, and v) the DEAL_VALUE_TO_EBITDA multiples of the reference deals are not missing. We restrict reference deals to those for more than 50% of shares, where the percentage of shares owned by the acquirer after the merger is greater than 50%. The SDC does not calculate DEAL_VALUE_TO_EBITDA multiple when the EBITDA is negative. To increase the sample size, we estimate the average EBITDA using the mean of the past 2 years' data prior to the merger announcement date and use it to replace the negative EBITDA value (including reference deals). To prevent fractional EBITDA values from

substantially inflating the EBITDA multiples, we eliminate observations where EBITDA values are less than \$1 million.

After identifying the reference deals, we calculate the mean DEAL_VALUE_TO_EBITDA value of the reference portfolio. The excess DEAL_VALUE_TO_EBITDA multiple of a particular deal is calculated as the percentage difference between the DEAL_VALUE_TO_EBITDA multiple and the mean DEAL_VALUE_TO_EBITDA multiple of the reference portfolio. As Officer (2007) recognizes, the excess DEAL_VALUE_TO_EBITDA multiple has significant outliers. As a result, we winsorize the excess DEAL_VALUE_TO_EBITDA multiple distribution at the 2% and 98% levels.

Appendix C. Variable Definitions

Unless otherwise stated, the deal and financial variables listed in Appendix C are calculated using the most recent annual financial statements (at the financial year-end prior to the merger announcement). Deal characteristics come from the SDC, firm financials from Compustat, firm stock price characteristics from the CRSP, and analyst forecast characteristics from the Institutional Brokers' Estimate System (IBES) databases. Firm level variables are winsorized at the 1st and 99th percentiles. Indicator and industry-level variables are not winsorized.

Deal Characteristics

PERCENT_CASH: Percentage of total payments to the target firm that is in cash.

TENDER: Indicator equal to 1 if a tender offer, and 0 otherwise.

ASSET_RELATEDNESS: Indicator equal to 1 if the 2-digit SIC codes of the merging firms match, and 0 otherwise.

RELATIVE_SIZE: Market value of equity of the target firm divided by the market value of equity of the buyer firm, evaluated 63 trading days before the first merger announcement.

ACQUIRER_TERMINATION_FEE: Termination fee for the target divided by the market value of equity of the target firm evaluated 63 trading days before the first merger announcement.

TARGET_TERMINATION_FEE: Termination fee for the buyer divided by the market value of equity of the buyer firm evaluated 63 trading days before the first merger announcement.

TOEHOLD: Percentage of target firm shares held by the acquirer at the merger announcement date.

AUCTION: Indicator that is equal to 1 if the target firm contacts and negotiates with more than one bidder in the private phase of the merger negotiations, and 0 otherwise. *Source:* SEC documents.

Financial Characteristics of the Merging Firms

TOBINS_Q: Market value of assets divided by the book value of assets. Market value of assets is calculated as total assets – book value of equity + market value of equity (number of common shares outstanding times share price). Compustat formula: $(at-seq+mcap)/at$.

BOOK_LEVERAGE: Book value of debt divided by the book value of assets. Compustat formula: lt/at .

ROA: EBIT divided by the book value of total assets. Compustat formula: $ebit/at$.

SALES_GROWTH: Prior year percentage growth of inflation-adjusted total sales. Compustat formula: $\text{sale}(t)/\text{sale}(t-1)-1$.

SIZE: Inflation-adjusted market value of equity. Compustat formula: $\text{csho} \times \text{prcc.f.}$

Target Financial Distress Measures

ALTMANS_Z_SCORE: $1.2 \times (\text{Working Capital}/\text{Total Assets}) + 1.4 \times (\text{Retained Earnings}/\text{Total Assets}) + 3.3 \times (\text{EBIT}/\text{Total Assets}) + 0.6 \times (\text{MV Equity}/\text{BV Debt}) + 0.999 \times (\text{Sales}/\text{Total Assets})$. Compustat formula: $1.2 \times [(\text{act}-\text{lct})/\text{at}] + 1.4 \times [\text{re}/\text{at}] + 3.3 \times [(\text{pi}+\text{xint})/\text{at}] + 0.6 \times [\text{csho} \times \text{prcc.f}/\text{lt}] + 0.999 \times [\text{sale}/\text{at}]$.

INTEREST_COVERAGE_RATIO: EBIT divided by interest expense. Compustat formula: ebit/xint .

LIQUIDITY: Current assets divided by total assets. Compustat formula: act/at .

S&P Long-Term credit rating: S&P long-term credit rating of the target firm in numerical format. AAA corresponds to 1, AA+ corresponds to 2, AA corresponds to 3, and so on. The numerical values of high ratings, therefore, are lower. Compustat field name: `splticrm`.

Current ratio below industry median and book leverage above industry median: Indicator that is equal to 1 if the current ratio of the target firm is less than the median current ratio of the firms in the target firm's industry and the book leverage of the same target firm is less than the median book leverage of the firms in the same industry, and 0 otherwise. Industries are defined using the 2-digit SIC codes.

Stock price on day -63 less than \$5: Indicator that equals 1 if the stock price of the target firm on trading day -63 (relative to the first merger announcement date) is less than \$5, and 0 otherwise.

Target Operating and Stock Performance Measures

HIGH_HHI: HHI is the Herfindahl-Hirschman index of the industry that the target firm is operating in. The industries are defined using the text-based network industry classification methodology employed by Hoberg and Phillips (2016). The indicator variable takes a value of 1 if the HHI of the target firm's industry is greater than the median, and 0 otherwise.

CHANGE_IN_ROA (_OVER_PAST_1_YEAR or _OVER_PAST_3_YEARS), CHANGE_IN_TOBINS_Q, sales growth (1 or 3 years): The absolute change in the industry-adjusted ROA of the target firm over the past 1 (or 3) years. Industries are defined using 2-digit SIC codes. Other variables are calculated similarly.

MARKET_SHARE_GROWTH (1 or 3 years): The percentage growth in the market share of the target firm. For a given fiscal year, the market share of a company is the ratio of its annual sales to the total sales of the firms in its industry. Industries are defined using 2-digit SIC codes.

BHAR (1 or 3 years): Buy-and-hold abnormal returns of target firm 1 (or 3) years before the merger announcement date. For each target firm, we go back 1 year and identify the group of firms in the target firm's industry (2-digit SIC) that have similar characteristics. These firms are first divided into quintiles based on target size (market value of equity) and each quintile is then divided into quintiles based on their book-to-market ratios. We define control firms as other firms that fall into our target firm's 5 × 5 group and estimate their returns over the months (-12, -3) period (we exclude the 3-month period or 63 trading days prior to the merger announcement date to eliminate any bias that may arise in the merger announcement

run-up period). The buy-and-hold abnormal return is then defined as the target firm's buy-and-hold returns minus the median of the buy-and-hold returns to the control group.

Target Financial Constraints Variables

SA_INDEX: SA Index = $-0.737 \times (\text{Size}) + 0.043 \times (\text{Size}^2) - 0.04 \times (\text{Age})$, where size is the natural log of the inflation adjusted (to 2004 U.S. dollars) book value of assets and age is the number of years the firm has been on Compustat with a non-missing stock price. We winsorize size at \$4.5 billion and age at 37. Calculations follow Hadlock and Pierce (2010).

WW_INDEX: WW Index = $-0.091 \times (\text{Cash Flow}) - 0.062 \times (\text{Dividend Payer Indicator}) + 0.021 \times (\text{Leverage}) - 0.044 \times \log(\text{Book Value of Assets}) + 0.102 \times (\text{Industry Sales Growth}) - 0.035 \times (\text{Firm Sales Growth})$. Calculations follow Whited and Wu (2006).

KZ_INDEX: KZ Index = $-1.001909 \times (\text{Cash Flow}) + 3.139193 \times (\text{Leverage}) - 39.36780 \times (\text{Dividend}) - 1.314759 \times (\text{Cash Holdings}) + 0.2826389 \times (\text{Q Ratio})$. Calculations follow Lamont, Polk, and Saá-Requejo (2001). Note that cash flow and leverage variables are calculated differently from that of the WW Index.

Industry-Specific and Economy-Wide Shock Variables and Indicators

INDUSTRY_SHOCK_INDEX: Following Harford (2005), we estimate, for each industry (defined by 2-digit SIC code), the median change in firm profitability, asset turnover, R&D expenditures, capital expenditures, employee growth, ROA, and sales growth. The industry shock index is the first principal component of these seven variables. We lag the industry shock index 1 year so that it measures the economic shock the year before the merger announcement date. The calculation of the variables is explained subsequently.

Net income/Sales shock (indicator) Asset turnover shock (indicator) R&D shock (indicator) Capital expenditure Shock (indicator) ROA shock (indicator) Employee growth shock (indicator) Sales growth shock (indicator): We estimate yearly changes in firm profitability [ni/sale], asset turnover [$\text{sale}(t)/\text{at}(t-1)$], R&D expenses [$\text{xrd}(t)/\text{at}(t-1)$], capital expenditures [$\text{xrd}(t)/\text{at}(t-1)$], employee growth [$\text{emp}(t)/\text{emp}(t-1) - 1$], and ROA and sales growth figures [$\text{sale}(t)/\text{sale}(t-1) - 1$] from 1986 to 2012. We then estimate the median change in the respective variable for each industry (defined by 2-digit SIC code), which yields 27 yearly observations for each variable at the industry level. We also identify the 75th percentile of the distribution of the 27 observations for each variable at the industry level. Indicators take a value of 1 if a variable value is above the 75th percentile.

M&A activity: Total value of mergers in target firms' industry divided by the total book value of assets of firms in target firms' industry, where both figures are estimated in the same year the deal is announced. Mergers include leveraged buyouts (LBOs), tender offers, spinoffs, exchange offers, minority stock purchases, acquisitions of minority interest, privatizations, and equity carveouts, and they exclude undisclosed value deals, self-tenders, and share repurchases. Industries are defined by 2-digit SIC codes.

2001_ECONOMIC_RECESSION: Indicator that equals 1 if the deal is announced from Sept. 2000 to May 2002, and 0 otherwise. *Source:* NBER.

2008_ECONOMIC_RECESSION: Indicator that equals 1 if the deal is announced from June 2007 to Dec. 2009, and 0 otherwise. *Source:* NBER.

Information Asymmetry Measure

Target idiosyncratic volatility: Standard deviation of target firm stock returns (net of value-weighted CRSP portfolio) over $(-252, -63)$, relative to the deal announcement date.

Target book value of total assets: Inflation adjusted book value of total assets. Compustat formula: at .

Target R&D expenses: Research and development expenses divided by total sales. Compustat formula: xrd/at .

Target tangibility: Net plant, property, and equipment divided by total assets. Compustat formula: $ppent/at$.

Target abnormal accruals: Our performance-adjusted abnormal accrual calculations are based on Kothari et al. (2005). We first use the modified Jones model to estimate the abnormal accruals for each firm. We require at least 10 observations in the respective industry-year pair to run the regression. Then, we subtract the median abnormal accrual value for the set of firms that have similar ROA values for the past year from the abnormal accrual value. Performance-adjusted abnormal accruals are defined as the absolute value of the resulting estimate. The details of the estimation procedure are explained in Karpoff et al. (2013).

Distance between headquarters: Distance of merging firm headquarters in miles. We use centroids of the headquarters' zip codes taken from the SDC.

Target analyst forecast error: Analyst forecast error is defined as the absolute value of the difference between announced per share earnings and the median analyst forecast for the same earnings period. The most recent analyst forecasts that are made immediately before the earnings announcements are used to calculate the median forecast. Forecast errors are deflated by the stock price of the firm. Because forecast errors can be calculated quarterly, we calculate the average analyst forecast error over the four quarters preceding the first merger announcement date.

Target analyst forecast dispersion: Analyst forecast dispersion is the standard deviation of analyst forecasts deflated by firm stock price. The most recent analyst forecasts occurring prior to an earnings announcement are used to calculate its standard deviation. We calculate analyst forecast dispersion for each of the four quarterly earnings announcements that immediately precede the first merger announcement. At the final step, we take the average of the four forecast dispersion estimates.

Number of acquirer advisors: Number of financial advisors hired by an acquiring firm.

Acquirer advisor quality: Advisor quality is measured by the market shares of financial advisors, as reported in the SDC's league tables. The league tables are estimated yearly. We take the average market share of the advisors over the 3 years prior to the initial merger announcement date. When an acquirer has multiple financial advisors, we take the maximum market share of its advisors.

Other Variables

INSTITUTIONAL_OWNERSHIP: Percentage of target firm shares owned by institutions. *Source:* CDA/Spectrum.

INSTITUTIONAL_SHAREHOLDING_CONCENTRATION: Herfindahl–Hirschman index of institutional shareholdings in a target firm. *Source:* CDA/Spectrum.

PRIOR_INDUSTRY_TARGET_INITIATED_DEAL_&_AUCTION_ACTIVITY: The total number of target-initiated or auction deals in the target firm's industry (defined by 2-digit SIC codes) within the past 2 calendar years of the first merger announcement

date divided by the total number of mergers completed within the same industry over the same period. The overall sample of mergers needs to satisfy the following criteria: i) Deal value is greater than \$5 million, ii) targets are publicly traded companies located in the United States and are not finance or utility firms, iii) the legal form of transaction is either merger or acquisition of majority interest, and iv) the deal status is completed.

References

- Agrawal, A., and J. F. Jaffe. "Do Takeover Targets Underperform? Evidence from Operating and Stock Returns." *Journal of Financial and Quantitative Analysis*, 38 (2003), 721–746.
- Akerlof, G. "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism." *Quarterly Journal of Economics*, 84 (1970), 488–500.
- Aktas, N.; E. de Bodt; and R. Roll. "Negotiations under the Threat of an Auction." *Journal of Financial Economics*, 98 (2010), 241–255.
- Altman, E. I. "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy." *Journal of Finance*, 23 (1968), 589–609.
- Andrade, G.; M. Mitchell; and E. Stafford. "New Evidence and Perspectives on Mergers." *Journal of Economic Perspectives*, 15 (2001), 103–120.
- Andrade, G., and E. Stafford. "Investigating the Economic Role of Mergers." *Journal of Corporate Finance*, 10 (2004), 1–36.
- Ang, J., and N. Mauck. "Fire Sale Acquisitions: Myth vs. Reality." *Journal of Banking & Finance*, 35 (2011), 532–543.
- Asquith, P. "Merger Bids, Uncertainty, and Stockholder Returns." *Journal of Financial Economics*, 11 (1983), 51–83.
- Asquith, P.; R. F. Bruner; and D. W. Mullins. "The Gains to Bidding Firms from Merger." *Journal of Financial Economics*, 11 (1983), 121–139.
- Asquith, P.; R. Gertner; and D. Scharfstein. "Anatomy of Financial Distress: An Examination of Junk-Bond Issuers." *Quarterly Journal of Economics*, 109 (1994), 625–658.
- Bao, J., and A. Edmans. "Do Investment Banks Matter for M&A Returns?" *Review of Financial Studies*, 24 (2011), 2286–2315.
- Barth, M. E.; R. Kasznik; and M. F. McNichols. "Analyst Coverage and Intangible Assets." *Journal of Accounting Research*, 39 (2001), 1–34.
- Bates, T. W.; D. A. Becher; and M. L. Lemmon. "Board Classification and Managerial Entrenchment: Evidence from the Market for Corporate Control." *Journal of Financial Economics*, 87 (2008), 656–677.
- Bates, T. W., and M. L. Lemmon. "Breaking Up Is Hard To Do? An Analysis of Termination Fee Provisions and Merger Outcomes." *Journal of Financial Economics*, 69 (2003), 469–504.
- Berger, P. G., and E. Ofek. "Bustup Takeovers of Value-Destroying Diversified Firms." *Journal of Finance*, 51 (1996), 1026–1027.
- Betton, S., and B. E. Eckbo. "Toeholds, Bid Jumps, and Expected Payoffs in Takeovers." *Review of Financial Studies*, 13 (2000), 841–882.
- Betton, S.; B. E. Eckbo; and K. S. Thorburn. "Corporate Takeovers." In *Handbook of Corporate Finance: Empirical Corporate Finance*, B. E. Eckbo, ed. Boston, MA: Elsevier/North-Holland (2008), 289–427.
- Boone, A. L., and J. H. Mulherin. "Do Termination Provisions Truncate the Takeover Bidding Process?" *Review of Financial Studies*, 20 (2007a), 461–489.
- Boone, A. L., and J. H. Mulherin. "How Are Firms Sold?" *Journal of Finance*, 62 (2007b), 847–875.
- Boone, A. L., and J. H. Mulherin. "Do Auctions Induce a Winner's Curse? New Evidence from the Corporate Takeover Market." *Journal of Financial Economics*, 89 (2008), 1–19.
- Booth, G. G.; J. C. Lin; T. Martikainen; and Y. Tse. "Trading and Pricing in Upstairs and Downstairs Stock Markets." *Review of Financial Studies*, 15 (2002), 1111–1135.
- Brown, D. T.; C. M. James; and R. Mooradian. "Asset Sales by Financially Distressed Firms." *Journal of Finance*, 49 (1994), 1054–1055.
- Chang, S. Y. "Takeovers of Privately Held Targets, Methods of Payment, and Bidder Returns." *Journal of Finance*, 53 (1998), 773–784.
- Coval, J. D., and T. J. Moskowitz. "The Geography of Investment: Informed Trading and Asset Prices." *Journal of Political Economy*, 109 (2001), 811–841.
- Cremers, K. J. M.; V. B. Nair; and K. John. "Takeovers and the Cross-Section of Returns." *Review of Financial Studies*, 22 (2009), 1409–1445.

- Davidoff, S. M. *Gods at War: Shotgun Takeovers, Government by Deal, and the Private Equity Implosion*. Hoboken, NJ: John Wiley & Sons (2009).
- Easley, D.; N. M. Kiefer; and M. O'Hara. "One Day in the Life of a Very Common Stock." *Review of Financial Studies*, 10 (1997), 805–835.
- Easley, D.; N. M. Kiefer; M. O'Hara; and J. B. Paperman. "Liquidity, Information, and Infrequently Traded Stocks." *Journal of Finance*, 51 (1996), 1405–1436.
- Easley, D., and M. O'Hara. "Time and the Process of Security Price Adjustment." *Journal of Finance*, 47 (1992), 577–605.
- Eckbo, B. E., and K. S. Thorburn. "Automatic Bankruptcy Auctions and Fire-Sales." *Journal of Financial Economics*, 89 (2008), 404–422.
- Edmans, A.; I. Goldstein; and W. Jiang. "The Real Effects of Financial Markets: The Impact of Prices on Takeovers." *Journal of Finance*, 67 (2012), 933–971.
- Erel, I.; Y. Jang; and M. S. Weisbach. "Do Acquisitions Relieve Target Firms' Financial Constraints?" *Journal of Finance*, 70 (2015), 289–328.
- Fee, C. E.; C. J. Hadlock; and S. Thomas. "Corporate Equity Ownership and the Governance of Product Market Relationships." *Journal of Finance*, 61 (2006), 1217–1251.
- Fich, E. M.; J. Cai; and A. L. Tran. "Stock Option Grants to Target CEOs during Private Merger Negotiations." *Journal of Financial Economics*, 101 (2011), 413–430.
- Fich, E. M.; A. L. Tran; and R. A. Walkling. "On the Importance of Golden Parachutes." *Journal of Financial and Quantitative Analysis*, 48 (2013), 1717–1753.
- Gande, A.; M. Puri; and A. Saunders. "Bank Entry, Competition, and the Market for Corporate Securities Underwriting." *Journal of Financial Economics*, 54 (1999), 165–195.
- Gande, A.; M. J. Puri; A. Saunders; and I. Walter. "Bank Underwriting of Debt Securities: Modern Evidence." *Review of Financial Studies*, 10 (1997), 1175–1202.
- Garlappi, L., and H. Yan. "Financial Distress and the Cross-Section of Equity Returns." *Journal of Finance*, 66 (2011), 789–822.
- Gemmill, G. "Transparency and Liquidity: A Study of Block Trades on the London Stock Exchange under Different Publication Rules." *Journal of Finance*, 51 (1996), 1765–1790.
- Genesove, D. "Adverse Selection in the Wholesale Used Car Market." *Journal of Political Economy*, 101 (1993), 644–665.
- Golubov, A.; D. Petmezaz; and N. G. Travlos. "When It Pays to Pay Your Investment Banker: New Evidence on the Role of Financial Advisors in M&As." *Journal of Finance*, 67 (2012), 271–311.
- Greene, W. H. "Sample Selection Bias as a Specification Error: Comment." *Econometrica*, 49 (1981), 795–798.
- Hadlock, C. J., and J. R. Pierce. "New Evidence on Measuring Financial Constraints: Moving Beyond the KZ Index." *Review of Financial Studies*, 23 (2010), 1909–1940.
- Hansen, R. G. "A Theory for the Choice of Exchange Medium in Mergers and Acquisitions." *Journal of Business*, 60 (1987), 75–95.
- Harford, J. "Corporate Cash Reserves and Acquisitions." *Journal of Finance*, 54 (1999), 1969–1997.
- Harford, J. "What Drives Merger Waves?" *Journal of Financial Economics*, 77 (2005), 529–560.
- Hartzell, J. C.; E. Ofek; and D. Yermack. "What's in It for Me? CEOs Whose Firms Are Acquired." *Review of Financial Studies*, 17 (2004), 37–61.
- Heckman, J. J. "Sample Selection Bias as a Specification Error." *Econometrica*, 47 (1979), 153–161.
- Heitzman, S. "Equity Grants to Target CEOs during Deal Negotiations." *Journal of Financial Economics*, 102 (2011), 251–271.
- Hoberg, G., and G. Phillips. "Text-Based Network Industries and Endogenous Product Differentiation." *Journal of Political Economy*, 124 (2016), 1423–1465.
- Hotchkiss, E. S. "Postbankruptcy Performance and Management Turnover." *Journal of Finance*, 50 (1995), 3–21.
- Hotchkiss, E. S., and R. M. Mooradian. "Vulture Investors and the Market for Control of Distressed Firms." *Journal of Financial Economics*, 43 (1997), 401–432.
- Hotchkiss, E. S., and R. M. Mooradian. "Acquisitions as a Means of Restructuring Firms in Chapter 11." *Journal of Financial Intermediation*, 7 (1998), 240–262.
- Huang, Y. S., and R. A. Walkling. "Target Abnormal Returns Associated with Acquisition Announcements: Payment, Acquisition Form, and Managerial Resistance." *Journal of Financial Economics*, 19 (1987), 329–349.
- Hubbard, R. G., and D. Palia. "A Reexamination of the Conglomerate Merger Wave in the 1960s: An Internal Capital Markets View." *Journal of Finance*, 54 (1999), 1131–1152.
- Jensen, M. C., and R. Ruback. "The Market for Corporate Control: The Scientific Evidence." *Journal of Financial Economics*, 11 (1983), 5–50.
- Kaplan, S. N., and L. Zingales. "Do Investment-Cash Flow Sensitivities Provide Useful Measures of Financing Constraints?" *Quarterly Journal of Economics*, 112 (1997), 169–215.

- Karpoff, J. M.; G. Lee; and R. W. Masulis. "Contracting under Asymmetric Information: Evidence from Lockup Agreements in Seasoned Equity Offerings." *Journal of Financial Economics*, 110 (2013), 607–626.
- Keim, D. B., and A. Madhavan. "The Upstairs Market for Large-Block Transactions: Analysis and Measurement of Price Effects." *Review of Financial Studies*, 9 (1996), 1–36.
- Kini, O.; W. Kracaw; and S. Mian. "Corporate Takeovers, Firm Performance, and Board Composition." *Journal of Corporate Finance*, 1 (1995), 383–412.
- Kini, O.; W. Kracaw; and S. Mian. "The Nature of Discipline by Corporate Takeovers." *Journal of Finance*, 59 (2004), 1511–1552.
- Kitching, J. *Acquisitions in Europe: Causes of Corporate Successes and Failures*. New York, NY and Geneva, Switzerland: Business International SA (1973).
- Kothari, S. P.; A. J. Leone; and C. E. Wasley. "Performance Matched Discretionary Accrual Measures." *Journal of Accounting & Economics*, 39 (2005), 163–197.
- Krishnan, C. N. V., and R. W. Masulis. "Law Firm Expertise and Merger and Acquisition Outcomes." *Journal of Law & Economics*, 56 (2013), 189–226.
- Krishnaswami, S., and V. Subramaniam. "Information Asymmetry, Valuation, and the Corporate Spin-Off Decision." *Journal of Financial Economics*, 53 (1999), 73–112.
- Lamont, O.; C. Polk; and J. Saá-Requejo. "Financial Constraints and Stock Returns." *Review of Financial Studies*, 14 (2001), 529–554.
- Lang, L. H. P.; R. M. Stulz; and R. A. Walking. "Managerial Performance, Tobin's Q , and the Gains from Successful Tender Offers." *Journal of Financial Economics*, 24 (1989), 137–154.
- Lang, L. H. P.; R. M. Stulz; and R. A. Walking. "A Test of the Free Cash Flow Hypothesis: The Case of Bidder Returns." *Journal of Financial Economics*, 29 (1991), 315–335.
- Leary, M. T., and M. R. Roberts. "The Pecking Order, Debt Capacity, and Information Asymmetry." *Journal of Financial Economics*, 95 (2010), 332–355.
- Lee, G., and R. W. Masulis. "Seasoned Equity Offerings: Quality of Accounting Information and Expected Flotation Costs." *Journal of Financial Economics*, 92 (2009), 443–469.
- Liao, R. C. "What Drives Corporate Minority Acquisitions around the World? The Case for Financial Constraints." *Journal of Corporate Finance*, 26 (2014), 78–95.
- Madhavan, A., and M. Cheng. "In Search of Liquidity: Block Trades in the Upstairs and Downstairs Markets." *Review of Financial Studies*, 10 (1997), 175–203.
- Maloney, M. T.; R. E. McCormick; and M. L. Mitchell. "Managerial Decision Making and Capital Structure." *Journal of Business*, 66 (1993), 189–217.
- Marquez, R., and B. Yilmaz. "Information and Efficiency in Tender Offers." *Econometrica*, 76 (2008), 1075–1101.
- Martin, K. J., and J. J. McConnell. "Corporate Performance, Corporate Takeovers, and Management Turnover." *Journal of Finance*, 46 (1991), 671–687.
- Masulis, R. W.; P. K. Pham; and J. Zein. "Family Business Groups around the World: Financing Advantages, Control Motivations, and Organizational Choices." *Review of Financial Studies*, 24 (2011), 3556–3600.
- Masulis, R. W.; P. K. Pham; and J. Zein. "The Structure of Family Business Groups around the World." In *Research Handbook on Shareholder Power*, J. Hill and R. Thomas, eds. Northampton, MA: Edward Elgar Publishing (2014), 131–167.
- Matsusaka, J. G., and V. Nanda. "Internal Capital Markets and Corporate Refocusing." *Journal of Financial Intermediation*, 11 (2002), 176–211.
- Mitchell, M. L., and J. H. Mulherin. "The Impact of Industry Shocks on Takeover and Restructuring Activity." *Journal of Financial Economics*, 41 (1996), 193–229.
- Moeller, S. B.; F. P. Schlingemann; and R. M. Stulz. "Firm Size and the Gains from Acquisitions." *Journal of Financial Economics*, 73 (2004), 201–228.
- Moeller, S. B.; F. P. Schlingemann; and R. M. Stulz. "How Do Diversity of Opinion and Information Asymmetry Affect Acquirer Returns?" *Review of Financial Studies*, 20 (2007), 2047–2078.
- Morck, R.; A. Shleifer; and R. W. Vishny. "Do Managerial Objectives Drive Bad Acquisitions?" *Journal of Finance*, 45 (1990), 31–48.
- Mulherin, H., and A. L. Boone. "Comparing Acquisitions and Divestitures." *Journal of Corporate Finance*, 6 (2000), 117–139.
- Mulherin, J. H., and S. A. Simsir. "Measuring Deal Premiums in Takeovers." *Financial Management*, 44 (2015), 1–14.
- Myers, S. C., and N. S. Majluf. "Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have." *Journal of Financial Economics*, 13 (1984), 187–221.
- Offenberg, D., and C. Pirinsky. "How Do Acquirers Choose between Mergers and Tender Offers?" *Journal of Financial Economics*, 116 (2015), 331–348.

- Officer, M. S. "Termination Fees in Mergers and Acquisitions." *Journal of Financial Economics*, 69 (2003), 431–467.
- Officer, M. S. "The Price of Corporate Liquidity: Acquisition Discounts for Unlisted Targets." *Journal of Financial Economics*, 83 (2007), 571–598.
- Officer, M. S.; A. B. Poulsen; and M. Stegemoller. "Target-Firm Information Asymmetry and Acquirer Returns." *Review of Finance*, 13 (2009), 467–493.
- Oler, D., and K. Smith. "The Characteristics and Fate of Take Me Over Firms" Working Paper, Texas Tech University (2008).
- Palepu, K. G. "Predicting Takeover Targets: A Methodological and Empirical Analysis." *Journal of Accounting & Economics*, 8 (1986), 3–35.
- Pastena, V., and W. Ruland. "The Merger Bankruptcy Alternative." *Accounting Review*, 61 (1986), 288–301.
- Prabhala, N., and K. Li. "Self-Selection Models in Corporate Finance." In *Handbook of Empirical Corporate Finance*, B. E. Eckbo, ed. Amsterdam: Elsevier (2008), 37–86.
- Pulvino, T. C. "Do Asset Fire Sales Exist? An Empirical Investigation of Commercial Aircraft Transactions." *Journal of Finance*, 53 (1998), 939–978.
- Puri, M. "Commercial Banks in Investment Banking: Conflict of Interest or Certification Role?" *Journal of Financial Economics*, 40 (1996), 373–401.
- Rau, P. R. "Investment Bank Market Share, Contingent Fee Payments, and the Performance of Acquiring Firms." *Journal of Financial Economics*, 56 (2000), 293–324.
- Saar, G. "Price Impact Asymmetry of Block Trades: An Institutional Trading Explanation." *Review of Financial Studies*, 14 (2001), 1153–1181.
- Schlingemann, F. P.; R. M. Stulz; and R. A. Walkling. "Divestitures and the Liquidity of the Market for Corporate Assets." *Journal of Financial Economics*, 64 (2002), 117–144.
- Schwert, G. W. "Markup Pricing in Mergers and Acquisitions." *Journal of Financial Economics*, 41 (1996), 153–192.
- Schwert, G. W. "Hostility in Takeovers: In the Eyes of the Beholder?" *Journal of Finance*, 55 (2000), 2599–2640.
- Servaes, H. "Tobin's Q and the Gains from Takeovers." *Journal of Finance*, 46 (1991), 409–419.
- Shleifer, A., and R. W. Vishny. "Liquidation Values and Debt Capacity: A Market Equilibrium Approach." *Journal of Finance*, 47 (1992), 1343–1366.
- Shrieves, R. E., and D. L. Stevens. "Bankruptcy Avoidance as a Motive for Merger." *Journal of Financial and Quantitative Analysis*, 14 (1979), 501–515.
- Spence, M. "Job Market Signaling." *Quarterly Journal of Economics*, 87 (1973), 355–374.
- Stein, J. C. "Internal Capital Markets and the Competition for Corporate Resources." *Journal of Finance*, 52 (1997), 111–133.
- Thomas, S. "Firm Diversification and Asymmetric Information: Evidence from Analysts' Forecasts and Earnings Announcements." *Journal of Financial Economics*, 64 (2002), 373–396.
- Travlos, N. G. "Corporate Takeover Bids, Methods of Payment, and Bidding Firms' Stock Returns." *Journal of Finance*, 42 (1987), 943–963.
- Uysal, V. B.; S. Kedia; and V. Panchapagesan. "Geography and Acquirer Returns." *Journal of Financial Intermediation*, 17 (2008), 256–275.
- Weston, F. "The Nature and Significance of Conglomerate Firms." *St. John's Law Review*, 44 (1970), 66–80.
- Whited, T. M., and G. J. Wu. "Financial Constraints Risk." *Review of Financial Studies*, 19 (2006), 531–559.