

When Do Targets Benefit From Negotiations? Evidence from Auctions and Negotiations

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Abstract: Prior theory generally suggests target shareholders benefit more from auctions due to increased bidder competition. Recent evidence, however, finds no difference in target shareholders' wealth effects whether the company is auctioned to multiple bidders or sold in a single bidder negotiation. Controlling for the self-selection bias stemming from management's private information inherent in this decision, we find auctions are associated with higher target cumulative abnormal returns and offer premiums. Focusing on the impact of various proxies of adverse selection risk and the uncertainty of future cash flows on the sale, we find that targets with more aggressive (or opaque) financial reporting are more likely to auction the firm and this strategy proves beneficial only when the uncertainty of future cash flows is high. When financial reporting is more transparent or the uncertainty of future cash flows is low, targets benefit more from single bidder negotiations.

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Prior theoretical research suggests the method of sale should impact the expected wealth changes for target shareholders (e.g., Hirshleifer and Png, 1989; Bulow and Klemperer, 1996; Ye, 2008), with auctions generally capturing larger premiums due to increased competition (Dasgupta and Hansen, 2006). However, recent research suggests that target shareholders' wealth effects from auctions do not differ from their wealth effects in single-bidder negotiations (Boone and Mulherin, 2007b). We find this result puzzling and contend that an analysis of the method of sale decision and the wealth effects outcome must address the self-selection bias resulting from target management's private information inherent in the decision. Using a self-selection framework, we hypothesize that adverse selection risk (i.e., an anticipated risk) and the uncertainty of future cash flows (i.e., an unknown risk) impact the target's decision to sell through an auction, as well as the wealth accruing to target shareholders.

Target managers often initiate the sale of the firm and choose the method of sale. In this paper, we assess the impact of various proxies of adverse selection risk and the uncertainty of future cash flows on the method of sale decision to examine when targets benefit from auctions vs. negotiations. We posit that the decision to sell via an auction is not random but a deliberate choice and that the likelihood of the target choosing an auction increases when the firm has more aggressive or opaque financial reporting. Moreover, this strategy is most likely successful when firm valuation (i.e., the estimation of future cash flows) is highly uncertain.

There are several explanations why target managers would want to sell through an auction. For example, since target managers possess private information related to the firm's future cash flows, they may commit to an auction in an attempt to secure the best price for target shareholders (Dasgupta and Hansen, 2006). Additionally, an auction can provide greater latitude to conceal aggressive financial reporting methods that may increase both target shareholders' wealth and their own. As Hansen (2001) mentions, while the introduction of more bidders may

increase scrutiny of the target firm's financials and operations, bidders in an auction setting do not have access to the same information.¹ In auction transactions, whether for efficient or opportunistic reasons, target management can rationally withhold relevant information and justify such information limitation by invoking what Hansen (2001) terms the *competitive information effect*. Hansen (2001, pg. 32) reports that "in corporate auctions we see sellers purposely withholding relevant information" to reduce the leakage of strategic information to potential buyers who may very well be competitors, suppliers, or customers.

Targets can thus use a rational excuse to limit information access to prevent detection of aggressive financial reporting. Furthermore, many earnings management techniques are well within the confines of generally accepted accounting principles and thus, not easily detected, prevented, nor litigated. Acquirers, however, as both sophisticated users of financial reporting information and rational bidders will "price-protect" and discount an *expected* level of earnings management (i.e., *Financial Reporting Opacity*).² Nevertheless, if after these considerations the decision to sell through an auction positively impacts target shareholders' wealth, then choosing an auction as the method of sale is efficient for the targets.

We find that when target managers initiate the sale of the firm, they are more likely to choose an auction as the method of sale. We also find that abnormal discretionary accruals and the level of research and development expenditures (one of our measures of the uncertainty of future cash flows) are positively associated with the decision to sell through an auction. Collectively, we find that our proxies for adverse selection (i.e., the target initiated the sale and abnormal discretionary accruals) and the uncertainty of future cash flows (i.e., research and

¹ Data is generally provided to multiple bidders in an off-site data-room, as opposed to the often on-site accessibility granted in single-bidder negotiations.

² Christie and Zimmerman (1994) show that takeover target managers choose income-increasing accounting methods (i.e. more opaque and aggressive financial reporting) to increase the value of the firm.

development expenditures) are associated with an approximately 33% increase in the likelihood of selling through an auction, holding all other control variables constant.³

Once we control for self-selection through treatment effects regressions (Li and Prabhala, 2006; Heckman, 1979), we find that, as predicted by theory, auctions are associated with both higher target cumulative abnormal returns (Target CARs) and offer premiums when compared to single-bidder negotiations. Moreover, consistent with the notion that there is a discount placed on targets that initiate the sale of the firm and have more opaque financial information, we find a negative association between these variables and both Target CARs and offer premiums.

When splitting our sample into subsamples of high and low financial reporting opacity and uncertainty, we find that for target initiated transactions, selling through an auction only somewhat mitigates the discount associated with adverse selection (i.e., target initiated deal) and this discount mitigation is mainly driven by the presence of a high uncertainty of future cash flows. More importantly, this subsample of high opacity and high uncertainty firms are the only ones whose wealth effects (both Target CARs and offer premiums) are positively associated with financial reporting opacity. When financial reporting is more transparent or the uncertainty of future cash flows is low, targets benefit more from single bidder negotiations and financial reporting opacity reduces target shareholders' wealth effects.

We conduct additional tests to examine the efficiency of the chosen method of sale. First, we find evidence consistent with the theoretically optimal sequential sale procedure ("Negotiation-then-Auction" targets) advanced by Povel and Singh (2006). The decision to sell via an auction after the target initially considered a negotiation is associated with higher Target CARs. Second, to study whether the ability to detect adverse information depends upon the

³ The change in predicted probability of selling through an auction increases by 3.5% with a one-standard deviation increase in either financial reporting opacity or the R&D expenditures. The increase is 26% when the target initiates the deal.

method of sale, we examine the likelihood of re-negotiating the transaction as a function of adverse selection and uncertainty. We document that target initiated auctions have a lower probability of renegotiation. Finally, even though auctioned targets have statistically higher financial reporting opacity than negotiations, we find a positive (negative) association between financial reporting opacity and the likelihood of re-negotiating the deal if the transaction is a (an) negotiation (auction). These results are consistent with the notion that manager's choosing an auction as the method of sale limit bidder's access to target information, which hinders their ability to detect financial reporting irregularities. Also, consistent with the conjecture of better access to information, the length of the due diligence increases the probability of renegotiation, but only in negotiations.

Our findings are noteworthy for several reasons. First, we find that managerial choices, whether efficient or opportunistic, affect target shareholder's wealth effects. This result is particularly important because it offers explanations for the indifferent results between auctions and negotiations in Boone and Mulherin (2007b). Second, generally speaking, our analysis increases our understanding of adverse selection and firm value. For example, our analysis contributes to the nascent literature examining the impact of financial reporting opacity associated with earnings management and firm value (e.g., Anderson et al. 2009; Hutton et al. 2009), and complements research showing that managers of acquiring firms using equity as the means of acquisition overstate their earnings in the quarters preceding the public merger announcement (e.g., Erickson and Wang, 1999; Louis, 2004). Finally, similar to recent studies in the diversification literature (for example, Campa and Kedia, 2002), we illustrate that controlling for self-selection biases enriches our understanding of the corporate takeover process.

I. Background and Literature Review

A. The Method of Sale and Information Asymmetries

Research on the method of sale posits that the tradeoff between competition and information costs should drive the decision between selling through an auction or negotiation. Prior theoretical papers suggest that the method of sale impacts expected wealth changes for the target (for instance see, Hirshleifer and Png, 1989; Bulow and Klemperer, 1996 and 2002; Ye, 2008).⁴ Both Bazerman and Samuelson (1983) and Bulow and Klemperer (2002) report that more uncertain targets and higher competition increase the probability of the bidders' winners curse in auctions. In their survey paper on auctions, Dasgupta and Hansen (2006, pg. 111) state that overall the extant "[empirical] evidence suggests that auctions tend to yield great results for targets" yet "gains to bidders are at best minimal." As Dasgupta and Hansen (2006, p. 116) posit, and Bulow and Klemperer (1996) theoretically show in their English auction model, targets can extract higher values from the highest bidder in an auction vs. negotiated transactions.

Boone and Mulherin (2008, 2007b), however, provide evidence against the winner's curse and against differences in wealth for target shareholders in auctioned vs. negotiated acquisitions. Moreover, recent auction theory literature proposes optimal selling mechanisms that include both private and common value components for the bidder. For instance, using a sequential selling mechanism, Povel and Singh (2006) and Cantillon (2008) show that higher competition does not necessarily result in higher expected prices for the target due to bidder asymmetries in experience and information, respectively. These models suggest a separating equilibrium in which the target chooses the method of sale (i.e., auction or negotiation) that

⁴ See Klemperer (1999) for a survey of the auction literature.

increases the expected transaction value.⁵ Therefore, we expect some targets to benefit from negotiations (vs. auctions).

Cantillon (2008) and Povel and Singh (2006) provide theoretical support for more information sharing in single-bidder transactions to exploit information asymmetries mainly derived from uncertainty in target valuation. The auction literature, however, has focused on information asymmetries for value creation among the bidders, and not necessarily on the adverse selection of the target (as is the case with earnings management). In addition to looking for potential synergies, the negotiator's on-site access can reduce information asymmetry by providing additional information to estimate, for instance, the extent of earnings management more accurately. Indeed, as our evidence suggests, information gathering by the acquiring management is further limited due to the shorter due diligence windows granted to each bidder in an auction transaction.⁶

B. Aggressive and Opaque Financial Reporting.

Financial reporting opacity (i.e., the use of aggressive accrual accounting policies to inflate current earnings) prior to major corporate events has been of particular interest to both accounting and finance academics.⁷ Targets can engage in aggressive accounting to increase reported earnings in earlier periods before an acquisition for various reasons, whether efficient or opportunistic, prior to contemplating the sale of the firm (Christie and Zimmerman, 1994). Although the above discussion considers the target's incentives to manage earnings in

⁵ In addition, agency theory (e.g., Jensen and Meckling 1976) suggests that self-interested target managers would exploit information asymmetries and choose the method of sale that maximizes their own welfare. For example, target managers could choose a private negotiation in an attempt to extract rents in the form of special payments (e.g., Moeller 2005; Hartzell, Ofek and Yermack, 2004), increase the likelihood of continued employment with the combined firm (Boone and Mulherin, 2007b), or retain power (Wulf, 2004).

⁶ As discussed in the results section of the paper, the median number of pre-announcement due diligence days per bidder that signed a confidentiality agreement in an auction transaction (8.6 days) is less than half of the number of due diligence days in a private negotiation (21 days).

⁷ For instance, see evidence in IPOs documented by Adams, Carow and Perry (2009) and Teoh et al. (1998b), and SEOs documented by Teoh et al. (1998a), among others.

conjunction with the method of sale decision, the target is not always the sale initiator, nor is earnings management necessarily restricted to the period immediately preceding the decision to sell. Hutton, Marcus, and Tehranian (2009) document that the opacity (i.e., lack of transparency) of financial statements is associated with the distribution of stock returns. The authors find that firms with higher opacity reveal less firm-specific information to the markets.

Recent papers have examined the role of signaling and transparency in acquisitions and firm value in general. The common intuition is that information asymmetries affect the market reaction and value creation in acquisitions. Martin and Shalev (2009) study the potential synergies created in M&A deals and find a positive relation between the target's transparency (as proxied by the target's stock return non-synchronicity) and the combined shareholder gains (i.e., bidder plus target CARs). The authors focus on the how the stock price return dynamics (i.e., market public information) relates to the availability of firm-specific information that permits the estimation of the target's fundamental value. McNichols and Stubben (2009) argue that bidders obtain lower returns when the target's accounting information is less precise. Instead of examining the potential biased information due to financial reporting opacity (as proxied by the level of abnormal discretionary accruals), the authors focus on the quality of the accounting information (as proxied by the relation between discretionary accruals and cash flows). Raman, Shivakumar and Tamayo (2008) find a negative relation between the premiums (measured with long-run Target CARs) and the quality of the target's earnings (i.e., the relation between discretionary accruals and cash flows). The authors argue that bidders prefer negotiations over auctions to obtain private information on the target.

The main difference between our paper and these recent papers is that we examine the rationale and economics of the method of sale decision, specifically through self-selection methods and subsample analysis (i.e., splitting our sample into subsamples of high and low

financial reporting opacity and uncertainty). Additionally, we examine how adverse selection risk and uncertainty relate to the pre- and post-announcement acquisition dynamics (i.e., due diligence, bidder response level, and price renegotiation) in order to explore the potential rationale for changes in target shareholder wealth.

II. Research Design

A. Sample and Sale Process Descriptions, and Descriptive Statistics

Sample Description

Using the Thompson Financial SDC M&A database, we begin the construction of the sample by identifying all acquisition announcements of U.S. public targets for the 1998-2005 period. This initial screen results in 2,045 transactions. As detailed in Table 1 Panel A, we lose 1,210 observations due to missing Compustat and CRSP data.⁸ We also remove 240 small acquisitions of targets with market capitalizations less than 1% of the acquirer's market capitalization immediately preceding the acquisition (Boone and Mulherin (2007b),⁹ 66 acquisitions of targets with non-U.S. parents and 22 with insufficient information in SEC files.

Since Boone and Mulherin (2007a) suggest that SDC is not comprehensive, our data gathering process uses several additional sources to verify and supplement the SDC data obtained. We double-check the announcement-, renegotiation-, termination-, and completion-dates in Factiva and SEC filings. We define the announcement date as the first trading date in

⁸ We lose 873 firms because either the target or the acquirer does not appear in Compustat or CRSP. We lose an additional 337 firms because of incomplete data in Compustat to estimate a two-year average of discretionary accruals, our proxy for financial reporting opacity (we need 2 years of prior years' data to estimate the measure of discretionary accruals used in the main analysis). We replicate all of our analysis without making this restriction (i.e., without taking into account financial reporting opacity) and our inferences remain the same.

⁹ Even though we applied a similar screen to that used by Boone and Mulherin (2007b), our sample of firms comprises a broader range of firm sizes. Also, in contrast to Boone and Mulherin's sample period (1989-1999), our sample period (1998-2005) spans the bursting of the internet bubble, the terrorist attacks of 9/11/2001, the elimination of the pooling-of-interest method under SFAS 141 effective for fiscal years subsequent to 12/15/2001, and the Sarbanes-Oxley Act of 2002. Despite these sample differences, we are able to replicate Boone and Mulherin's main OLS and 2SLS results. Differences in sample composition are unlikely to introduce any systematic bias in our results.

which the acquirer or the target publicizes the acquisition. Our sample does not include any of the acquisitions in which SDC classifies the acquisition as a rumor and confirm this is the case with Factiva. General acquisition information from the SEC files is confirmed via the LivEdgar M&A Database. Officer (2004) also reports that the method of payment and premiums reported in SDC are not always reliable. Therefore, we verify the offer premium from several sources, using the following hierarchy in the case of data differences: *i*) the SEC proxy report filed, *ii*) the LivEdgar M&A Database, and *iii*) the SDC Database. Additionally, we manually check Factiva News for premiums in the top and bottom 5% of the sample distribution. Finally, for our clinical analysis on terminated and renegotiated acquisitions, we track any changes in the offer price until the final offer is made or paid, as well as any changes in the method of payment terms.

We identify three general classifications of acquisitions between targets and acquirers based on the pre-announcement takeover process: auctions, negotiations, and unsolicited/hostile offers. We then assess whether target managers *choose* to auction the firm to multiple bidders or negotiate with a single bidder from the outset. We determine the proper classification based on close examination of SEC forms 14A and S-4 - the forms the target and acquirer file to detail the “Acquisition process/Background of the merger.” The announcement date, defined as the first public announcement of the transaction, delineates the takeover pre-announcement period events from the post-announcement period (Figure 1).¹⁰ For target-initiated acquisitions, the pre-announcement period of the takeover process usually begins with the target management making the decision to sell the firm and the method of sale to use: auction vs. negotiation. In the case of an auction, the target selects the winning bidder from the offers received.

¹⁰ The research examining the pre-announcement period in the acquisition process is quite new, largely due to the need to extract the merger agreement information from SEC proxy statement filings. See Boone and Mulherin (2007a, 2007b, 2008) and Macias (2009a, 2009b). Legal background on the takeover process is presented in Herzel and Shepro (1990). Some examples of takeover auctions during the 1980s and 1990s are provided in Wasserstein (2000), and Subramanian (2003) also discusses the 1990s takeover competition environment. Oler and Smith (2008), Simsir (2008), and Xie (2009) examine the identity of the acquisition initiator.

The above is only meant to be a general outline of the process. In reality, there are potentially as many variations in the acquisition process as there are acquisitions since each party to the acquisition determines its own course of action. For example, it may be difficult to determine which party initiated the acquisition. In ambiguous cases, we classify it as “both” parties initiating the process. We have some auction acquisitions in which an acquirer initiated acquisition talks but then the target chose to sell via an auction. See descriptive statistics of the sale process reported in Tables 2 and 3. See Hansen (2001), Dasgupta and Hansen (2006), Boone and Mulherin (2007b), and Ye (2008) for more detailed explanations about the auction process. Appendix 2 provides an example of an auction process.

We remain consistent with prior research (Boone and Mulherin 2007b) and classify all multiple bidder acquisitions as auctions, whether or not a formal auction process is established.¹¹ Transactions which are neither considered auctions nor negotiated are classified as hostile acquisitions and are excluded from our main analysis since the target does not choose the method of sale.¹² Our final sample consists of 446 firm deals.

Table 1 Panel B, details the sample observations by method of sale on a year-by-year basis. The annual number of observations ranges from a high of 95 in 1998 and 1999 to a low of 25 in 2002. We find that 186, or 37%, of our sample acquisitions are auctions, with the greatest percentage of auctions occurring in 2001.

¹¹ Boone and Mulherin (2007b) define a formal process as one with pre-auction rules establishing multiple bidding rounds yet find that the use of a single auction classification does not affect their results. We obtain higher levels of significance in our results if we use the formal definition of auctions instead of the formal plus informal definition presented here.

¹² This differs from Boone and Mulherin (2007b). All acquisitions in their study are classified as auction or negotiation, with hostile acquisitions classified as a subset of each (Table IV, pg. 854). Our results are not sensitive to retaining hostile acquisitions in our sample.

Sale Process Description

Table 2 provides a detailed description and summary statistics of the sale process for the sample in full (Panel A) and by method of sale (Panels B-C). Consistent with Boone and Mulherin (2007b), we find considerable activity prior to the public announcement of an acquisition. Panel A shows that the mean number of bidders contacted per acquisition is 6.59, followed by a mean of 2.47 bidders that signed a confidentiality agreement. On average, targets (acquirers) initiate approximately 37% (43%) of the acquisitions.¹³

Acquirers can conduct due diligence before and after the announcement date to minimize information asymmetries. According to practitioners, two of the key antecedents to reducing information asymmetries before completing an acquisition are *i*) to conduct a rigorous due diligence and *ii*) to draft adequate acquisition contracts that allow for renegotiation (or termination).¹⁴ However, while both parties are entitled to perform due diligence, which should detect more egregious earnings management, the acquirer's access and timing of due diligence in the pre-announcement period can be considerably different depending upon the method of sale chosen. Both parties can perform pre-announcement due diligence, however, target managers can limit the amount of information, as well as the length of time it is available, depending on the method of sale.¹⁵ Per Table 2 Panel A, the acquirer conducts due diligence *before* the announcement of the acquisition in 92% of the transactions.¹⁶ The mean (median) length of due

¹³ Based upon the SEC files, the remaining 20% of acquisitions are either jointly initiated by the target and acquirer or the SEC files do not provide enough information to determine the initiator.

¹⁴ See anecdotal evidence in BCG's Cools (2005), McKinsey's Christofferson et al. (2004), and Accenture's Channugam et al. (2005). See Macias (2009a) for an analysis on risk allocation and flexibility in acquisitions.

¹⁵ Following the public announcement of an acquisition (i.e., the post-announcement period), acquirers can continue with more detailed due diligence with a focus on the post-merger-integration stage.

¹⁶ We find that 90% of the acquirers conduct further due diligence after the acquisition announcement. When we consider the due diligence conducted by the acquirer during the entire acquisition process, we find that 100% of acquirers conduct due diligence on the target, either before or after the announcement.

diligence is 29.5 (10.0) days per contacted bidder, 32.85 (14.0) days per bidder that signed a confidentiality agreement.

We find that the identity of the acquisition initiator relates to the method of sale. Targets initiate more auctions and acquirers initiate more negotiations. Panel B reports that targets initiate the sale process in 52% of auctioned acquisitions, a frequency that is significantly higher ($p. < 0.01$) than the 26% of target initiated negotiations. Conversely, Panel C reports that acquirers initiate 50% of negotiated acquisitions vs. only 19% of auctions. We find results consistent with the sequential selling process proposed by Povel and Singh (2006) and Bulow and Klemperer (2009), where in 25 (13%) of the 190 acquisitions initiated by the acquirer, the target decides to sell via an auction instead of the single-bidder negotiation the acquirer initially proposed (we return to this in more detail in the multivariate analysis discussion). After taking into consideration the cases in which the target changes the method of sale, we find that if the acquirer initiates the acquisition, 68% (131/190) are negotiated.

As expected, we find that the mean (median) number of bidders contacted in auction transactions (Panel B) is relatively high at 14.0 (5.0). By definition, negotiated acquisitions have only 1 bidder (Panel C). Furthermore, the mean (median) number of bidders in an auction that signed a confidentiality agreement is 4.5 (3.0).

Although more bidders scrutinize the information provided by the target in auctions (Ye, 2008), the target can limit the scope and time that information is available. In his analytical description of the auction process, Hansen (2001, p. 32) states that “although the information given to potential buyers is extensive, it is not complete” since the target can claim some information is “too confidential to reveal” particularly if the bidding firm is a competitor, a supplier, or a customer. Complementing Hansen’s (2001) *competitive information effect*, Kummer and Sliskovic (2007) reiterate that targets can rationally justify limiting the information

exchange on the grounds of security concerns (i.e., spying, confidentiality abuses, misuse of information).

In practice, the access to information in an auction transaction cannot be as complete as the accessibility afforded in negotiations with single-bidders who are often granted on-site access to the target's management, operations, and financial information until an agreement is reached, as well as closer interaction with target employees. An auction setting can result in the target's establishment of an off-site data-room where *all* bidders are granted access to selected financial information for a predetermined period of time. From a practitioner's point of view, Kummer and Sliskovic (2007, pg. 10), who contrast virtual vs. on-site data rooms, argue that "due diligence is never perfect given many limitations, resulting in risks and potential benefits remaining hidden regardless of the time spent analyzing the information provided".¹⁷ In Table 2 Panels B and C, we find the mean (median) number of pre-announcement due diligence days in an auction transaction is 19.14 (8.58) days per bidder that signed a confidentiality agreement, which is significantly lower ($p < 0.01$) than the mean (median) number of due diligence days in a private negotiation, namely, 42.6 (21.0) days.

In aggregate, the evidence presented in Table 2 suggests that when the target decides the method of sale, most opt for an auction, and that acquirers in auction acquisitions are afforded a shorter due diligence period *before* the announcement. Although, from a practitioner's point of view, more time does not necessarily equate to better due diligence. Kummer and Sliskovic (2007), who contrast virtual vs. on-site data rooms, argue that "due diligence is never perfect

¹⁷ Virtual data-rooms are now a growing business service provided by several companies via internet websites which allow the target firm to upload data for approved bidders to examine in the information gathering, due diligence process. According to a recent article in the Boston Globe (2006), 20 percent of all US merger and acquisition transactions are now done virtually. Leighton-Jones (2004) documents how the leading provider of virtual data rooms, <http://www.intralinks.com>, reports a 256% annual growth of transactions in 2004. Kummer and Sliskovic (2007) report that the first virtual data rooms were used in "the late 1990s."

given many limitations, resulting in risks and potential benefits remaining hidden regardless of the time spent analyzing the information provided”.

B. Multivariate Specifications

Association between Adverse Selection, the Uncertainty of Future Cash Flows, and the Method of Sale

One of our main expectations is that target managers choose to sell the firm through an auction and that this decision is associated with adverse selection (an anticipated risk, as proxied by *Target Initiated Deal* and *Financial Reporting Opacity*, i.e., abnormal discretionary accruals) and the uncertainty of future cash flows (an unknown risk, as proxied by R&D expenditures and the standard deviation of prior year’s returns). We test these associations using the following logit model:

$$\Pr(\textit{Auction} = 1) = f(\textit{Adverse Selection Variables}, \textit{Uncertainty Variables}, \textit{Control Variables}) \quad (1)$$

Auction is a categorical variable coded 1 if the firm sells through an auction, 0 otherwise. Our proxy for Adverse Selection is a categorical variable coded 1 if the target’s management initiated the deal, 0 otherwise (*Target Initiated Deal*). Our proxy for financial reporting opacity is abnormal discretionary accruals averaged over the two years immediately prior to the announcement of the transaction (*Opacity*).¹⁸ Following Guenther (1994), Teoh et al. (1998a, 1998b), and Louis (2004), the residual from estimation of the following model represents discretionary accruals:

$$CA_i = \alpha + \beta(\Delta Sales_i - \Delta AR_i) + \varepsilon_i \quad (2)$$

¹⁸ Hutton, Marcus and Tehranian (2009) use the three year moving sum of the absolute value of discretionary accruals as their proxy for financial reporting opacity. Due to the importance of income-increasing aggressive accounting methods for valuation in our research setting (Christie and Zimmerman, 1994), we retain the signs of our abnormal discretionary accruals measure.

where CA is the current accrual of firm i in year t , $\Delta Sales$ is the annual change in sales for firm i in year t , and ΔAR is the change in accounts receivable for firm i in year t . We calculate current accrual (CA) by subtracting the change in current liabilities from the change in non-cash assets. All variables are scaled by total assets as of year $t-1$. The residual from this model is then industry- and performance-adjusted by subtracting the mean discretionary accrual of a portfolio of firms matched on prior year return on assets and two-digit SIC codes (Kothari et al., 2005). The industry-adjusted performance-matched measures have been used widely in previous research (e.g., Cornett, Marcus and Tehranian, 2008; Gong, Louis and Son, 2008) and represent the best technology in use to estimate abnormal discretionary accruals (Kothari et al. 2005).^{19, 20}

Following Boone and Mulherin (2008, pg. 32), our proxies for the uncertainty of cash flows are the standard deviation of the previous year's stock returns (*Std. Dev. Stock Returns*) and research and development expenditures (*Target R&D*).²¹ Chan, Lakonishok and Sougiannis (2001) argue that the lack of accounting information complicates firm valuation and present evidence that R&D intensity is positively associated with return volatility. Similarly, Kothari, Laguerre and Leone (2002) document a positive relation between the uncertainty of future earnings (i.e., future benefits) and R&D investments.²² Positive and significant coefficients on *Std. Dev. Stock Returns*, *R&D* and/or *Opacity* would be consistent with the notion that target managers of more uncertain and less transparent firms chose to sell via an auction.

¹⁹ Our main results are qualitatively similar if we use discretionary accruals estimated one year prior to the announcement. Also, our results are not sensitive to alternate ways of estimating discretionary accruals, such as balance sheet vs. cash-flow methods (Hribar and Collins, 2002), or adjustments for prior sales growth (Pungalia and Vijh, 2008).

²⁰ We acknowledge that any proxy of earnings management can contain measurement error adding noise to the regressions (see Fields, Lys and Vincent, 2001; Yu, 2008).

²¹ McNichols and Stubben (2009) also use the standard deviation of target's returns as a proxy for target uncertainty. In sensitivity tests we consider alternate measures of uncertainty such as analysts' forecast errors and intangible assets with generally similar results.

²² Additionally, Officer, Poulsen and Stegemoller (2009) use r&d intensity as a proxy for target valuation uncertainty. They find that target valuation uncertainty increases the returns of acquirers in stock-swap acquisitions.

Similar to Boone and Mulherin (2007b), we include a vector of control variables in equation (1) capturing target characteristics such as the Market Value of Assets (total book value of assets minus the book value of common equity plus the market value of common equity), ROA (the ratio of operating income before depreciation to beginning period total assets), and two categorical variables coded 1 if the target is in a Regulated Industry or is incorporated in Delaware, 0 otherwise.²³ Finally, we also include Growth in the S&P500 in the quarter prior to deal announcement to control for macroeconomic conditions.²⁴

Relationship between Method of Sale and Target Shareholders' Wealth

The target's managers can choose a method of sale (e.g., auction) based upon their expectation of the consequences (e.g., wealth effects) of their decision. We model the relation between the method of sale and target shareholders' wealth effects as follows:

*Target Shareholders' Wealth*_{*i*} =

f(Auction, Adverse Selection Variables, Uncertainty Variables, Control Variables) (3)

We define *Target Shareholders' Wealth* as the cumulative abnormal returns seven days around the announcement date (CAR [-3,+3]), where day 0 is the initial announcement date and abnormal returns are adjusted by the CRSP value-weighted index.²⁵ *Auction* and the proxies of *Adverse Selection* and *Uncertainty* have been defined above. The vector of control variables include: *Relative Size* defined as the ratio of target to acquirer market value of assets, *Cash Payment* defined as a categorical variable coded 1 if the acquisition is financed through cash

²³ We also replace *Target Incorporated in Delaware* with an alternative control for strong legal environment (i.e., strong anti-takeover state) as suggested by Bebchuk and Ferrell, 2002 and used in Boone and Mulherin (2008) with the same results.

²⁴ We only use control variables known to the target at the time of the auction decision because that is the information target managers use to choose the method of sale. Adding variables known after the auction decision (for example, only cash payment, diversified deal, relative size) does not affect the significance of our results.

²⁵ As discussed in more detail in the sensitivity analysis section of the paper, our results are robust to other CAR windows (e.g., -1, +1 or -2, +2) and to a different measure of shareholder wealth (i.e., premium).

only, 0 otherwise, *Tender* defined as a categorical variable coded 1 if the acquisition is by a share tender offer, 0 otherwise, and *Market Value of Assets* which was defined previously.

Li and Prabhala (2006) argue that the analysis of the relation between a decision and an outcome (the method of sale and wealth changes in our setting) has to address self-selection bias because private information affects most managerial decisions. We hypothesize that a manager's chosen method of sale (i.e., auction) is associated with private information, namely, adverse selection (including financial reporting opacity) and uncertainty.²⁶ Hence, the decision to sell via an auction is not random but a deliberate choice partially explained by our constructs of interest and other factors as specified in equation (1). Although instrumental variables in 2- or 3-Stage-Least-Squares models control for endogeneity in the form of simultaneity bias (see Baum 2006, pg. 185), these techniques do not address self-selection bias.

In our main empirical test we use treatment effect regressions to model and incorporate private information through a switching-regressions framework (for an overview, see Li and Prabhala, 2006 and Fang, 2005; for funding decisions, see Song, 2004 and Campa and Kedia, 2002; for corporate decisions, see Bris, Welch, and Zhu, 2006)²⁷, where the first stage model of the treatment (equation 1) estimates the probability of self-selection and the second stage model of the outcome (equation 3) corrects for the potential self-selection bias. If the factors associated with selling the firm through an auction are related to Target Shareholders' Wealth, then the error terms in equations (1) and (3) would be correlated. If the self-selection bias is ignored, the OLS, 2SLS and 3SLS regressions estimates on *Auction* as specified in equation (3) can be biased (Li and Prabhala, 2006). The self-selection bias depends on the significance and direction of the

²⁶ Povel and Singh (2006, p. 1405) mention that one source of information asymmetry among bidders is the "unequal experience with the target or the industry" leading to a differential ability to interpret the information. If the target wants to reduce the risk of earnings management detection, the target can limit the information sharing process to an experienced bidder based on the *competitive information effect* in either auctions or negotiations.

²⁷ Appendix 3 explains in more detail the intuition and rationale for the use of treatment effects regressions to control for both simultaneity and self-selection biases.

correlation, ρ , between the error terms in equations (1) and (3) – e.g., “if ρ [rho] is negative, the estimated effect of treatment from single-equation estimation will generally be biased towards zero (Ettner 2007, pg. 13).”

III. Results

A. Summary Statistics and Univariate Tests

Table 3 presents descriptive statistics for the sample. Panel A reports cumulative abnormal returns (CAR) for the entire sample and by the method of sale. We find that the mean (median) seven-day Target CAR for the sample is 27.07% (22.29%) and the mean (median) offer premium for the full sample is 47.27% (40.90%). When we condition Target CARs on method of sale we find no significant difference between methods, as in Boone and Mulherin (2007b) and Schwert (2000). Nor is there a significant difference in offered premiums.

Panel B presents the descriptive statistics for our proxies of the uncertainty of future cash flows (i.e., std. deviation of stock returns for the previous year and research and development expenditures) and adverse selection (financial reporting opacity: the prior two-year average of abnormal discretionary accruals). We find that auction targets seem to have higher degrees of uncertainty. For example, relative to targets sold through a private negotiation, targets sold through an auction appear to have more volatile returns (and higher levels of R&D expenditures) based on median (mean) tests of differences ($p. < 0.10$). Similarly, we find that auction transactions are associated with higher financial reporting opacity: the mean of abnormal discretionary accruals for auction transactions is more positive (less negative) than that for negotiated transactions ($p. < 0.10$). The univariate tests suggest that the levels of our proxies for both uncertainty and adverse selection (financial reporting opacity) in auctions are higher relative

to negotiations, which is consistent with the notion that managers choose auction as the method of sale because it affords a lower likelihood of detection.

Panel C shows that, relative to auction transactions, negotiation transactions are more likely to use only stock as a means of payment ($p. < 0.10$), but are just as likely to engage in a diversified acquisition, be from a regulated industry, and be incorporated in Delaware. Panel D shows that, on average, target firms are significantly smaller than acquiring firms: average relative size in negotiations, 0.38, is significantly larger than the relative size in auctions ($p. < 0.10$).²⁸ In addition, while not significantly different between methods of sale, both target and acquiring firms generally have positive accounting performance (ROA), and strong market prospects (e.g., Tobin's Q).

Tables 2 and 3 yield three important insights related to our research questions. First, the likelihood that a target initiates the sale process is significantly higher in auctions than in negotiations. Second, the average number of due diligence days available per bidder in an auction transaction is significantly lower than the number of due diligence days in a negotiated transaction. Third, the targets in auctioned acquisitions have higher levels of uncertainty and financial reporting opacity, on average. Collectively, this evidence is consistent with the notions that a) the method of sale is not random (suggesting self-selection), and b) that the bidder's ability to disentangle uncertainty and financial reporting opacity in an auction is more constrained when compared to a negotiation.

²⁸ The significantly smaller median size of targets that sold via an auction may shorten the length of time needed for due diligence. However, it may also be the case that these firms have fewer information intermediaries (i.e., analysts following the firm) and, thus, a poorer information environment relative to targets that negotiate. As mentioned above, in sensitivity analysis we consider alternate measures of uncertainty such as analysts' forecast errors and intangible assets with generally similar results.

B. Multivariate Results

Association between Adverse Selection, the Uncertainty of Future Cash Flows, and the Method of Sale

The sales process description and univariate analysis are consistent with the conjecture that target managers choose to sell through an auction and that such decision is associated with adverse selection and uncertainty. Table 4 presents the logit model specified in equation (1) testing these propositions in a multivariate setting. Columns (1)-(4) present the estimation of the decision to sell through an auction after adding each of our variables of interest one at a time. We find that each of the models have good fit based on two widely used tests, the Hosmer Lemeshow test and the receiver-operator characteristic (RCO) curve, which considers the specificity and sensitivity of the logit model (for more details on goodness-of-fit tests in logit models see Hilbe, 2009).²⁹ The results presented in model (4), which includes all of the variables of interest, are consistent with our expectations: the coefficients of our adverse selection proxies *Target Initiated Deal* and *Financial Reporting Opacity* (abnormal discretionary accruals), and one of our proxies for uncertainty, *R&D*, are positive and significant ($p < 0.10$ or better). *Target Initiated Deal (Adverse Selection)* has the largest (second largest) economic impact relative to the rest of the control variables. Specifically, the odds ratio of selling via an auction increases 71% (16%) if the deal is initiated by the target (with a one standard deviation increase in *Financial Reporting Opacity*), holding all other variables constant at their sample means. Moreover, when the target initiates the acquisition, the predicted probability of auction increases by 27%, keeping the other variables constant at their means. The predicted probability

²⁹ Notes on Goodness-of-fit tests: (i) Hosmer-Lemeshow Goodness-of-fit-test: $\text{Prob}(\text{ch}12) > 0.10$ means a well-fitted model. (p-value is adjusted in each model based on degrees of freedom); (ii) Area under ROC curve: (Sensitivity vs. Specificity graph) test: test values between 0.6 and 0.9 mean a well-fitted model. Source for goodness-of-fit tests in logistic models: Hilbe, 2009.

of an auction increases by 3.6% when opacity increases by one standard deviation.³⁰ Figure 2 depicts the predicted change in the probability of selling through an auction conditional on the level of *Financial Reporting Opacity* and whether it is a *Target Initiated Deal*. The likelihood of selling through an auction is monotonically increasing in *Opacity*, particularly if the target initiated the deal. In contrast, Figure 3 shows that under a potential adverse selection risk the probability of selling through an auction decreases as the uncertainty of the target increases. This result is consistent with the Povel and Singh (2006) argument that negotiations help to clarify target uncertainty.

The last model presented in table 4 (column 5) includes the interactions between *Target Initiated Deal* and *Financial Reporting Opacity*, *Std. Dev. Stock Returns* and *R&D*. The interaction between *Target Initiated Deal* and *Std. Dev. Stock Returns* is negative and significant suggesting that, in target initiated deals, as the level of uncertainty increases, managers are more likely to successfully find an interested negotiator, perhaps due to a difficulty in attracting multiple bidders or to distinguish themselves from other “lemons”.³¹ Finally, we find some limited evidence that the target’s size (*Mkt. Value of Assets*) is associated with the likelihood of selling through an auction.³²

Relationship between Method of Sale and Target Shareholders’ Wealth

In Table 5, we present the results in which the dependent variable is CAR (-3, +3). Our main tests are based on treatment effects regressions (Table 6). However, to allow for a clear

³⁰ From half a standard deviation below its mean to a half standard deviation above its mean, keeping the rest of the variables constant.

³¹ We find that only 47% percent of bidders contacted by auctioning targets with highly uncertain future cash flows request an Information Memorandum, significantly lower than the 53% of bidders contacted by targets with low uncertainty.

³² In untabulated analysis we find that the relative size of the acquirer is negatively related to the probability of choosing auctions, suggesting that *relatively* smaller targets (vs. the final bidder) can choose to sell through auctions to increase their bargaining power. Note that at the moment of the auction decision, the only variable that the target knows is its own size and not the size of the final bidder nor the relative size vs. the final bidder.

comparison to prior research (i.e., Boone and Mulherin, 2007b), we estimate the relationship between the method of sale and CAR (-3, +3) using both OLS and two-stage least squares (2SLS). Columns (1) and (2) in Table 5 present the estimation results using OLS, while column (3) presents the results based on 2SLS.

Panel A in Table 5 shows that based on OLS model (1), *Auction* has no significant effect on Target CARs; a result consistent with Boone and Mulherin (2007b). The second OLS model presented in column (2) includes our measures of adverse selection and uncertainty. The results show that *Opacity (Std. Dev. Of Returns and R&D)* is (are) negatively (positively) associated with the target's CARs ($p. < 0.05$), yet the auction coefficient is still insignificant. Per OLS model (2), the predicted change in CAR for adding one standard deviation in *Financial Reporting Opacity (Std. Dev. Of Returns and R&D)* reduces (increases) the baseline predicted Target CARs of 25% by 11%.

Some control variables are generally consistent with prior research (e.g., Boone and Mulherin, 2007b; Jarell and Poulsen, 1989; Schwert, 2000): we find a negative (positive) and significant coefficient on *Relative Size (Only Cash Payment)* and Target CARs. All other control variables are not significantly related to Target CARs.³³

The set of models reported in column (3) are based on 2SLS, which controls solely for the simultaneity bias that can result from the possibility that the chosen method of sale depends on the *expected* wealth effects resulting from the transaction. Once again, with this model we attempt to reconcile our findings by replicating the Boone and Mulherin (2007b) two-stage regression analyses. Like Boone and Mulherin (2007b), we find no difference in Target CARs

³³ If we include only one of the “Only Cash Payment” or “tender” variables, each is significantly positive in the OLS regressions of premium. When both variables are included as in OLS models (1) and (2), a joint significance test rejects that the two coefficients are insignificant, implying correlation between these variables. Any correlation between the “Only Cash Payment” or “tender” variables does not affect the significance of our variables of interest.

between auctions and negotiations. We obtain the same result (i.e., insignificant coefficient for the auction indicator variable whether or not we include our variables of interest in the model).

To assess whether selling via an auction has a significant positive or negative value for our subsamples of interest (namely, high and low *Uncertainty* and *Opacity*), we conduct a subsample analysis by splitting the sample into terciles based on the level of *Uncertainty* and *Financial Reporting Opacity*. Consistent with the hypothesis that targets can hide more negative information (i.e., higher *Financial Reporting Opacity*) in the presence of higher *Uncertainty*, Panel B in Table 5 shows that in the subsample with High *Uncertainty* and High *Financial Reporting Opacity* the auction dummy has a significant positive association with Target CARs. The income-increasing nature of higher opacity can arguably explain the significant positive impact of the *Financial Reporting Opacity* variable. Although the adverse selection risk (*Target Initiated Deal*) is associated with a reduction in value, the overall impact of the auction dummy and *Financial Reporting Opacity* variable has a higher marginal effect than the *Target Initiated Deal* variable.³⁴ Interestingly, when the target has either low *Uncertainty* or low *Financial Reporting Opacity*, the auction dummy has an insignificant negative impact on Target CARs. This change in sign explains the insignificant auction coefficient in the OLS models using the whole sample.

Additionally, for the low *Uncertainty*/low *Financial Reporting Opacity* subsample, we find that *Opacity* carries a significant discount, consistent with market participants improved

³⁴ Other recent papers have found that the market reacts differently when the target initiates the acquisition. Simsir (2008) argues that when the target initiates the deal, then the target signals of a lower quality driven by information asymmetries (i.e., adverse selection problem). He finds a negative relation between the target's CARs and target initiation. Xie (2009) focuses on the impact of the identity of the deal initiator on the sale process. He argues that a target initiates an acquisition to increase its bargaining power. His OLS results, consistent with Boone and Mulherin's (2008) results, show an insignificant impact of the auction indicator variable on the target's CARs. His results suggest a positive association between the acquirer initiating a deal (most likely to be negotiations) and Target CARs.

ability to estimate the implications for future cash flows and firm valuation. Conversely, for the high *Uncertainty*/high *Opacity* sample, *Opacity* is positively associated with Target CARs. In other words, when the uncertainty of future cash flows is high, targets managing earnings can, at least temporarily, improve market returns.

We contend, and our evidence thus far is consistent with, target manager's consideration of their firm's perceived uncertainty and information environment on the decision to sell via an auction. To avoid inconsistent estimates for the auction coefficient (Li and Prabhala, 2006), the treatment effect models reported in columns (1) and (2) reported in Panel A of Table 6 control for simultaneity *and* selectivity biases. The Wald test of independent equations reported at the bottom of the table rejects the null hypothesis that the correlation between errors, rho, and Heckman's lambda are zero in both treatment effect models in columns (1) and (2), confirming the existence of self-selection (Ettner 2007).³⁵ In particular, the significantly negative rho indicates that models that do not control for self-selection (i.e., the OLS and 2SLS models used in prior literature) bias the significance of the self-selected treatment (*Auction*), towards zero (Ettner 2007, pg. 13).

Of course, one of the key elements of our study is to examine the impact of our variables of interest, both in the method of sale process and their eventual impact on target shareholder wealth. The results presented in column (1) show that the coefficient on *Target Initiated Deal (Std. Dev. Stock Returns)* is positively (negatively) and significantly related to the likelihood of selling through an auction. *Financial Reporting Opacity* and *R&D*, while directionally correct, are insignificant. More importantly, we find that *Auction* is positively associated with Target CARs. Using the estimates in column (1), untabulated analysis indicates that because of the

³⁵ We also use the Heckman (1979) two-step approach with similar results. Results confirm the existence of self-selection; however, a simple Heckman model controls for sample-selection but does not assesses the impact of the selection variable (in our case, auction).

treatment, the observed Target CARs in auctions increases by 14%, on average.³⁶ We also find that *Target Initiated Deal* and *Opacity* are negatively associated ($p. < 0.05$) with Target CARs, suggesting that there is a discount placed on targets that initiate the sale of the firm and have more opaque financial information.³⁷

The models reported in column (2) include the interactions between *Target Initiated Deal* and each of the other variables of interest. We find that the discount is relatively greater for *Target Initiated Deals* with higher levels of *Financial Reporting Opacity* ($p. < 0.05$). We find no associations between *Std. Dev of Returns* or *R&D* and Target CARs. The reduction in Target CARs for *Target Initiated Deals* with high *Opacity* is relatively lower than the benefit of selling through an auction. Recall that in Table 5 Panel B above, we find that this additional discount for *Target Initiated Deals* with high *Opacity* is concentrated among target firms with low levels of *Uncertainty*. For firms with high *Uncertainty*, *Target Initiated Deals* with high *Opacity* are positively associated with Target CARs. Additional unreported analysis, available on request, confirms the robustness of the treatment effect analysis using different proxies for changes in shareholder wealth. The results are robust to using Target CARs windows ($[-1,+1]$ and $[-2,+2]$). Panel B in Table 6 also confirms that the auction dummy has a positive and significant association with the offer premium.

Collectively, we present evidence of the need to correct for *both* simultaneity and self-selection biases in order to make the right inferences in analyses regarding the effect of the method of sale on target shareholders' wealth. Target managers that self-select themselves to sell via an auction can benefit their shareholders with this decision. Our results support the

³⁶ Estimation of the expected direct effect of the treatment: $E[Y|treatment=1] = x'b + E[u|treatment=1]$, where $E[u|treatment=1]=\lambda*\sigma*\rho$, and $\lambda = \rho*\sigma$. Note this large estimated increase in CARs is partially due to the very large standard deviation of 0.52.

³⁷ Recall footnote 34 above.

conjecture that targets that have managed earnings are more likely to sell via an auction to reduce the risk of detection. While both the market and the acquirer price the wealth effects associated with managing earnings (the coefficient on *Financial Reporting Opacity* is significantly negative), our findings suggest that selling the firm through an Auction reduces this discount for target shareholders, and is especially successful when future cash flows are highly uncertain.

C. Additional Analysis

We complement our analysis by examining how the method of sale decision impacts the acquisition dynamics on four additional fronts. First, we examine in more detail the subsample in which the target decided to sell through an auction after a bidder initially proposed a single-bidder negotiation; a process that resembles the theoretical sequential sale prediction by Povel and Singh (2006). Second, to study how the ability to detect adverse information depends on the method of sale, we examine the likelihood of re-negotiating the transaction as a function of adverse selection and uncertainty. Third, we conduct a clinical analysis to compare the probability of detecting potential financial reporting risk (i.e., earnings management) before and after the announcement, depending on the method of sale. Finally, we study how adverse selection risk (target initiated deal and financial reporting opacity) and the uncertainty of future cash flows impact the bidder response level in auctions.

The intuition behind the second and third analyses is straight forward: if negotiations have better access to information to detect major adverse findings, then the incidence of deal renegotiations or terminations due to such findings should be relatively higher in negotiated deals. These analyses do not assess whether targets have managed earnings more often in auctioned vs. negotiated acquisitions (Panel B in Table 3 has already documented a higher financial reporting opacity in auctions). Instead, we assess whether acquirers in negotiations can

detect the occurrence of major adverse findings with a higher probability; arguably because targets cannot limit the information sharing in negotiation as much as in auctions.

Sequential procedure single-bidder-then-auction acquisitions

Povel and Singh (2006) propose an optimal sequential procedure for the target to sell the firm in which the target initially considers a negotiation and then decides to sell via an auction. If targets self-select themselves to sell through an auction, this scenario represents the cleanest example in which private information, such as having managed earnings, can explain why target managers choose to auction. We are able to detect 25 cases in which the acquirer initiates the acquisition discussion, but then the *target* decides to pursue an auction instead. There is no evidence that the target forbids the original bidder from participating in the second stage auction.

The results of this analysis are shown in Table 7. The treatment effect model (1) uses the whole sample, while model (2) presents the results for the subsample in which the acquirer initiates the deal. The second specification implies a cleaner test for the self-selection hypothesis. Consistent with Povel and Singh (2006), we find that “Negotiation-then-Auction” targets are associated with higher Target CARs, suggesting a separating equilibrium. All prior inferences remain largely the same. Because of the small sample of these “Negotiation-then-Auction” acquisitions, we cannot make strong statistical inferences or general interpretations. Prior results in the paper are unaffected after deleting these 25 observations.

Probability of Renegotiation

Our examination of the post-announcement takeover period reveals that a considerable number of acquisitions in the sample are renegotiated (12% of the time). The average value lost by target shareholders when the deal is renegotiated due to a major adverse finding is 15%, so understanding if the method of sale impacts this outcome is important.

Table 8 presents the multivariate analysis of the determinants of the likelihood of renegotiation splitting the sample between auctions (column 1) and negotiations (column 2). In addition to our variables of interest and the control variables used throughout the paper, we include the length of the due diligence period (*Days of Due Diligence*) and a categorical variable coded 1 if the deal was challenged, 0 otherwise (*Challenge Deal*). Focusing on the auction subsample, we find that, despite statistically higher financial reporting opacity in auctions vs. negotiations (see Table 3 Panel B), *Target Initiated Deal* and *Financial Reporting Opacity* are both negatively associated with renegotiating the transaction. We interpret this relation as being consistent with initiating targets with opaque financial information choosing to sell through an auction to limit the bidder's information gathering process, which in turn hinders the detection of earnings management and renegotiation. In stark contrast, *Opacity* is positively associated with the likelihood of renegotiation in the negotiations subsample, a result consistent with the notion that negotiations allow for greater access to target information, which improves the ability to detect accounting irregularities. Figure 4 shows that unless *Financial Reporting Opacity* is very high, it can mitigate the probability of renegotiation under potential adverse risk. Consistent with the conjecture of better access to information, only in negotiations does the length of the due diligence per bidder increase the probability of renegotiation.

Clinical analysis on Method of Sale, Major Adverse Findings, and Acquisition Dynamics

To further gauge whether better access to information leads to a higher likelihood of accounting irregularities detection, we conduct a clinical analysis looking at the cases in which acquirers detect major adverse findings through due diligence during the pre-announcement and post-announcement takeover processes.

We examine all of the terminated and renegotiated acquisitions in our sample and assess the reasons for the *termination* (in the post-announcement takeover process) or *renegotiation* (in the pre- and post- announcement takeover process).³⁸ We focus on the acquisitions in which the reason for termination or renegotiation relates to major adverse findings. Since firms that detect major adverse findings do not normally openly announce such findings, we look for information reported in the “Background of the merger” section of the merger agreement in the case of the pre-announcement takeover process. In the case of the post-announcement takeover process, we search for news articles in Factiva, SEC proxies, and the LivEdgar M&A database related to the renegotiation events.

Panel A in Table 9, even though auctioned targets have statistically higher financial reporting opacity than negotiations, we find that auctioning acquirers (vs. negotiating acquirers) detect five out of the 14 major adverse findings in the due diligence during the pre-announcement period. The acquirers that detect major adverse findings achieve, on average, a 15% reduction in the *offered* price.³⁹ The reduction is significantly larger in negotiations (-18%) vs. the reduction in auctions (-5%). We confirm that the change in the price is unrelated to the bidding process.

When we examine the post-announcement takeover process, Panel B indicates that auctioning acquirers (vs. negotiating acquirers) uncover only one out of the nine transactions with major adverse findings. More importantly, acquirers are able to achieve, on average, a 15%

³⁸ Macias (2008a) documents that a Material-Adverse-Event (MAE), such as earnings management detection, is the catalyst in approximately 50% of the terminations or renegotiations in the post-announcement takeover process during 1998-2005; challenging offers originate the other 50%. In this paper we focus on the acquisitions in which MAEs are the catalyst. Since only announced acquisitions present information on termination, we cannot examine the acquisitions that are terminated in the pre-announcement takeover process.

³⁹ This finding is consistent with untabulated OLS regressions that show that only in negotiations (vs. auctions) discretionary accruals have a significant negative relation with CARs and the offer premium. Acquirers that negotiate seem able to adjust the offer premium. We interpret this to be consistent with having better access to information. Analysis available upon request.

reduction in the *offered renegotiated* price. Again, the decrease in the offer is larger in negotiations (-18%) vs. the decrease in auctions (-9%). Most of the acquisitions, however, are terminated eventually because of this material adverse event. Note that one target was able to terminate the acquisition after the target firm detected earnings management by the acquirer.

Due to the small sample, we can only claim that the results are consistent with negotiations affording a greater likelihood of major adverse findings. This likelihood of detection increases during the post-announcement process in negotiated vs. auctioned acquisitions.⁴⁰ Overall, the results suggest that target managers that have self-selected themselves to sell the firm via an auction can limit price reductions due to information found by the acquirers.

Effect of uncertainty and adverse selection risk on the response level of bidders in auctions

To determine the “source” of the discount associated with target initiated transactions we assess the response level by the bidders during the pre-announcement acquisition process. Panel A in table 10 shows that only 47% of contacted bidders continue to the next step in an auction (i.e., sign a confidential agreement) in the presence of high adverse selection risk and high uncertainty of future cash flows.⁴¹ In contrast, with low adverse selection risk and low uncertainty, 80% of bidders sign the confidential agreement. Panel B shows that higher financial reporting opacity increases the response level of the bidders. In untabulated analysis we estimate that in the presence of high uncertainty levels having more opaque financial reporting improves the bidder response by 11.6%, up to a 0.531 response level. Overall, although mitigated by *Financial Reporting Opacity*, the weaker competition offers a potential explanation for the negative association between adverse selection and target CARs.

⁴⁰ Due to the limited sample size we cannot run regression analysis to control for the target’s level of risk.

⁴¹ The results are robust to examining the ratio with serious bidders, that is, the bidders that end up making final binding offers after signing.

IV. Conclusion

In this paper, we examine when targets benefit from auctions. Specifically, we assess the impact of various proxies of adverse selection risk and uncertainty of future cash flows on the method of sale. We also study how the risk and uncertainty factors impact the target's valuation and ultimately the premium paid to target shareholders.

Boone and Mulherin (2007b) report that, despite an increase in the level of competition for target firms, the target shareholders' wealth effects (i.e., abnormal returns at announcement date) for auction transactions do not differ from the wealth effects in negotiated transactions. We posit that the decision to sell via an auction is not random but a deliberate choice. Our analysis reports that financial reporting opacity and the uncertainty of future cash flows are positively associated with the target's decision to sell via an auction. This is consistent with target management who are engaging in "window dressing" preferring to sell via an auction to reduce the risk of detection.

In subsample analysis, we find that targets with highly uncertain future cash flows *benefit* from their selling via auctions and from aggressive (or opaque) financial reporting. We find that, for target initiated transactions, selling through an auction only somewhat mitigates the discounts associated with adverse selection (i.e., financial reporting opacity). This discount mitigation is mainly driven by the presence of a high uncertainty of future cash flows.

Furthermore, if a potential self-selection bias in the decision to auction is ignored, OLS-based regression estimates on auction using the whole sample can be biased [see Li and Prabhala (2006), and Ettner (2007)]. Once we control for simultaneity *and* self-selection biases through treatment effects regressions, we find that auctions (our examined treatment) result in higher wealth changes to target shareholders, both in the form of cumulative abnormal returns at announcement date and in offered premiums. If the target managers who chose to sell through

an auction had not chosen this treatment the predicted Target CARs would have been lower than those observed in the sample. Our results provide an explanation for the benefit obtained by the target in choosing an auction vs. a negotiation. We document that by selling the firm through an auction, target managers can reduce the likelihood that the bidder detects a major adverse finding which can lead to renegotiating a lower offer premium. Although targets in auctions have on average a higher financial reporting risk, target managers seem able to excuse a limited access of information based on the *competitive information effect*.

Collectively, our results suggest that the method of sale (i.e., selling the firm through an auction) is not random and has a significant impact on the wealth of target shareholders. Specifically, in both subsample analysis and under a self-selection framework, we find that adverse selection risk, including a lack of transparency in financial reporting, and the uncertainty of future cash flows impact the target's decision to sell through an auction as well as the wealth accrued to target shareholders. Similar to recent studies in the diversification literature (for example, Campa and Kedia, 2002), we show that controlling for both simultaneity and self-selection biases enriches our understanding of the corporate takeover process.

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Appendix 1. Variable Definitions

Variable Name	Description	Data Source
<u>Acquisition Characteristics</u>		
Auction	Binary variable. Auction = 1 when there are more than one bidder in the pre-announcement acquisition process. This classification includes formal auctions with an organized bidding process, as well as informal auctions in which the target is contacted or negotiates with more than one bidder.	SEC files
Negotiated	Binary variable. Negotiation = 1 when there is only one bidder in the pre-announcement acquisition process.	SEC files
Hostile/Unsolicited	Binary variable. Hostile/Unsolicited = 1 Acquirer submits a hostile or unsolicited bid to the Target.	SEC files, SDC, Factiva
Challenged Acquisition	Binary variable. 1= A third-party submits or starts an acquisition process after the acquisition with the acquirer has already been announced or is in process.	SEC files, Factiva, SDC, LivEdgar M&A database
Completed acquisition	Binary variable. 1= Acquisition is completed.	SEC files, SDC, Factiva
Terminated acquisition	Binary variable. 1= Acquisition is terminated.	SEC files, SDC, Factiva
Renegotiated acquisition	Binary variable. 1= Acquisition is renegotiated. An acquisition is renegotiated if the original terms of the acquisition change after the first announcement date. In some cases, the price does not change, but only the method of payment changes. Acquisitions where changes in exchange ratios occur within the negotiated range of an original collar provision are not labeled as renegotiated.	SEC files, Factiva, LivEdgar M&A database
Only-cash payment	Offered price is 100% in cash	SEC files, SDC, LivEdgar M&A database
<u>Target Wealth Effects</u>		
Target CARs	3-day window Cumulative Abnormal Return in the days surrounding the Announcement day (day=0)	CRSP, Eventus
Premium offered	Offered premium compared to target's stock price 4 weeks before the announcement date. (We define as the Announcement date as the first trading date in which the acquirer or the target publicizes the acquisition. See Data Section for more details).	SEC file, SDC, LivEdgar M&A database, (Check prices with CRSP)

<u>Characteristics of the Acquisition Processes</u>		
Due diligence by Acquirer (During the Pre-announcement takeover process)	Dummy for the due diligence conducted by the acquirer according to what is reported in the "background of the merger" section in the merger agreement. 1=Yes, 0=No.	SEC files
Length of Due Diligence by Acquirer (During the Pre-announcement takeover process)	The number of days of due diligence conducted by the acquirer according to what is reported in the "background of the merger" section in the merger agreement. 1=Yes, 0=No	SEC files
Due diligence by Target (During the Pre-announcement takeover process; mainly driven by stock deals)	Dummy for the due diligence conducted by the target according to what is reported in the "background of the merger" section in the merger agreement. 1=Yes, 0=No	SEC files
Number of Bidders that request information	The number of bidders that, after being contacted, request the information memorandum	SEC files
Number of Bidders contacted	Number of bidders that the target contacts at the start of the pre-announcement takeover process,	SEC files
Number of Info. Memo. parties / Number of parties contacted	Ratio of parties that, after being contacted, requested the information memorandum and the bidders that submitted a serious bid at the end of the pre-announcement takeover process	SEC files
<u>Characteristics of the target and the acquirer</u>		
Industry-adjusted, Performance- matched Discretionary Accruals (Average years t-1 and t-2), <i>Financial Reporting Opacity</i> (abnormal discretionary accruals)	Residual from Model: $CA_i + CA_{i,t-1} = \alpha + \beta(\Delta Sales_i - \Delta AR_i + \Delta Sales_{i,t-1} - \Delta AR_{i,t-1}) + \varepsilon_i$ minus the average residual of a portfolio of firms matched on two-digit SIC codes and ROA_{t-1} Where CA is current accrual: Compustat data items $[\Delta(\text{Current Assets-Cash \& ST Investments}) - \Delta(\text{Current Liabilities-Debt in Current Liabilities})] / \text{Total Assets}_{t-1}$ Sales = Compustat data items: Net Sales/Total Assets _{t-1} AR is accounts receivable, Compustat data items: Receivables/Total Assets _{t-1} All variables are scaled by lagged total assets.	Compustat
Log(MVAssets Trgt)	Log of market value of Target's assets Compustat data: Market Value of Assets = (book_value_assets - book_common_equity + Common Shares Outstanding*Price -- Fiscal Year -- Close) = data6 - data60 + data25*data199	Compustat
Log(MVAssets Acq)	Log of market value of Acquirer's assets Compustat data (Estimation: same as above for Target)	Compustat
Relative Size (MVAssets)	MVAssets Target / MVAssets Acquirer	Compustat
Diversified acquisition	Different Industry, using all SIC4	SDC, Compustat
Log(Tobin's Q Target)	Log of Tobin's Q for Target Compustat data: Tobin's Q = tobinsq = (data6 + (data25*data199) - data60 - data74) / (data6) data6: Total assets; data25: common shares outstanding; data199: Price close fiscal year; data60: Common equity; data74: Deferred taxes	Compustat
R&D-to-sales target	Research and Development Expense (data46) / Book value of assets (data6)	Compustat
ROA target	Operating Income Before Deprec. (data13) / Book value of assets (data6)	Compustat

S.Dev. TrgRet prior yr	Standard deviation of Target's stock return in year prior to announcement	CRSP
Target Regulated Industry	Following Barclay and Smith (1995) and Boone and Mulherin (2008) regulated industry classification and apply it to the Fama-French 48 industries. A firm is classified as regulated if the main industry of the target is classified as: Defense, Petroleum and Natural Gas, Utilities, Communication, Banking, Insurance or Trading.	Compustat SIC to estimate the 48 Fama-French Industries
Target incorporated in Delaware	Target state of incorporation is Delaware (binary)	Compustat, SDC
Tender offer	Tender is a categorical variable coded 1 if a takeover bid takes the form of a public invitation to shareholders to sell their stock, with or without prior contact with the target, as classified by SDC; 0 otherwise.	SDC

Appendix 2. Detailed Example of an Auction Sale from SEC Filing Form DEFM14A – IVEX Packaging Corp, Filed May 31, 2002

Background of the Merger

Between 1997, when we became a public company, and 1999, we received communications from time to time from third parties that expressed a preliminary interest in engaging in various potential transactions with us including an acquisition of Ivex. Although the Board and our management considered these overtures in the course of their ongoing oversight and planning responsibilities, discussions with these third parties never advanced beyond preliminary stages.

During the third quarter of 1999, the Board began considering various strategic alternatives for enhancing the value of our common stock. In undertaking its consideration of strategic alternatives, the Board recognized that we faced significant challenges in a changing competitive and economic environment, including the challenge of maintaining and building upon our market position in the context of a trend toward consolidation in our industry. Among the alternatives considered were (1) continuation of our then-current business plan, including the pursuit of strategic "bolt-on" acquisitions, (2) a financial restructuring consisting of the sale or disposition of one or more of our businesses, (3) a significant acquisition of a strategic business which would provide us with increased strength and critical mass in our core business and (4) a sale of the company or other strategic transaction. At its meetings during the next two years, the Board continued to explore various strategic alternatives, obtaining advice from Merrill Lynch and other financial advisors from time to time as to a number of these alternatives.

On May 8, 2001, the Board approved the formal engagement of Merrill Lynch and Deutsche Banc Alex. Brown as financial advisors to assist the Board and management in a comprehensive review of our strategic alternatives to maximize stockholder value. In the ensuing months, management and the financial advisors began preparing information for use in evaluating whether a sale of the company should be pursued, and the Board continued its discussions regarding strategic alternatives.

At the September 17, 2001 meeting of the Board, Merrill Lynch and Deutsche Banc provided an update on the progress of the review of strategic alternatives. In light of the climate of economic and business uncertainty that prevailed following the September 11, 2001 terrorist attacks on New York City and Washington, D.C., the Board deferred the decision as to whether to take steps toward further exploration of a sale of the company. At its November 6, 2001 meeting, the Board continued its discussion of strategic alternatives, including the possible sale of the company, and discussed approaches to realizing the full value of our investment in Packaging Holdings.

On November 28, 2001, the Board met with our financial and legal advisors to discuss exploration of a sale of the company as part of the ongoing review of our strategic alternatives. Merrill Lynch and Deutsche Banc reviewed, with the directors, various aspects of a sale process, and outside counsel reviewed the directors' related fiduciary duties. After lengthy discussion, the Board approved, as a means of exploring the potential values and benefits available to our stockholders, the commencement of a process that could potentially lead to a sale of the company.

...

From November 2001 through January 2002, Merrill Lynch and Deutsche Banc identified and contacted 38 potential acquirors, comprising 24 companies believed to have a potential strategic interest in acquiring Ivex and 14 financial sponsors that were thought to have both an interest in the packaging sector and access to sufficient financing to fund an acquisition of Ivex. A total of 27 of these potential acquirors, including 15 strategic acquirors, entered into confidentiality agreements with us and received copies of a confidential descriptive memorandum about us and Packaging Holdings.

Eight parties, including Alcoa and five other potential strategic acquirors, submitted preliminary indications of interest on or around January 21, 2002. At the January 30, 2002 meeting of the Board, Merrill Lynch and Deutsche Banc reviewed the terms and valuation ranges included in the eight preliminary indications of interest and identified which bidders were interested in the Packaging Holdings interest. The Board considered the relative strength of the preliminary offers and directed the financial advisors to invite seven of the bidders to participate in the next phase of the process.

We invited these seven parties to conduct full due diligence investigations, including meetings with our management and access to our corporate documents, financial records and properties. Following further discussions, however, one of the parties elected not to proceed with further due diligence or attend a management presentation. The due diligence investigations by the remaining six parties and their legal and financial advisors commenced in early February 2002 and continued during February. In late February, an additional party elected not to proceed with the process.

On February 22, 2002, we delivered a letter setting forth the procedures for the submission of definitive written proposals for the acquisition of Ivex, together with either one or two proposed forms of merger agreement (depending upon indications of interest for Packaging Holdings), to each of the five potential acquirors then participating in the process. The forms, which were otherwise identical, differed in that one form contemplated the acquisition of Ivex including the Packaging Holdings interest, and the other form contemplated the acquisition of Ivex excluding the Packaging Holdings interest. The parties were instructed to submit definitive acquisition proposals by the close of business on March 11, 2002.

On March 11, 2002, Alcoa and one other strategic bidder submitted definitive written acquisition proposals to acquire all of our outstanding common stock at a price of \$21 per share. These definitive proposals included mark-ups of the proposed form of merger agreement, showing the bidders' suggested changes to the form of agreement. In addition to the two definitive proposals, one of the financial buyers that had previously submitted an indication of interest and had subsequently conducted due diligence submitted a new oral indication of interest, including the Packaging Holdings interest. Alcoa stated in its submission that it was not interested in pursuing a transaction that included the Packaging Holdings interest. The other strategic bidder expressed an interest in pursuing discussions regarding a possible transaction involving our interest in Packaging Holdings if it could acquire the other outstanding interests in Packaging Holdings.

On March 13, 2002, the Board met with financial and legal advisors to discuss the submissions from the potential acquirors. Representatives of Merrill Lynch and Deutsche Banc reviewed with the Board the conduct of the process to date and the terms of the proposed transactions submitted by the potential acquirors. The Board noted that Alcoa's proposal was definitive and fully financed, subject only to limited additional conditions, while, in contrast, the

other strategic bidder's proposal was subject to a financing contingency and additional due diligence conditions. The Board also noted that the financial bidder's oral indication of interest was not a firm offer, and, because it proposed both a lower price range and inclusion of the Packaging Holdings interest, represented a significantly lower value to our stockholders than the definitive submissions by the two strategic bidders. After discussing the proposals, the Board concluded that negotiations should proceed with both Alcoa and the other strategic bidder. To that end, the Board directed management and our advisors to seek clarification of the proposals and to solicit revised proposals from Alcoa and the other strategic bidder. At this time, representatives of Alcoa and Ivex held further discussions regarding the potential terms of the transaction.

On March 15, 2002, Alcoa submitted a revised proposal. Alcoa's proposal eliminated the limited additional conditions and retained the proposed acquisition price of \$21 per share of our common stock. The other bidder reaffirmed its proposal as substantially the same as its March 11 proposal. Because of the financing contingency and additional conditions in the other bidder's submission, it was thought that Alcoa's proposal would be substantially more likely to result in a completed transaction. Accordingly, a revised draft merger agreement was submitted to Alcoa on March 16, 2002.

...

Following the March 17 Board meeting, our representatives and representatives of Alcoa continued to negotiate the final details of the definitive merger agreement. On March 18, 2002, Alcoa advised us that its executive committee had approved the merger at the \$21.50 per share price. Later that day, following the conclusion of negotiations over the merger agreement, the Board met to consider the proposed transaction with Alcoa. Our legal advisors described to the Board the changes that had been made to the proposed merger agreement in the course of negotiations since the previous day's meeting. On March 18, Merrill Lynch delivered its oral opinion to the Board, which was confirmed in a written opinion dated March 18, 2002 to the effect that, as of that date and based upon the assumptions made, matters considered and limits of review set forth in its written opinion, the consideration to be received by the holders of our common stock pursuant to the merger was fair from a financial point of view to the holders of such common stock. After considerable discussion among the members of the Board, the Board unanimously approved the merger agreement. The Board voted to submit the merger agreement to a vote of our stockholders and to recommend that stockholders adopt the merger agreement.

...

The parties executed the definitive merger agreement after the close of stock market trading on Monday, March 18, 2002, and we and Alcoa issued press releases announcing the transaction later that day. Also on March 18, we established Packaging Dynamics Corporation and entered into the distribution agreement with Packaging Dynamics Corporation.

Appendix 3. Treatment Effects Regressions.

This appendix explains the intuition and rationale of the special methods used beyond OLS regressions. We provide references of papers that explain in detail or use the methods in a corporate finance context. Overall, the analysis with the additional methods complements and strengthens the straightforward findings from the analysis with OLS regressions and addresses econometric concerns that the analysis faces, such as self-selection (i.e., simultaneity and endogeneity of decision making).

Most managers decide to make certain corporate decisions based on their expectations of the consequences of making such a decision. An endogeneity problem occurs if we do not control for omitted-variable bias or for the simultaneity in the decision process, as discussed in Wooldridge (2002, pg. 50). In acquisitions, the omitted variable can be related to private or asymmetric information. Our questions face potential endogeneity of self-selection bias. First, the decision to sell through an auction can be co-determined with the decision to manage earnings in prior quarters. Second, acquisitions with higher risk of detection can choose different methods of sale based on the expectations of their impact on the probability of terminating or renegotiating the acquisition; hence, simple OLS regressions can be biased. One way to control for potential endogeneity due to omitted-variable, measurement error, and simultaneity problems is to use Instrumental variables in 2- or 3-Stage-Least-Squares models (see Baum (2006, p 185)). An IV or 2SLS analysis, however, is not enough to address the self-selection bias (See Heckman (1979)).

One way to control for potential endogeneity and sample selection is to use models that control for self-selection, specifically through treatment effects in a switching-regressions framework (for an overview, see Li and Prabhala, 2006; Fang, 2005; for funding decisions, see Song, 2004; Campa and Kedia, 2002; for corporate decisions see Bris, Welch, and Zhu, 2006).⁴² Because of the potential existence of asymmetric information in the decision to choose the method of sale, we use the treatment-effects approach. The treatment-effects model includes an additional dummy variable for the self-selection decision with the Heckman model; consequently, the estimated coefficient for the decision reflects the effect of the “treatment”. The treatment-effect approach follows a switching regression model in which the first stage estimates the probability of self-selection and the second stage controls for the potential self-selection bias. Simultaneous-equations solved with Maximum-likelihood or with a 2SLS method estimate the effect of an endogenous decision and the expected outcome of that decision (see Wooldridge, 2002; Greene, 2003); we use the method proposed by Maddala (1983) to estimate the standard errors.

⁴² Li and Prabhala (2006) argue that most (if not all) of the managerial decisions are affected by asymmetric information which would involve omitted variables in the analysis.

Table 1: Sample Description

Panel A. Details of Sample Construction, 1998-2005

Initial acquisition sample, completed and terminated, from Thomson Financial SDC Platinum database	2,045
Less:	
Compustat/CRSP missing data for acquirer <i>or</i> target	-1210
Acquisitions with target's market capitalization < 1% of acquirer's market capitalization	-240
Acquisitions with Non-U.S. targets	-66
Acquisitions with insufficient information from SEC files	-22
Sample Including Hostile Acquisitions	507
Less: Hostile Acquisitions	-61
Final Sample	446

Panel B. Sample Distribution by Year and Method of Sale

Year	Auction	Negotiation	Full Sample
1998	36	59	95
1999	31	64	95
2000	28	45	73
2001	29	25	54
2002	12	13	25
2003	15	15	30
2004	18	26	44
2005	17	13	30
Full Sample	186	260	446

Table 2 - Description and Summary of Sale Process

Significance of t-test on means between the subsample of auctions vs. negotiations are denoted with *** p<0.01, ** p<0.05, * p<0.1 (two-tailed tests unless a prediction is made). Significance of median tests +++ p<0.01, ++ p<0.05, + p<0. N/M stands for not –meaningful.

Panel A - Full Sample (N = 446)	Mean	Median	SD
Target Initiates Acquisition talks	0.37	0.00	0.48
Acquirer Initiates Acquisition talks	0.43	0.00	0.47
Number of Bidders Contacted	6.59	1.00	22.75
Number of Bidders that Signed Confidentiality Agreement	2.47	1.00	4.07
Due diligence by acquirer before the announcement	0.92	1.00	0.28
Length of Due diligence by acquirer (in days) / Contacted Bidders	29.50	10.00	63.78
Length of Due diligence by acquirer (in days) / Bidders that Signed a Confidentiality Agreement	32.85	14.00	65.05

Panel B - Auction Acquisitions (N = 186)	Mean	Median	SD
Target Initiates Acquisition talks	0.52	1.00	0.50
Acquirer Initiates Acquisition talks	0.32	0.00	0.39
Number of Bidders Contacted	14.00	5.00	32.79
Number of Bidders that Signed Confidentiality Agreement	4.51	3.00	5.62
Due diligence by acquirer before the announcement	0.94	1.00	0.23
Length of Due diligence by acquirer (in days) / Contacted Bidders	11.11	5.00	19.61
Length of Due diligence by acquirer (in days) / Bidders that Signed a Confidentiality Agreement	19.14	8.58	31.82

Panel C - Negotiation Acquisitions (N = 260)	Mean	Median	SD
Target Initiates Acquisition talks	0.26 ***	0.00 N/M	0.44
Acquirer Initiates Acquisition talks	0.50 ***	0.00 N/M	0.50
Number of Bidders that Signed Confidentiality Agreement	1.00 ***	1.00 N/M	0.00
Due diligence by acquirer before the announcement	0.90	1.00	0.31
Length of Due diligence by acquirer (in days) #	42.60 ***	21.00 +++	79.37

Note: Since the number of bidders in negotiations is one by definition, the Length of Due Diligence by acquirer (in days) is the same for Contacted Bidders and Bidders that Signed a Confidentiality Agreement.

Table 3 - Descriptive Statistics

Target CAR is defined as the seven day cumulative abnormal returns centered on the acquisition announcement date, where the abnormal returns were calculated using the market model (with the CRSP value weighted index as a benchmark); Offer Premium is defined as the percentage difference between the reported offered price and the price of the target's stock 4 weeks before the announcement date; R&D represents research and development expenses (data46) scaled by assets (data6); Financial reporting *opacity* is the residual from the following model (averaged over years t-1 & t-2): $CA_i + CA_{i,t-1} = \alpha + \beta(\Delta Sales_i - \Delta AR_i + \Delta Sales_{i,t-1} - \Delta AR_{i,t-1}) + \varepsilon_i$ minus the average residual of a portfolio of firms matched on two-digit SIC codes and ROA_{t-1}, where CA is current accrual: data items $[\Delta(4-1) - \Delta(5-34)]/6_{t-1}$; Sales (data12/data6_{t-1}); AR is accounts receivable (data 2/data6_{t-1}). Opacity was multiplied by 100 to simplify interpretation. Only cash Payment is a categorical variable coded 1 if the offered price is made 100% in cash, 0 otherwise; Only stock Payment is a categorical variable coded 1 if the offered price is made 100% in stock, 0 otherwise; Diversified Acquisition is a categorical variable coded 1 if the acquisition involves a target in a different industry (using 4-digit SIC), 0 otherwise; Regulated Industry is a categorical variable coded 1 if the target's main industry is in the following industries (using Fama-French industry classifications): Defense, Petroleum and Natural Gas, Utilities, Communication, Banking, Insurance or Trading, 0 otherwise; Target in Delaware is a categorical variable coded 1 if the target's is incorporated in Delaware; 0 otherwise; Market Value is (book_value_assets - book_common_equity) + (Common Shares Outstanding*Price -- Fiscal Year -- Close) = data6 - data60 + data25*data199; Relative Size is defined as the ratio of the target's market value of assets to the acquirer's market value of assets, where market value of assets (Mkt. Value) is calculated as follows: book value of assets (data6) - book value of equity (data60) + common shares outstanding (data25) *FY closing price (data199); ROA is defined as the ratio between operating income before depreciation (data13)/total assets (data6); Tobin's Q is calculated as follows: [assets (data6) + common shares outstanding (data25)* FY closing price (data199) - book value of equity (data60) - deferred taxes (data74)/assets (data6)]; The sample period is 1998-2005.

Table 3, Cont.

	Full Sample (N = 446)			Auction (N = 186)			Negotiation (N = 260)			P-Value for Mean Differences	P-Val for Median Differences
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Auction - Negotiation	Auction - Negotiation
Panel A - Cumulative Abnormal Returns (CAR) and Premium											
Target CAR (-3,+3) %	27.07	22.29	29.65	26.16	21.34	27.98	27.73	23.26	30.83	0.26	0.41
Offer Premium %	47.27	40.90	43.96	47.55	40.90	46.65	47.07	40.72	42.02	0.45	0.92
Panel B - Uncertainty and Risk Proxies											
Std. Dev. Stock Return prior year %	4.04	3.63	2.06	4.12	3.83	2.01	3.98	3.49	2.09	0.22	0.04
R & D - Target	0.10	0.00	0.40	0.13	0.00	0.51	0.09	0.00	0.30	0.09	0.53
Financial Reporting Opacity	-1.08	-0.11	7.17	-0.52	-0.02	6.83	-1.48	-0.17	7.39	0.07	0.61
Panel C - Acquisition Characteristics											
Only cash payment dummy	0.36	0.00	0.48	0.37	0.00	0.48	0.35	0.00	0.48	0.30	0.59
Only stock Payment dummy	0.46	0.00	0.50	0.40	0.00	0.49	0.50	0.50	0.50	0.03	0.06
Diversified Acquisition	0.30	0.00	0.46	0.28	0.00	0.45	0.31	0.00	0.46	0.35	0.69
Regulated Industry	0.09	0.00	0.29	0.11	0.00	0.31	0.08	0.00	0.27	0.16	0.32
Target incorporated in Delaware	0.56	1.00	0.50	0.56	1.00	0.50	0.55	1.00	0.50	0.39	-
Panel D - Firm Level Characteristics											
Mkt. Value - Acquirer (MM USD)	10,378	2,269	23,917	10,193	1,922	23,014	10,510	2,479	24,586	0.45	0.31
Mkt. Value - Target (MM USD)	1,346	299	3,487	1,162	252	4,125	1,477	360	2,949	0.16	0.03
Relative Size (Mkt. Val target/Mkt. Val Acq.)	0.32	0.15	0.69	0.25	0.14	0.31	0.38	0.17	0.86	0.03	0.53
ROA (EBITD/Assets) - Target	0.10	0.13	0.17	0.09	0.13	0.17	0.11	0.13	0.17	0.09	0.85
ROA (EBITD/Assets) - Acquirer	0.14	0.16	0.14	0.15	0.16	0.13	0.14	0.16	0.14	0.48	0.96
Tobin's Q - Target	2.11	1.45	1.93	1.91	1.43	1.60	2.25	1.50	2.14	0.04	0.29
Tobin's Q - Acquirer	2.65	1.84	2.87	2.31	1.79	1.67	2.89	1.92	3.47	0.01	0.13

Table 4 - Determinants of Selling through Auction – Logit Regression

Opacity is industry adjusted and performance-matched discretionary accruals (averaged over years t-1 & t-2) and is calculated as the residual from the following model: $CA_i + CA_{i,t-1} = \alpha + \beta(\Delta Sales_i - \Delta AR_i + \Delta Sales_{i,t-1} - \Delta AR_{i,t-1}) + \varepsilon_i$ minus the average residual of a portfolio of firms matched on two-digit SIC codes and ROA_{t-1} , where CA is current accrual: data items $[\Delta(4-1) - \Delta(5-34)]/6_{t-1}$; Sales (data12/data6_{t-1}); AR is accounts receivable (data 2/data6_{t-1}); Tobin's Q is calculated as follows: $[\text{assets (data6)} + \text{common shares outstanding (data25)} * \text{FY closing price (data199)} - \text{book value of equity (data60)} - \text{deferred taxes (data74)}] / \text{assets (data6)}$; Target in Regulated Industry is a categorical variable coded 1 if the target's main industry is in the following industries (using Fama-French industry classifications): Defense, Petroleum and Natural Gas, Utilities, Communication, Banking, Insurance or Trading, 0 otherwise; ROA is defined as the ratio between operating income before depreciation (data13)/total assets (data6); Target R&D represents research and development expenses (data46) scaled by assets (data6); Target in Delaware is a categorical variable coded 1 if the target's state of incorporation is Delaware, 0 otherwise; Growth S&P 500 represents the growth in the prior quarter of the announcement for the S&P 500 index; We classify Acquisitions as Auction or Negotiation based on the total number of bidders (auctions vs. negotiation). The sample period is 1998-2005. *** p<0.01, ** p<0.05, * p<0.1 (two-tailed tests unless a prediction is made). Inferences are based on White (1980) standard errors corrected for within-industry dependence. Changes in Predicted Probability: 0->1: change in predicted probability as x changes from 0 to 1 in binary variables ("Target initiates" and "Target in Delaware"). -+sd/2: change in predicted probability as x changes from 1/2 standard dev. below base to 1/2 standard dev. above in continuous variables. Notes on Goodness-of-fit tests: (i) Hosmer-Lemeshow Goodness-of-fit-test: Prob(ch12) > 0.10 means a well-fitted model. (p-value is adjusted in each model based on degrees of freedom); (ii) Area under receiver-operator characteristic (ROC) curve (Sensitivity vs. 1-Specificity graph) test: test values between 0.6 and 0.9 mean a well-fitted model. Source for goodness-of-fit tests in logistic models: Hilbe, Joseph M., 2009, Logistic Regression Models, Chapman & Hall/CRC.

Table 4, Cont.

Dependent Variable:	Pr(Auction = 1)										
	Model #	(1)	(2)	(3)	(4)			Standardized odds ratios / (Marginal Effects)	Predicted Change in Prob. BV: 0->1, CV: -+sd/2	(5)	
	coef/ p-value	coef/ p-value	coef/ p-value	coef/ p-value	coef/ p-value					coef/ p-value	
Target Initiated deal	1.099 *** (0.000)	1.096 *** (0.000)	1.099 *** (0.000)	1.095 *** (0.000)	1.095 *** (0.000)			1.708 (0.269)	0.268	1.86 *** (0.000)	
Financial Reporting Opacity		2.088 ** (0.046)	2.028 * (0.052)	1.948 * (0.061)				1.162 (0.505)	0.036	1.696 (0.168)	
Std. Dev. Stock Return prior year			-0.037 (0.211)	-0.046 (0.178)				0.931 (-0.008)	-0.017	0.033 (0.305)	
Target R&D				0.235 ** (0.023)				1.156 (0.083)	0.035	0.262 *** (0.000)	
Target Initiated deal * Opacity										0.586 (0.413)	
Target Initiated deal * SD Stock Ret.										-0.184 ** (0.006)	
Target Initiated deal * Target R&D										-0.038 (0.450)	
Log (Target Mkt Val Assets)	-0.114 * (0.053)	-0.12 ** (0.041)	-0.142 ** (0.025)	-0.146 ** (0.025)				0.841 (-0.024)	-0.042	-0.147 ** (0.022)	
Target in Regulated Industry	0.363 (0.112)	0.362 (0.115)	0.355 (0.137)	0.371 (0.129)				1.090 (0.072)	0.021	0.371 (0.145)	
Target in Delaware	0.071 (0.704)	0.078 (0.676)	0.103 (0.586)	0.088 (0.646)				1.033 (0.016)	0.016	0.09 (0.647)	
Growth S&P 500	-1.091 (0.568)	-1.03 (0.581)	-1.263 (0.497)	-1.261 (0.496)				0.927 (-0.284)	-0.018	-1.067 (0.576)	
Intercept	0.957 (0.652)	0.954 (0.645)	1.457 (0.479)	1.496 (0.465)						0.982 (0.639)	
Pseudo R2	0.060	0.063	0.064	0.065						0.071	
Model p-value (F stat)	0.000	0.000	0.000	0.000						0.000	
Goodness-of-fit-tests (Specification test)											
Hosmer-Lemeshow Prob > chi2	0.407	0.386	0.368	0.330						0.358	
Area under ROC curve	0.661	0.669	0.668	0.679						0.669	
Model well-fitted under both tests?	Yes	Yes	Yes	Yes						Yes	
N	446	446	446	446						446	

Table 5 - OLS Regressions on Target CARs and Offer Premium - Detailed by method of sale

Panel A presents OLS and 2SLS regressions on Target CARs using the whole sample. Panel B presents OLS regressions on Target CARs on subsamples of interest based on high and low terciles of uncertainty and financial reporting opacity. Panel C presents regressions on Offer Premiums on subsamples of interest based on high and low terciles of uncertainty and financial reporting opacity. CAR is defined as the seven day cumulative abnormal returns centered on the acquisition announcement date, where the abnormal returns were calculated using the market model (with the CRSP value weighted index as a benchmark); Auction is a categorical variable coded 1 when there are more than one bidder in the pre-announcement acquisition process, 0 otherwise; Financial Reporting Opacity is industry adjusted, performance-matched discretionary accruals (averaged over years t-1 & t-2) and is calculated as the residual from the following model: $CA_i + CA_{i,t-1} = \alpha + \beta(\Delta Sales_i - \Delta AR_i + \Delta Sales_{i,t-1} - \Delta AR_{i,t-1}) + \varepsilon_i$ minus the average residual of a portfolio of firms matched on two-digit SIC codes and ROA_{t-1} , where CA is current accrual: data items $[\Delta(4-1) - \Delta(5-34)]/6_{t-1}$; Sales (data12/data6_{t-1}); AR is accounts receivable (data 2/data6_{t-1}); Relative Size is defined as the ratio of the target's market value of assets to the acquirer's market value of assets, where market value of assets (Mkt. Value) is calculated as follows: book value of assets (data6) – book value of equity (data60) + common shares outstanding (data25) *FY closing price (data199); Only cash Payment is a categorical variable coded 1 if the offered price is made 100% in cash, 0 otherwise; Tender is a categorical variable coded 1 if a takeover bid takes the form of a public invitation to shareholders to sell their stock, with or without prior contact with the target; 0 otherwise; Regulated Industry is a categorical variable coded 1 if the target's main industry is in the following industries (using Fama-French industry classifications): Defense, Petroleum and Natural Gas, Utilities, Communication, Banking, Insurance or Trading, 0 otherwise; Target in Delaware is a categorical variable coded 1 if the target's state of incorporation is Delaware, 0 otherwise; Growth S&P 500 represents the growth in the prior quarter of the announcement for the S&P 500 index; Target R&D represents research and development expenses (data46) scaled by assets (data6). We classify Acquisitions as Auction or Negotiation based on the total number of bidders (auctions vs. negotiation). We exclude Hostile/Unsolicited since the target does not make any decision in these cases. In Panel B we define as high (low) uncertainty the top (bottom) tercile of the standard deviation of the target stock return in the prior year to the acquisition announcement. In Panel B we define as high (low) financial reporting opacity the top (bottom) tercile of the discretionary accruals. The sample period is 1998-2005. *** p<0.01, ** p<0.05, * p<0.1 (two-tailed tests unless a prediction is made). Inferences are based on Eicker-Huber-White-Sandwich heteroskedastic-robust standard errors corrected for within-industry dependence. Results are robust and significant to the inclusion of additional control variables (i.e., relative size, only-cash-payment, and tender dummy) and to using bootstrap standard errors.

Table 5, Cont.

Panel A. OLS and 2SLS Regressions on Target CARs [-3, +3]. Whole Sample

Model	OLS		2SLS	
	(1)	(2)	(3) 2nd stage	(3) 1st stage
Dependent variable:	Target CARs [-3, +3]	Target CARs [-3, +3]	Target CARs [-3, +3]	Pr(Auction = 1)
	c/p	c/p	c/p	c/p
Auction	-0.028 (0.360)	-0.015 (0.572)	-0.063 (0.929)	
Target Initiated deal		-0.025 (0.210)	-0.017 (0.462)	1.044 *** (0.000)
Financial Reporting Opacity		-0.548 ** (0.013)	-0.511 (0.138)	1.951 * (0.055)
Std. Dev. Stock Return prior year		0.019 ** (0.019)	0.02 * (0.079)	-0.046 (0.192)
Target R&D		0.045 *** (0.004)	0.043 * (0.057)	0.216 ** (0.044)
Log (Target Market Value of Assets)	-0.019 *** (0.005)	-0.004 (0.630)	-0.008 (0.722)	-0.14 ** (0.039)
Relative Size	-0.047 *** (0.003)	-0.045 *** (0.006)	-0.048 (0.146)	-0.297 ** (0.037)
Only Cash Payment	0.132 ** (0.019)	0.155 *** (0.006)	0.156 *** (0.001)	0.224 (0.287)
Tender	0.06 (0.128)	0.057 (0.138)	0.045 (0.678)	-0.649 ** (0.019)
Target in Regulated Industry	-0.04 (0.460)	-0.03 (0.512)		0.272 (0.306)
Target in Delaware	-0.035 (0.226)	-0.054 * (0.051)		0.118 (0.543)
Growth S&P 500				(1.066) (0.558)
Intercept	0.880 ** (0.011)	0.584 ** (0.041)	0.215 (0.623)	1.416 (0.487)
Adj_r2 (OLS) / centered r2 (2SLS)	0.118	0.148	0.135	0.078
p-model	0.000	0.000		0.000
N	446	446	446	446
1 st stage Model well specified in over-, weak- and under specification tests?				Yes

Table 5, Cont.

Panel B. OLS Regression on Target CARs [-3, +3]. Subsamples: Uncertainty and Financial Reporting Opacity

Dependent variable:	Target CARs [-3, +3]			
	High High c/p	High Low c/p	Low High c/p	Low Low c/p
Financial Reporting Opacity	0.091 *	-0.084 *	-0.096 *	-0.064
Uncertainty	(0.053)	(0.029)	(0.089)	(0.258)
Auction	-0.167 ***	-0.050	0.029	0.044
Target Initiated deal	(0.002)	(0.153)	(0.382)	(0.315)
Financial Reporting Opacity	1.190 **	-0.491	-0.573	-0.963 *
Std. Dev. Stock Return prior year	(0.014)	(0.245)	(0.168)	(0.027)
Target R&D	-0.013	0.046	-0.023 *	0.081
Log (Target Market Value of Assets)	(0.269)	(0.089)	(0.032)	(0.086)
Relative Size	0.046 ***	-0.458	0.154 *	0.218 **
Only Cash Payment	(0.001)	(0.268)	(0.061)	(0.008)
Tender	-0.039 **	0.018	-0.044 **	0.005
Target in Regulated Industry	(0.039)	(0.303)	(0.040)	(0.818)
Target in Delaware	-0.058	-0.053	-0.029 *	-0.192
Growth S&P 500	(0.184)	(0.242)	(0.068)	(0.151)
Intercept	0.084	0.085	0.378 ***	0.287 *
Pseudo R2	(0.210)	(0.269)	(0.005)	(0.073)
N	-0.092	0.177 **	-0.212 **	-0.147
	(0.219)	(0.010)	(0.049)	(0.403)
	0.430 ***	-0.009	0.212 ***	-0.084
	(0.001)	(0.894)	(0.003)	(0.442)
	-0.101	-0.02	-0.016	-0.130
	(0.157)	(0.701)	(0.729)	(0.186)
	-0.145	0.700	-1.593 **	-0.092
	(0.626)	(0.157)	(0.019)	(0.825)
	0.664	-0.693	2.209 ***	0.142
	(0.117)	(0.258)	(0.002)	(0.771)
	0.14	0.15	0.20	0.16
	72	84	80	63

Table 6 - Treatment Effect Regressions – Method of Sale and Target Wealth Changes

CAR is defined as the seven day cumulative abnormal returns centered on the acquisition announcement date, where the abnormal returns were calculated using the market model (with the CRSP value weighted index as a benchmark); Auction is a categorical variable coded 1 when there are more than one bidder in the pre-announcement acquisition process, 0 otherwise; Opacity is industry adjusted, performance-matched discretionary accruals (averaged over years t-1 & t-2) and is calculated as the residual from the following model: $CA_i + CA_{i,t-1} = \alpha + \beta(\Delta Sales_i - \Delta AR_i + \Delta Sales_{i,t-1} - \Delta AR_{i,t-1}) + \varepsilon_i$ minus the average residual of a portfolio of firms matched on two-digit SIC codes and ROA_{t-1} , where CA is current accrual: data items $[\Delta(4-1) - \Delta(5-34)]/6_{t-1}$; Sales (data12/data6_{t-1}); AR is accounts receivable (data 2/data6_{t-1}); Relative Size is defined as the ratio of the target's market value of assets to the acquirer's market value of assets, where market value of assets (Mkt. Value) is calculated as follows: book value of assets (data6) – book value of equity (data60) + common shares outstanding (data25) *FY closing price (data199); Regulated Industry is a categorical variable coded 1 if the target's main industry is in the following industries (using Fama-French industry classifications): Defense, Petroleum and Natural Gas, Utilities, Communication, Banking, Insurance or Trading, 0 otherwise; Target in Delaware is a categorical variable coded 1 if the target's state of incorporation is Delaware, 0 otherwise; Growth S&P 500 represents the growth in the prior quarter of the announcement for the S&P 500 index; Target R&D represents research and development expenses (data46) scaled by assets (data6). We classify Acquisitions as Auction or Negotiation based on the total number of bidders (auctions vs. negotiation). We exclude Hostile/Unsolicited since the target does not make any decision in these cases. The sample period is 1998-2005. *** p<0.01, ** p<0.05, * p<0.1 (two-tailed tests unless a prediction is made). Inferences are based on Eicker-Huber-White-Sandwich heteroskedastic-robust standard errors corrected for within-industry dependence. The Wald test of Independent Equations the treatment effect regressions assesses the existence of self-selection in the model. We solve the treatment effects regressions with Maximum Likelihood to get a more efficient estimation. Results are robust and significant to the inclusion of additional control variables (i.e., relative size, only-cash-payment, and tender dummy). Panel B includes the interaction terms with the dummy "target initiates deal".

Table 6, Cont. Treatment Effect Regressions – Method of Sale and Target CARs

Model	Treatment Effects				Treatment Effects			
	(1)		(2)		(2)		(2)	
	DV = CAR(-3,+3)		DV = Auction		DV = CAR(-3,+3)		DV = Auction	
Dependent Variable	coef/p	coef/p	coef/p	coef/p	coef/p	coef/p	coef/p	
Auction	0.391 *** (0.001)			0.390 *** (0.000)				
Target Initiated deal	-0.134 *** (0.003)	0.604 *** (0.000)		-0.148 *** (0.001)	0.610 *** (0.000)			
Financial Reporting Opacity	-0.715 ** (0.011)	1.228 * (0.077)		-0.413 ** (0.039)	1.223 * (0.084)			
Std. Dev. Stock Return prior year	0.025 *** (0.002)	-0.049 ** (0.021)		0.023 ** (0.014)	-0.048 ** (0.023)			
Target R&D	0.026 (0.128)	0.109 (0.130)		0.018 (0.213)	0.113 (0.122)			
Log (Target Market Value of Assets)	0.007 (0.498)	-0.09 ** (0.013)		0.005 (0.620)	-0.089 ** (0.014)			
Relative Size	-0.041 ** (0.012)			-0.043 *** (0.008)				
Only Cash Payment	0.146 *** (0.002)			0.139 *** (0.002)				
Tender	0.053 (0.163)			0.057 (0.119)				
Target in Delaware	-0.051 (0.104)	-0.007 (0.948)		-0.050 (0.113)	-0.006 (0.957)			
Target Initiated deal * Auction				-0.019 (0.354)				
Target Initiated deal * Opacity				-0.792 * (0.027)				
Target Initiated deal * SD Stock Ret.				0.004 (0.363)				
Target Initiated deal * Target R&D				0.015 (0.204)				
Target in Regulated Industry		0.058 (0.719)			0.060 (0.706)			
Growth S&P 500		-1.057 (0.234)			-1.055 (0.252)			
Intercept	-0.018 (0.890)	1.383 (0.187)		0.009 (0.944)	1.364 (0.208)			
rho: correlation between the error terms	-0.762 ***			-0.751 ***				
Wald test of independent equations [rho = 0]: chi2 ; (Prob > chi2)	122.306 *** (0.004)			173.988 *** (0.005)				
lambda	-0.253 ***			-0.246 ***				
Number of observations	446			446				

Panel B Table 6, Cont. Treatment Effect Regressions – Method of Sale and Offer Premium

Model	Treatment Effects				Treatment Effects			
	(3)				(4)			
	DV = Offer Premium		DV = Auction		DV = Offer Premium		DV = Auction	
Dependent Variable	coef/p		coef/p		coef/p		coef/p	
Auction	0.519	**			0.532	**		
	(0.011)				(0.025)			
Target Initiated deal	-0.197	***	0.610	***	-0.243	**	0.637	***
	(0.002)		(0.000)		(0.027)		(0.000)	
Opacity Risk	-0.892	**	1.069	*	-0.214		1.084	
	(0.015)		(0.092)		(0.332)		(0.094)	
Std. Dev. Stock Return prior year	0.038	***	-0.026		0.035	***	-0.032	
	(0.001)		(0.188)		(0.005)		(0.118)	
Target R&D	-0.028	**	0.112	*	-0.022		0.126	
	(0.027)		(0.091)		(0.115)		(0.066)	
Log (Target Market Value of Assets)	-0.008		-0.066	*	0.000		-0.087	**
	(0.575)		(0.097)		(0.985)		(0.017)	
Relative Size			-0.268	**	-0.061	***		
			(0.021)		(0.008)			
Only Cash Payment			0.182		0.069			
			(0.125)		(0.254)			
Tender			-0.209		0.056			
			(0.151)		(0.139)			
Target in Delaware	-0.013		0.030		-0.021		0.050	
	(0.636)		(0.794)		(0.505)		(0.680)	
TrgtInitiator * Auction					-0.072			
					(0.133)			
Target Initiated deal * Opacity risk					-1.788	***		
					(0.008)			
Target Initiated deal * SD Stock Ret.					0.017			
					(0.288)			
Target Initiated deal * Target R&D					-0.001			
					(0.487)			
Target in Regulated Industry							0.217	*
							(0.085)	
Growth S&P 500			-0.445				-0.633	
			(0.605)				(0.507)	
Intercept	0.226		0.572		0.176		0.808	
	(0.198)		(0.552)		(0.362)		(0.448)	
rho: correlation between the error terms			-0.645				-0.633	*
Wald test of independent equations			76.144	*			231.246	*
[rho = 0]: chi2 ; (Prob > chi2)			(0.053)				(0.081)	
lambda			-0.314	***			-0.299	***
Number of observations			446				446	

Table 7 - Treatment Effect Regressions on Target CARs – Effect of Target decision to sell via an Auction after initial contact to negotiate with an interested bidder

CAR is defined as the seven day cumulative abnormal returns centered on the acquisition announcement date, where the abnormal returns were calculated using the market model (with the CRSP value weighted index as a benchmark); Auction is a categorical variable coded 1 when there are more than one bidder in the pre-announcement acquisition process, 0 otherwise; Opacity is industry adjusted, performance-matched discretionary accruals (averaged over years t-1 & t-2) and is calculated as the residual from the following model: $CA_i + CA_{i,t-1} = \alpha + \beta(\Delta Sales_i - \Delta AR_i + \Delta Sales_{i,t-1} - \Delta AR_{i,t-1}) + \varepsilon_i$ minus the average residual of a portfolio of firms matched on two-digit SIC codes and ROA_{t-1} , where CA is current accrual: data items $[\Delta(4-1) - \Delta(5-34)]/6_{t-1}$; Sales (data12/data6_{t-1}); AR is accounts receivable (data 2/data6_{t-1}); Same control variables as those used in the prior Treatment Effects models. The “Negotiation-then-Auction” dummy variable is estimated based on Factiva, SEC proxy and LivEdgar M&A files during the pre-announcement takeover process. We classify Acquisitions as Auction or Negotiation based on the total number of bidders (auctions vs. negotiation). We exclude Hostile/Unsolicited since the target does not make any decision in these cases. The sample period is 1998-2005. *** p<0.01, ** p<0.05, * p<0.1 (two-tailed tests unless a prediction is made). Inferences are based on Eicker-Huber-White-Sandwich heteroskedastic-robust standard errors corrected for within-industry dependence. Model (1) uses the whole sample and Model (2) uses only the subsample in which the acquirer initiated the deal.

Table 7, Cont.

Model	Treatment Effects		Treatment Effects	
	(1)		(2)	
Sample	Whole Sample		Subsample: Acquire Initiated deal	
Dependent Variable	DV = CAR(-3,+3)	DV = Auction	DV = CAR(-3,+3)	DV = Auction
	coef/p	coef/p	coef/p	coef/p
Auction	0.383 *** (0.000)		0.372 *** (0.002)	
Target chooses auction after first contact for negotiation by an interested bidder	0.113 * (0.087)		0.117 * (0.098)	
Target Initiated deal	-0.122 *** (0.004)	0.602 *** (0.000)		
Opacity Risk	-0.72 *** (0.010)	1.225 * (0.080)	-0.078 (0.409)	0.543 (0.351)
Std. Dev. Stock Return prior year	0.024 *** (0.003)	-0.050 ** (0.019)	0.013 (0.138)	-0.002 (0.484)
Target R&D	0.027 (0.112)	0.110 (0.125)	0.018 (0.305)	0.174 * (0.059)
Log (Target Market Value of Assets)	0.007 (0.490)	-0.091 ** (0.011)	-0.023 * (0.084)	0.003 (0.946)
Relative Size	-0.042 *** (0.010)		-0.111 *** (0.000)	
Only Cash Payment	0.143 *** (0.002)		0.096 * (0.096)	
Tender	0.054 (0.156)		0.061 (0.328)	
Target in Delaware	-0.049 (0.115)	-0.005 (0.966)	-0.04 (0.429)	-0.104 (0.630)
Target in Regulated Industry		0.072 (0.657)		-0.204 (0.342)
Growth S&P 500		-1.000 (0.236)		-1.240 (0.417)
Intercept	-0.021 (0.869)	1.330 (0.188)	0.277 ** (0.036)	0.837 (0.643)
rho: correlation between the error terms	-0.003 ***		-0.002 ***	
Wald test of independent equations [rho = 0]: chi2 ; (Prob > chi2)	137.575 *** (0.003)		134.005 *** (0.003)	
lambda	-0.258 ***		-0.258 ***	
Number of observations	446		190	

Table 8 - Determinants of Acquisition Renegotiation – Logit Regressions

Renegotiation is a binary variable that takes the value of one if the price or the acquisition conditions is renegotiated (i.e. modified) after the initial announcement of the acquisition. The information is obtained from Factiva, SEC proxies and LivEdgar M&A database. Auction is a categorical variable coded 1 when there is more than one bidder in the pre-announcement acquisition process, 0 otherwise. CAR is defined as the seven day cumulative abnormal returns centered on the acquisition announcement date, where the abnormal returns were calculated using the market model (with the CRSP value weighted index as a benchmark); Opacity is industry adjusted, performance-matched discretionary accruals (averaged over years t-1 & t-2) and is calculated as the residual from the following model: $CA_i + CA_{i,t-1} = \alpha + \beta(\Delta Sales_i - \Delta AR_i + \Delta Sales_{i,t-1} - \Delta AR_{i,t-1}) + \varepsilon_i$ minus the average residual of a portfolio of firms matched on two-digit SIC codes and $ROA_{i,t-1}$, where CA is current accrual: data items $[\Delta(4-1) - \Delta(5-34)]/6_{t-1}$; Sales (data12/data6_{t-1}); AR is accounts receivable (data 2/data6_{t-1}); Relative Size is defined as the ratio of the target's market value of assets to the acquirer's market value of assets, where market value of assets (Mkt. Value) is calculated as follows: book value of assets (data6) – book value of equity (data60) + common shares outstanding (data25) *FY closing price (data199); Only Cash Payment is a categorical variable coded 1 if the offered price is made 100% in cash, 0 otherwise; Diversified deal is equal to one if the main sic4 of the target and the acquirer are different; the challenged dummy is equal to 1 if the transaction is challenged after the initial announcement of the acquisition. The “Days of due diligence divided by the number of serious bidders” is estimated based on the information found in the SEC proxy files and we use the log in the regression. Changes in Predicted Probability: 0->1: change in predicted probability as x changes from 0 to 1 in binary variables (“Target initiates”). - +sd/2: change in predicted probability as x changes from 1/2 standard dev. below base to 1/2 standard dev above in continuous variables. The sample period is 1998-2005. Model 5 contains a “N/M”: Not meaningful label for the interaction “Target Initiated deal * Target R&D” because 26 failures and 0 successes are completely determined. Note that these analyses do not assess whether targets have managed earnings more often in auctioned vs. negotiated acquisitions (Panel B in Table 3 has already documented a higher opacity risk in auctions). Instead, we assess whether acquirers in negotiations can detect the occurrence of major adverse findings with a higher probability; arguably, targets cannot limit the information sharing in negotiation as much as in auctions. These analyses do not assess whether targets have managed earnings more often in auctioned vs. negotiated acquisitions (Panel B in Table 3 has already documented a higher financial reporting opacity in auctions). Instead, we assess whether acquirers in negotiations can detect the occurrence of major adverse findings with a higher probability, arguably because targets cannot limit the information sharing in negotiation as much as in auctions.

Table 8, Cont.

Dependent Variable	Prob(Renegotiation) = 1				
	Whole Sample	Auction		Negotiations	
Model	(1)	(2)	(3)	(4)	(5)
Sample	c/(p)	c/(p)	c/(p)	c/(p)	c/(p)
Auction	0.439 (0.426)				
Target Initiated deal	-0.747 *** (0.024)	-0.701 * (0.100)	2.598 (0.177)	-0.673 (0.183)	-231.573 *** (0.000)
Financial Reporting Opacity	-1.339 (0.357)	-9.46 *** (0.001)	-13.296 *** (0.002)	14.667 ** (0.015)	9.203 * (0.055)
Std. Dev. Stock Return prior year	0.117 * (0.066)	0.067 (0.322)	0.196 (0.224)	0.183 ** (0.048)	0.131 * (0.100)
Target R&D	-1.338 (0.217)	-0.107 (0.401)	-0.126 (0.383)	-14.747 *** (0.003)	-11.707 ** (0.013)
log [Days of Due Diligence / # Info. Memo bidders]	0.228 * (0.090)	0.004 (0.495)	0.423 (0.223)	0.768 *** (0.005)	0.678 ** (0.021)
Diversified	0.013 (0.979)	0.242 (0.736)	0.385 (0.624)	0.015 (0.981)	-0.169 (0.822)
Relative Size	0.590 (0.131)	0.545 (0.374)	0.781 (0.286)	0.669 (0.289)	0.644 (0.283)
Only Cash Payment	-0.699 (0.185)	-0.958 (0.254)	-0.796 (0.393)	-0.470 (0.580)	-0.805 (0.416)
Challenged deal	2.099 *** (0.001)	1.932 ** (0.045)	2.446 *** (0.008)	2.970 ** (0.014)	2.834 ** (0.016)
Target Initiated deal * Opacity risk			10.153 ** (0.034)		789.04 *** (0.000)
Target Initiated deal * SD Stock Ret.			-0.186 (0.232)		16.683 *** (0.000)
Target Initiated deal * Target R&D			-0.025 (0.466)		N/M
Target Initiated deal * log(days DD/InfoMemo)			-0.957 * (0.062)		25.526 *** 0.000
Intercept	-3.864 *** (0.000)	-3.003 *** (0.002)	-5.08 * (0.051)	-5.83 *** (0.000)	-5.148 *** (0.000)
Number of Observations	409	176	176	233	199
Pseudo R ²	0.11	0.169	0.224	0.258	0.33

Table 9 – Clinical analysis of observed transactions with potential earnings Management

Panel A presents the suspected earnings management detections during the pre-announcement takeover process. Panel B presents the suspected earnings management detections during the post-announcement takeover process. Auction is a categorical variable coded 1 when there is more than one bidder in the pre-announcement acquisition process, 0 otherwise. The Announcement date divides the pre-announcement and the post-announcement takeover processes. Information of transactions is obtained from the SEC filings, Factiva, SDC and LivEdgar M&A database. We classify Acquisitions as Auction, Negotiation or Hostile/Unsolicited based on the total number of bidders (auctions # >1 vs. negotiation # = 1) and if the acquirer makes a Hostile/Unsolicited bid. The sample period is 1998-2005. Note that these analyses do not assess whether targets have managed earnings more often in auctioned vs. negotiated acquisitions (Panel B in Table 3 has already documented a higher opacity risk in auctions). Instead, we assess whether acquirers in negotiations can detect the occurrence of major adverse findings with a higher probability; arguably, targets cannot limit the information sharing in negotiation as much as in auctions. This analysis does not assess whether targets have managed earnings more often in auctioned vs. negotiated acquisitions (Panel B in Table 3 has already documented a higher financial reporting opacity in auctions). Instead, we assess whether acquirers in negotiations can detect the occurrence of major adverse findings with a higher probability; arguably because targets cannot limit the information sharing in negotiation as much as in auctions.

Panel A: Acquisitions that reported a major finding during the pre-announcement due diligence (i.e., *before* the acquisition announcement)

	Total	Auctions	Negotiations
<u>Major Adverse Finding found in the <i>Pre-announcement</i> acquisition period</u>	14	5	9
Changes in price <i>before</i> announcement	7	2	5
Average change in price <i>before</i> the announcement	-15%	-5%	-18%
Renegotiations <i>after</i> the announcement Major finding in pre-announcement due diligence	1	1	0
Average change in price <i>after</i> the announcement	-67%	-67%	-
Terminated deals <i>after</i> the announcement	0	0	0

Panel B: Acquisitions that reported a major finding during the post-announcement due diligence (i.e., *after* the acquisition announcement)

	Total	Auctions	Negotiations
<u>Major Adverse Finding found in the <i>Post-announcement</i> acquisition period</u>	9	1	8
Changes in price <i>before</i> announcement	1	0	1
Average change in price <i>before</i> the announcement	-10%	-	-10%
Renegotiations <i>after</i> the announcement Major finding in pre-announcement due diligence	5	1	4
Average change in price <i>after</i> the announcement	-15%	-9%	-18%
Terminated deals <i>after</i> the announcement	5	0	5
Terminated deals <i>after</i> the announcement that renegotiated	1	0	1

Table 10. Percentage of contacted bidders that request Information Memo and sign the Confidential Agreement

This table presents the percentage of contacted bidders that request the Information memorandum to continue in an auction process. We define as high (low) uncertainty the top (bottom) tercile of the standard deviation of the target stock return in the prior year to the acquisition announcement. We define as high (low) financial reporting opacity the top (bottom) tercile of the abnormal discretionary accruals. Financial Reporting Opacity is industry adjusted, performance-matched discretionary accruals (averaged over years t-1 & t-2) and is calculated as the residual from the following model: $CA_i + CA_{i,t-1} = \alpha + \beta(\Delta Sales_i - \Delta AR_i + \Delta Sales_{i,t-1} - \Delta AR_{i,t-1}) + \varepsilon_i$ minus the average residual of a portfolio of firms matched on two-digit SIC codes and $ROA_{i,t-1}$, where CA is current accrual: data items $[\Delta(4-1) - \Delta(5-34)]/6_{t-1}$; Sales (data12/data6_{t-1}); AR is accounts receivable (data 2/data6_{t-1}).

Panel A. Percentage of contacted bidders that request Information Memo and sign the Confidential Agreement. Detail by level of Uncertainty

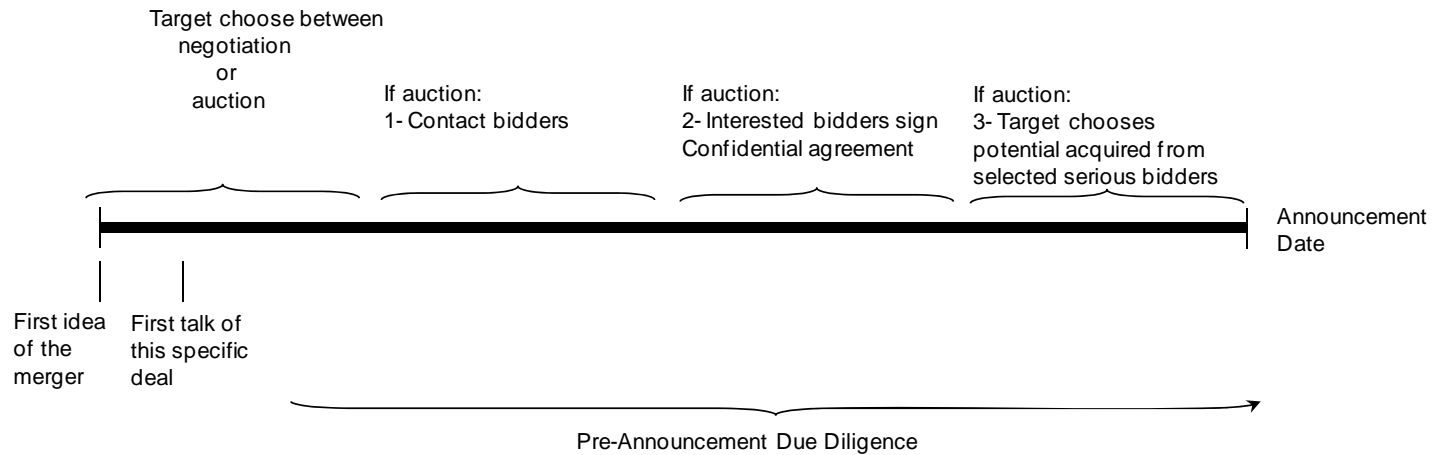
		Uncertainty		Total
		Low	High	
Target Initiated deal?	No	0.804	0.594	0.686
	Yes	0.532	0.476	0.535
	Total	0.647	0.538	0.608

Panel B. Percentage of contacted bidders that request Information Memo and sign the Confidential Agreement. Detail by level of Financial Reporting Opacity

		Financial Reporting Opacity		Total
		Low	High	
Target Initiated deal?	No	0.657	0.745	0.686
	Yes	0.546	0.585	0.535
	Total	0.599	0.661	0.608

Timeline of Acquisition Process

I. Pre-Announcement (Private) Acquisition Process



II. Post-Announcement (Public) Acquisition Process

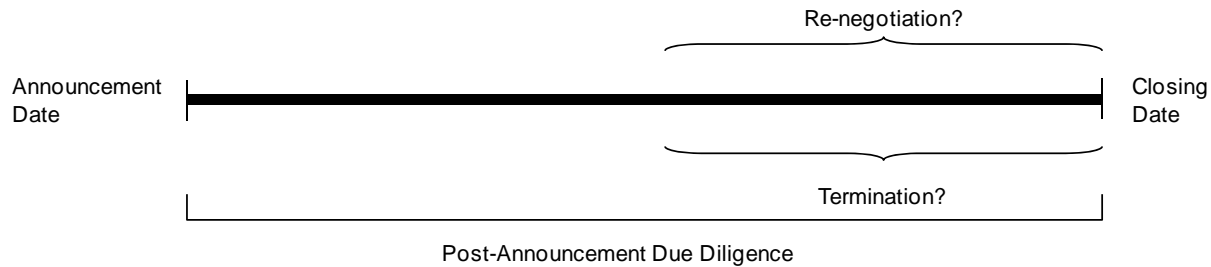


Figure 1. Timeline of the Takeover Process

The announcement date divides the acquisition takeover process in the pre-announcement and the post-announcement takeover processes. Acquirers and targets report specific information on the pre-announcement takeover process in the SEC filings after the announcement date. Brackets, such as the one for the Due-Diligence, represent windows with large variation for each acquisition

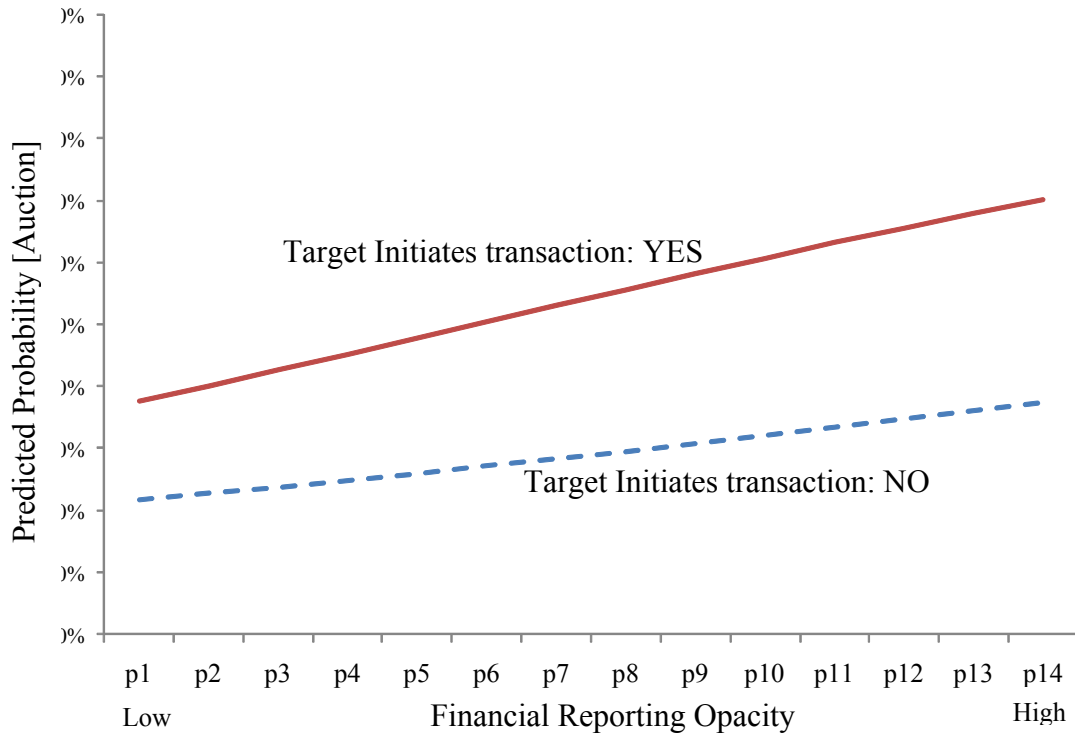


Figure 2. Probability of Auction vs. Financial Reporting Opacity and Target Initiation

Figure 2 presents the predicted probabilities of Auction based on the Logit model in Table 5 conditioned on whether the target initiates the acquisition or not.. Solid line is estimated in subsample in which the target initiates the transaction. Dotted line represents subsample in which the target does not initiates the transaction. Following Boone and Mulherin (2007b) we classify Acquisitions as Auction or Negotiation based on the total number of bidders (auctions: # bidders > 1; negotiation: # bidders = 1). We find the initiator dummies based on Factiva, SEC proxies and the LivEdgar M&A database. Opacity is industry adjusted, performance-matched discretionary accruals (averaged over years t-1 & t-2) and is calculated as the residual from the following model: $CA_i + CA_{i,t-1} = \alpha + \beta(\Delta Sales_i - \Delta AR_i + \Delta Sales_{i,t-1} - \Delta AR_{i,t-1}) + \varepsilon_i$ minus the average residual of a portfolio of firms matched on two-digit SIC codes and ROA_{t-1} , where CA is current accrual: data items $[\Delta(4-1) - \Delta(5-34)]/6_{t-1}$. The sample period is 1998-2005 and consists of 446 observations

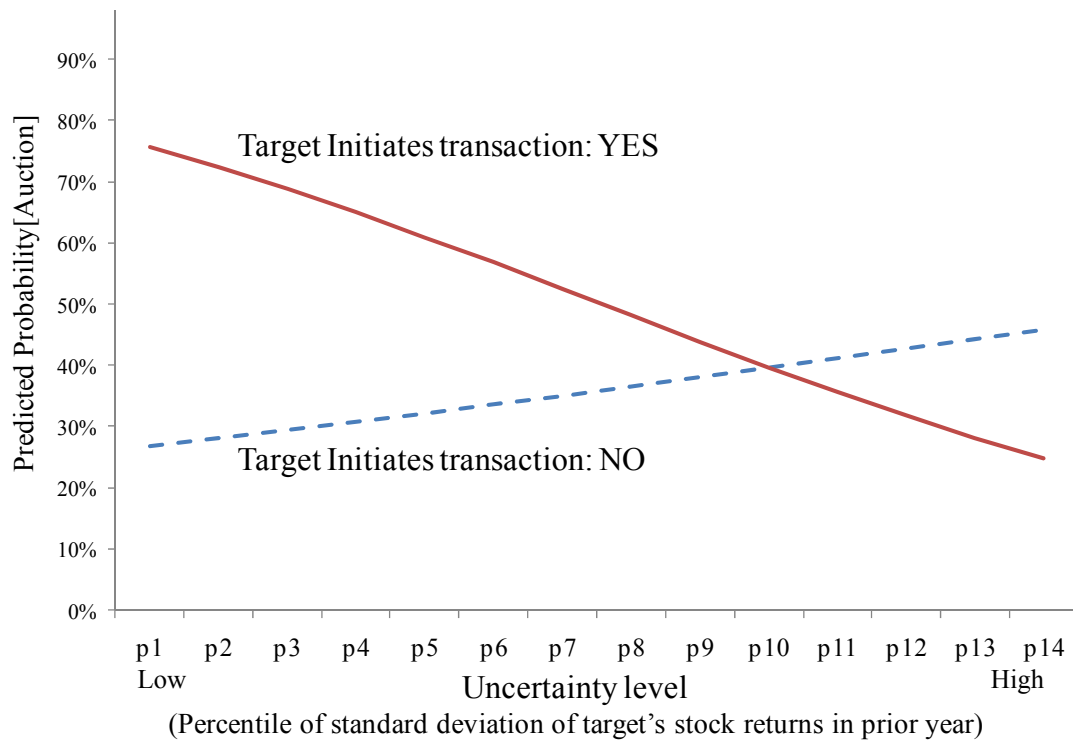


Figure 3. Probability of Auction vs. Uncertainty and Target Initiation

Figure 3 presents the predicted probabilities of Auction based on the Logit model in Table 5 conditioned on whether the target initiates the acquisition or not... Solid line is estimated in subsample in which the target initiates the transaction. Dotted line represents subsample in which the target does not initiate the transaction. Following Boone and Mulherin (2007b) we classify Acquisitions as Auction or Negotiation based on the total number of bidders (auctions: # bidders > 1; negotiation: # bidders = 1). We find the initiator dummies based on Factiva, SEC proxies and the LivEdgar M&A database. The uncertainty level is estimated based on the standard deviation of the stock returns for the target on the year before the acquisition announcement. The sample period is 1998-2005 and consists of 446 observations.

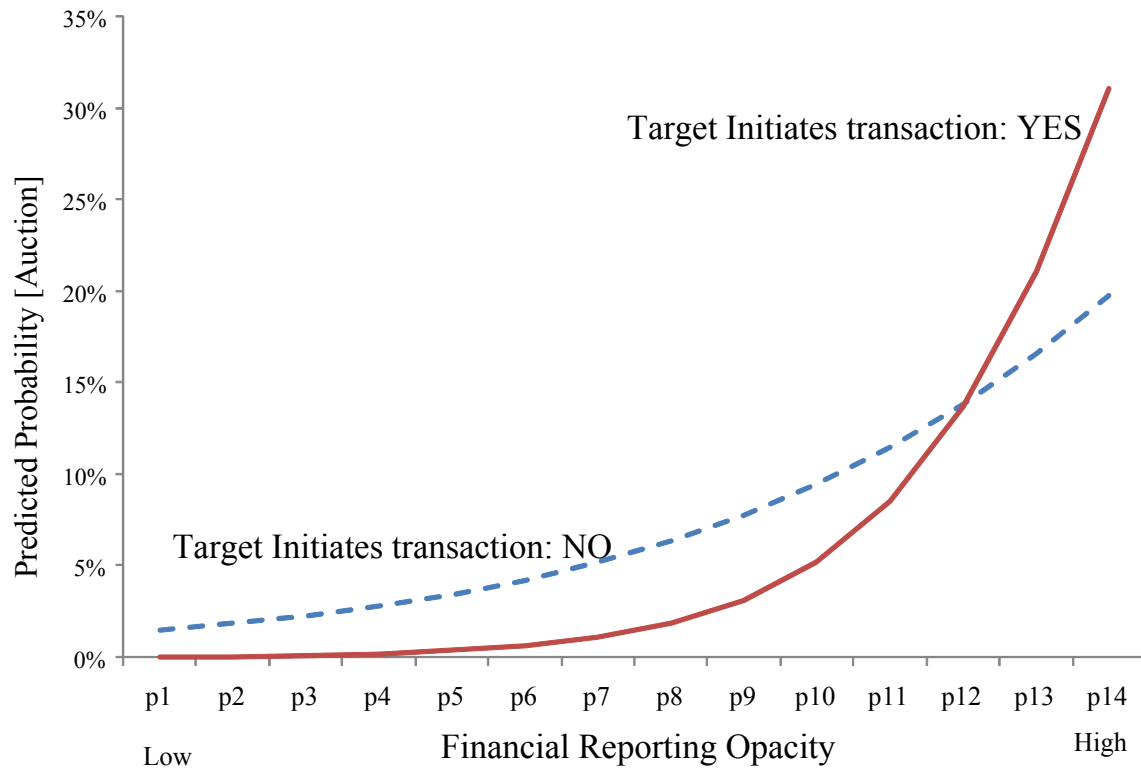


Figure 4. Probability of Renegotiation vs. Financial Reporting Opacity and Target Initiation

Figure 4 presents the predicted probabilities of Renegotiation based on the Logit model in Table 9 conditioned on the identity of the initiator. Solid line is estimated in subsample in which the target initiates the transaction. Dotted line represents subsample in which the target does not initiate the transaction. Following Boone and Mulherin (2007b) we classify Acquisitions as Auction or Negotiation based on the total number of bidders (auctions: # bidders > 1; negotiation: # bidders = 1). We find the initiator and renegotiated transactions dummies based on Factiva, SEC proxies and the LivEdgar M&A database. Opacity is industry adjusted, performance-matched discretionary accruals (averaged over years t-1 & t-2) and is calculated as the residual from the following model: $CA_i + CA_{i,t-1} = \alpha + \beta(\Delta Sales_i - \Delta AR_i + \Delta Sales_{i,t-1} - \Delta AR_{i,t-1}) + \varepsilon_i$ minus the average residual of a portfolio of firms matched on two-digit SIC codes and ROA_{t-1} , where CA is current accrual: data items $[\Delta(4-1) - \Delta(5-34)]/6_{t-1}$. The sample period is 1998-2005 and consists of 446 observations.