The Role of Accruals Quality in the M&A Market

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Abstract

We examine the role of target firms' accruals quality (AQ) on the course of the acquisition process. We predict and find that target AQ is significantly associated with the choice of sales method (auction vs. negotiation), acquirer and target returns, the likelihood of deal completion, and the speed of the process overall. We further find that AQ has a more pronounced effect on M&A transactions when the target firm is sold via auction versus negotiation and that the relative importance of AQ driven by discretionary reporting choices increases as the transaction moves forward in time. Our results provide new evidence on the role of financial accounting quality in the efficient allocation of capital resources.

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1. Introduction

One purpose of a financial accounting system is to enable the efficient allocation of an economy's capital resources.[1] Because resource allocation requires *ex ante* judgments, evidence on how financial reporting quality influences allocation decisions is "fundamental to understanding why and how accounting matters to investors and others" (Francis, Olsson, and Schipper 2008). As such, researchers have dedicated much effort to establishing links between earnings quality and security valuation, the cost of capital, and external financing decisions (see Dechow, Ge, and Schrand 2009). However, far less attention has been devoted to examining the role of earnings quality in firms' investment decisions.

We address this question by examining the role of accruals quality (AQ) in the market for mergers and acquisitions (M&A). M&A transactions represent one of the largest and most readily observable investments made by firms and result in massive reallocations of resources within the economy. M&A activity in the U.S. also represents a substantial proportion of total economic activity, ranging from 5% to 10% of GDP in recent years and totaling almost $1.5 trillion in deal values in 2006 and 2007 alone (see McCracken 2009).

We are specifically interested in how the accruals quality (AQ) of target firms in the M&A market influences the course of the acquisition process. Taking a chronological view, we begin our analysis by first examining how target firm AQ affects

[1] Kothari, Ramanna, and Skinner (2009) argue that efficient resource allocation should be the primary objective of generally accepted accounting principles (GAAP).

the initial decision to conduct the transaction via an auction versus a negotiation. Recent evidence presented by Boone and Mulherin (2007; 2008) shows that roughly half of target firms are auctioned among multiple bidders, while the remainder negotiate with a single bidder. The relative quality of accounting information is likely to influence the choice of sales method, as auction theory suggests that assets with more uncertainty about their 'true' value are more likely to be sold via auctions than through other sales methods because uncertainty tends to increase the expected value of the winning bid (see French and McCormick 1984). High quality accounting information also reduces the costs of negotiation, as it helps in identifying the bidder that values the target firm most highly. We therefore predict that target AQ will be negatively (positively) associated with the likelihood of an auction (negotiation).

Because the method of sale potentially has important ramifications for the direction and ultimate outcome of the acquisition process, we condition our subsequent analyses on the auction-versus-negotiation dichotomy. Our second test examines how target AQ affects acquirer and target announcement returns, conditional on the method of sale. Because low AQ will exacerbate valuation uncertainty and increase the expected value of the winning bid, resulting in lower expected profits for the acquirer, we expect acquirer returns to be positively associated with target firm AQ. Similarly, we expect target returns to be negatively associated with AQ, as a higher winning bid improves the target's gain on the transaction. In addition, we expect the association between AQ and acquirer and target returns to be stronger in the case of an auction, since French and McCormick (1984) show that the effects of valuation uncertainty on the expected value of the winning bid are intensified as the number of bidders increases.

Next, we examine the association of AQ with the likelihood that the transaction will be completed. Many proposed acquisitions are withdrawn during the due diligence phase. In fact, Bates and Lemmon (2003) report that 21% of announced deals are ultimately withdrawn, and Securities Data Corporation (SDC) reports an almost identical failure rate. We predict that target AQ will be positively associated with the likelihood that the acquisition will be completed, as it is less likely that new information about the 'true' value of the target firm will emerge between the announcement and completion dates of the transaction when AQ is high. Conditional on the method of sale, however, we again expect that target AQ will have a stronger association with the likelihood of bid completion in auctions versus negotiations because relatively more of the M&A due diligence work that could potentially reveal new information occurs after the announcement date in the case of auctions.

Our results are consistent with these expectations. Using the accruals quality measure developed by Dechow and Dichev (2002) and modified by McNichols (2002), we find that target AQ is negatively (positively) associated with the likelihood that the transaction will be conducted via an auction (negotiation). We also decompose AQ into its "innate" (i.e., driven by economic fundamentals) and "discretionary" (i.e., driven by management choice) components (see Francis, LaFond, Olsson, and Schipper 2005) and find that innate AQ is relatively more important in determining the method of sale than is discretionary AQ.

We also find that acquirer returns around the announcement date of the acquisition are positively associated with AQ, but only when the transaction is conducted via auction; we find no evidence that overall AQ affects acquirer returns in a negotiated

acquisition. However, when we decompose AQ into its innate and discretionary components, we find that discretionary (innate) AQ is positively associated with acquirer returns in auctions (negotiations). Regarding target returns, we find evidence of a strong negative association with AQ that is significantly stronger for auctions than negotiations. In addition, we find that both discretionary and innate AQ are significantly associated with target returns, with discretionary AQ being particularly important in auctions.

Lastly, we find that the likelihood of bid completion is positively associated with discretionary AQ, though not with innate AQ, for our full sample of M&A deals. However, for deals conducted via auction, we find that total AQ, discretionary AQ, and innate AQ are all positively associated with bid completion, with discretionary AQ exhibiting a stronger association than innate AQ. This finding is consistent with the importance of discretionary AQ in the due diligence process that typically follows the merger announcement in the case of auctions. Additional analysis of the effect of AQ on the total time required to complete an acquisition indicates that AQ, and discretionary AQ in particular, is also significant in speeding the process overall.

This paper contributes to the literature linking financial reporting quality to investment decisions. Prior research documents that firms' earnings quality influences their investment choices. For example, McNichols and Stubben (2008) find that firms that manipulated earnings tend to over-invest during the misreporting period; Biddle and Hilary (2006) and Biddle, Hilary and Verdi (2009) relate accounting quality to capital investment efficiency; and Francis and Martin (2010) find that firms with more conservative accounting practices make more profitable acquisitions. Overall, these findings suggest that firms with high quality accounting information make better

investment decisions. In contrast, we examine whether firms' financial reporting quality influences their appeal *as an investment*. Our evidence showing that target firm AQ is associated with selling mechanisms, acquirer and target announcement returns, and the likelihood of bid completion suggest that AQ plays a significant role in the efficient allocation of the U.S. economy's capital resources.

Our findings complement and extend concurrent work in the area. For example, McNichols and Stubben (2009) examine whether better earnings quality leads to more profitable acquisitions for acquirers. After controlling for uncertainty, they find that acquirer returns are higher when the target firm has higher earnings quality and, consistent with our findings, the benefits to acquirers appear to come at the expense of target firm shareholders. Raman, Shivakumar, and Tamayo (2008) also examine how earnings quality affects takeover decisions and find that bidders prefer non-negotiated sales (i.e., hostile or unsolicited bids) when targets earnings quality is high. They also report a negative relation between earnings quality and takeover premiums that is consistent with our findings and those of McNichols and Stubben (2009). Cain, Macias, and Sanchez (2009) find that earnings management, estimated using a discretionary accrual model, is positively associated with the target's decision to sell via an auction and reduces abnormal returns and offered premiums. Rogo (2009) finds that targets with proprietary information are more likely to choose negotiations over auctions. Shalev and Martin (2009) relate target firm transparency, estimated using stock return non-synchronicity, to acquirer and target returns and report results consistent with ours. Additionally, they find that the likelihood that an announced acquisition is subsequently withdrawn decreases with target firm transparency.

There are two main distinctions between the current paper and the concurrent work. First, our analysis is more comprehensive in that we explore the role of AQ in determining the complete course of the acquisition, beginning with the method of sale and proceeding through the announcement period and deal completion or withdrawal, while the above papers generally explore one or two aspects of the acquisition. Second, we decompose AQ into its innate and discretionary components, which allows us to draw inferences regarding the relative roles of the *source* of AQ in influencing M&A activity.

The remainder of this paper is organized as follows. Section 2 presents our hypothesis development, followed by the research design and methodology in Section 3. We describe our sample selection and data in Section 4 and present our results in Section 5. Section 6 concludes.

2. Hypothesis development

AQ and the method of sale

The choice of sales procedures in corporate acquisitions is a function of target, acquirer, and deal characteristics. Our particular interest is in the role of target firm accrual quality in making this decision. Drawing on previous research on auction theory, we argue that firms with low quality accounting information will have greater uncertainty surrounding their 'true' value and are therefore more likely to be sold via auction than through a negotiated sale.

To illustrate, French and McCormick (1984) show that with a finite number of bidders in a sealed bid auction, each bidder offers less than its adjusted estimate of the

asset's value, i.e., the winning firm is expected to earn a profit.[2,3] This profit induces firms to invest in bid preparation, and the equilibrium number of bidders occurs where the expected profit from bidding equals the bid preparation costs. From the seller's perspective, the expected revenue from the sale is equal to the expected value of the asset minus all of the bid preparation costs; i.e., the seller is expected to pay the estimation costs involved in bidding. They further show that, holding all other variables fixed, the expected value of the winning bid increases with the number of bidders because increasing the number of bidders increases the probability that a buyer with a high asset value will bear the cost of preparing and submitting a bid.

More important for our purposes, however, is the case in which assets that are especially complicated or unique and therefore difficult to value (such as corporations with poor AQ) are offered for sale. Increasing the number of bidders in this case results in an even higher expected value of the winning bid because the wider variation in asset valuations across bidders increases the probability that bidder with a particularly high asset value will prepare and submit a bid. Because firms with low AQ are also likely to exhibit greater valuation uncertainty, we expect that the managers of these firms would prefer an auction over other sales methods.[4]

However, when the asset's value is easily estimated, the seller has little to gain from having many buyers invest in information and bid preparation costs. In this case, the seller would be more likely to prefer a negotiated sale with a single buyer, if

[2] Bruner (2004) states that most M&A auctions use a first price sealed bid process, which is followed by a negotiation over terms other than price.

[3] The bidder first estimates the asset's value, then makes an adjustment to correct for the possibility that its initial estimate was the highest of all the bidders – the winner's curse. This is the "adjusted estimate" of the asset's value.

[4] Alternative proxies for valuation uncertainty, such as stock return volatility or intangible intensity, have been used in the accounting and finance literatures. We include both of these measures as control variables in our empirical tests.

negotiation costs are sufficiently low. If the actual value of the asset varies with the buyer, as is typically the case in M&A transactions, then one cost of a negotiated sale is the possibility that the buyer chosen by the seller does not place the highest possible value on the asset. Similarly, if the buyer has some information about the value of the asset that is not available to the seller, such as the identification of potential synergies with the buyer, the seller cannot capture the full amount of the asset's value. However, when these negotiation costs are low, i.e., when there is not much uncertainty regarding the asset's true value, or if the seller can easily determine the highest valued buyer *ex ante*, then the seller is more likely to choose a negotiated sale over auction. Because we expect that firms with high AQ face lower negotiation costs and fewer benefits from an auction than firms with low AQ, we hypothesize the following:

> *HYPOTHESIS 1: AQ is negatively associated with the likelihood that an acquisition will be conducted via an auction versus a negotiation, ceteris paribus.*

AQ and acquirer/target announcement returns

The French and McCormick (1984) framework also provides insight into our expectations regarding acquirer and target returns around the announcement dates of the merger agreements. As noted above, the winning firm in an auction expects to earn a profit. The expected profit for the acquirer is a decreasing function of the expected value of the winning bid – the higher the winning bid, the lower the profits on the transaction. Because greater valuation uncertainty increases the expected value of the winning bid – i.e., it is more likely that a bidder with a particularly high asset value will prepare and submit a bid when valuations are more variable – it also lowers acquirer profits. We

consequently expect that acquirer returns around the announcement date of the acquisition will be lower (higher) when AQ is low (high). Stated formally:

> *HYPOTHESIS 2a: AQ is positively associated with acquirer returns around the announcement date of the acquisition, ceteris paribus.*

Similarly, because the seller's expected revenues from the sale is an increasing function of the expected value of the winning bid, which increases with greater valuation uncertainty, we expect that target returns are inversely related to AQ, i.e., low AQ will be associated with higher announcement returns. Stated formally:

> *HYPOTHESIS 2b: AQ is negatively associated with target returns around the announcement date of the acquisition, ceteris paribus.*

As argued earlier, the effects of valuation uncertainty on the expected value of the winning bid are intensified as the number of bidders increases. We therefore expect that the role of AQ in determining acquirer and target returns will be relatively stronger in the case of auctions than for negotiated sales with a single bidder. Stated formally:

> *HYPOTHESIS 2c: AQ is more positively (negatively) associated with acquirer (target) returns around the announcement date of the acquisition when the sale is transacted as an auction than when it is transacted as a negotiation, ceteris paribus.*

AQ and the likelihood of deal completion

Many proposed acquisitions are withdrawn after the deals are publicly announced. In fact, Bates and Lemmon (2003) report that 21% of announced deals are ultimately withdrawn, and Securities Data Corporation (SDC) reports an almost identical failure rate. Merger agreements are dissolved for a variety of reasons, including the occurrence of a material adverse event (MAE); the receipt of a higher bid after the agreement is publicly announced; a negative market reaction to the deal announcement (Luo 2005); or

uncovering problems during the due diligence phase of the acquisition. Broadly speaking, the probability that a deal will be withdrawn increases with the probability that new information about the target's 'true' value will emerge between the announcement and completion dates. The greater the target's valuation uncertainty – the lower the target firm's AQ – the more likely it is that this situation occurs. Stated formally:

> *HYPOTHESIS 3a: AQ is positively associated with the likelihood of deal completion, ceteris paribus.*

Conditional on the method of sale, however, we again expect that AQ will be relatively more important in determining whether a proposed acquisition transacted via auction is ultimately completed versus one transacted via negotiation. As a practical matter, in the case of a negotiated sale, the bulk of due diligence required by the acquirer typically occurs *before* the acquisition agreement is publicly announced. In contrast, bidders in an auction have only limited access to the target firm's private information prior to the sale, and the winning bidder proceeds with a more thorough review of the target firm after the merger agreement is announced.[5] Given this institutional structure, it is more likely that new information about the target's 'true' value will emerge after an auction is conducted than if a negotiation had taken place. We consequently expect target firm AQ to be relatively more important in predicting merger outcomes in auction settings than in negotiations. Stated formally:

> *HYPOTHESIS 3b: AQ is more positively associated with the likelihood of deal completion when the sale is transacted as an auction than when it is transacted as a negotiation, ceteris paribus.*

[5] Consistent with this pattern, the mean number of days between deal announcement and completion in our sample is 124 for negotiations and 175 for auctions.

3. Research Design

Measuring AQ

We estimate *AQ* using the Dechow and Dichev (2002) model, as follows:

$$\Delta WC_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta REV_t + \beta_5 PPE_t + \varepsilon_t \quad (1)$$

The residuals from estimating equation (1) represent the extent to which current accruals *(*ΔWC) do not map into past, present, or future operating cash flows.[6] Following Francis et al. (2005) and Doyle, Ge, and McVay (2007), we also include current sales growth *(*ΔREV) and the current level of property, plant, and equipment (*PPE*) in equation (1). All variables in equation (1) are scaled by total assets. We estimate equation (1) cross-sectionally by year within each of the 48 Fama and French (1997) industry classifications, using eight years of data prior to the announcement date of the acquisition. We then aggregate the residuals by year and calculate the standard deviation by firm. Because a smaller standard deviation of residuals indicates better quality accruals, we multiply this measure by -1 so that a higher *AQ* will indicate a higher quality of accruals.

We then follow Francis et al. (2005) to decompose *AQ* into its innate and discretionary components. In annual regressions, we regress the residuals from equation 1 on firm size, the standard deviation of operating cash flows, the standard deviation of sales revenues, the length of the operating cycle, and the incidence of accounting losses. The predicted values from these regression are termed the *Innate AQ*, reflecting accruals quality driven by economic fundamentals; the residual values are termed Discretionary

[6] The Dechow and Dichev (2002) construct of accrual quality is particularly well-suited in our setting, as firm valuation and the identification of potential synergies from acquisition typically rely on estimates of future cash flows. If current accruals do not map well into operating cash flows, this will further complicate the already difficult valuation process.

AQ (or *DiscAQ*) and are assumed to be driven by managerial financial reporting choices. We use total *AQ* as our main measure of accruals quality but also examine how the innate and discretionary components of *AQ* influence the course of a corporate acquisition.

AQ and method of sale

To test our first hypothesis that *AQ* is negatively associated with the likelihood that an acquisition will be transacted via an auction versus a negotiation, we follow Boone and Mulherin (2007; 2008) and estimate the following probit regression model:

$$P(Auction) = f(AQ, Relative\ Size, Target\ Size, Acquirer\ Size, Intangibles, Cash, Tender, Return\ SD, ROE, LIQ, Debt/Equity, Market/Book, PE\ Ratio) \quad (2)$$

The dependent variable, *Auction*, equals one if the acquisition is conducted via an auction (i.e., there is more than one bidder attempting to acquire the target firm) and zero if the acquisition is conducted via negotiation (i.e., there is a single bidder). Hypothesis 1 predicts a negative estimated coefficient on *AQ* – firms with low *AQ* are more likely to choose an auction as their method of sale than a negotiation.

To identify appropriate control variables, we begin with those used in Boone and Mulherin (2007). *Relative Size* is the ratio of the target's to the acquirer's market value, where market value is calculated as the book value of assets (Compustat annual item #6) - book value of equity (item #60) + common shares outstanding (item #25) * fiscal year price (item #199). *Target Size* and *Acquirer Size* are the natural log of target and acquiring firm total assets (item #6), respectively. *Intangibles* is defined as one minus the ratio of the target's property, plant, and equipment (item #8) divided by total assets (item #6). *Cash* is an indicator variable that equals one if the offered price was partly or fully

in cash, and zero otherwise. *Tender* is an indicator variable that equals one if acquisition was by a tender offer and zero otherwise. *Return SD* is the standard deviation of target stock returns, estimated over days -317 to -64 relative to the deal announcement date. Based on Boone and Mulherin's (2007) findings, we expect negative estimated coefficients on *Target Size* and *Acquirer Size*, positive coefficients on *Intangibles, Cash, Tender*, and *Return SD*, and make no prediction for *Relative Size*.

In addition, we add control variables that Raman et al. (2008) find to be significant determinants of takeover decisions. These include the target's return on equity (*ROE)*, defined as annual earnings (item #20) divided by the average book value of equity (item #60); a measure of target firm liquidity (*LIQ*), defined as the ratio of the target's net liquid assets (item #4 minus item #5) to total assets (item #6); *Debt/Equity* is the ratio of the target firm's long-term debt (item #9) to equity (item #60); *Market/Book i*s the target's market-to-book ratio (item #24 times item #25 divided by item #60); and *PE Ratio* is the target's price-to-earning ratio (item #24/item #58). We make no predictions regarding expected signs for these variables, as Raman et al. (2008) model the determinants of negotiated versus non-negotiated takeovers, where a non-negotiated takeover is defined as one that is either hostile or unsolicited, rather than the choice between an auction and a negotiated sale with a single bidder, as we do. We nonetheless protect against the possibility of correlated omitted variables by including these target characteristics as additional controls.

AQ and acquirer/target announcement returns

To test our second set of hypotheses, we regress acquirer and target announcement returns on *AQ* and control variables, as follows:

$$Announcement\ Returns = f(Auction, AQ, Tender, Stock, Prior\ Bidding, Hostile, Litigation, Family\ Firm, Same\ Industry, Relative\ Size, Acquirer\ Size) \quad (3)$$

The dependent variable is market-adjusted stock returns over a 3-day window centered around the public announcement date of the proposed acquisition for either the acquirer or the target firm. Hypothesis 2a predicts a positive coefficient on *AQ* when the dependent variable is acquirer returns, and Hypothesis 2b predicts a negative coefficient on *AQ* when the dependent variable is target returns.

We selected control variables based on prior literature. Bates and Lemmon (2003) find that acquirer and target announcement returns are significantly associated with the use of tender offers (*Tender)*; whether the deal includes any stock as payment *(Stock*); whether there was any *Prior Bidding* within one calendar year of the announcement date versus an initial bid; whether the deal is friendly or *Hostile*; whether *Litigation* is associated with the deal; and whether the firm is designated as a *Family Firm* with more than 20% family ownership. These controls are all indicator variables that equal one if the acquisition has the particular characteristic and zero otherwise. We also include *Same Industry, Relative Size,* and *Acquirer Size* as controls, following McNichols and Stubben (2009). We also include an indicator variable that equals one if the acquisition is conducted via *Auction* and zero if through negotiation. Related to the *Auction* variable, Hypothesis 2c predicts that the effect of *AQ* on acquirer and target returns will be stronger in the case of auctions versus negotiations. To test this

hypothesis, we interact *Auction* with our *AQ* measure; a positive (negative) estimated coefficient on this term for acquirer (target) returns would provide evidence consistent with H2c.

AQ and likelihood of bid completion

To test H3a and H3b, we follow Bates and Lemmon (2003) and estimate the following probit model:

$$P(Completion) = f(Auction, AQ, Tender, Stock, Prior\ Bidding, Hostile, Litigation, Family\ Firm, Premium, Deal\ Value, Same\ Industry, Total\ Assets, ROE, LIQ, Debt/Equity, Market/Book, PE\ Ratio) \quad (4)$$

The dependent variable, *Completion*, is an indicator variable that equals one if the proposed acquisition is completed, and zero otherwise. As in equation (3), above, our control variables are taken from Bates and Lemmon (2003) and supplemented with additional variables identified by Bates, Lemmon, and Linck (2006) and Heron and Lie (2006). Bates and Lemmon (2003) find that tender offers and stock offers significantly increase the probability of deal completion, while prior bidding, hostile bids, litigation risk and family ownership decrease the probability of deal completion. Bates et al. (2006) and Heron and Lie (2006) also control for the deal value and the premium paid during the acquisition, as well as target firm characteristics (e.g. *Total Assets*, *Market/Book*, *Debt/Equity*), but find that premium is the only additional variable that positively correlated with the probability of completion.

As in equation (3), we add the interaction term *Auction*AQ* so that we can formally test Hypothesis 3b, where we predict that the association between *AQ* and bid completion is stronger in the case of auctions.

4. Sample and descriptive statistics

Sample criteria

Panel A of Table 1 describes our sample selection procedure. We draw our acquisition sample from the Securities Data Corporation (SDC) Merger and Acquisitions database. Following prior studies (e.g., Moeller, Schlingemann, and Stulz 2007; Boone and Mulherin 2007), we identify 4,421 acquisitions announced and finalized (i.e., either completed or withdrawn) between January 1, 1990 and December 31, 2007 that meet the following criteria:

a) Both acquirer and target are publicly listed U.S. firms.

b) The deal value is disclosed in SDC and is larger than US$1 million.

c) The acquirer owns (or seeks to own) 100% of the target's shares after the transaction.

d) The acquisition is for at least 50% of the target's shares.

We limit our the sample to deals where the acquirer seeks to own 100% of the public target after the transaction because only these types of acquisitions require the filing of the merger agreement with the Securities and Exchange Commission (SEC). As detailed in Panel A of Table 1, we lose 3,569 observations due to missing Compustat or SEC data. The final sample yields 852 acquisitions, consisting of 693 transactions that were completed and 159 transactions that were withdrawn. This failure rate of 18.7% is comparable to the 21% rate reported by Bates and Lemmon (2003) over their sample period of 1989 to 1998.

Because SDC does not provide information on the number of bidders or the number of Material-Adverse-Event (MAE) clauses that could lead to deal abandonment, we follow prior research and hand-collect information about the method of sale by reading the firm's SEC filing from EDGAR system (or LexisNexis for takeovers announced prior to 1994). As in Boone and Mulherin (2007), we identify a merger deal as an auction if the target firm contacts and signs confidential agreements with more than one potential buyer; if the target firm deals with a single bidder, we classify the deal as a negotiation. Of the 852 deals, we classify 46% (n=396) as auctions and 54% (n=456) as negotiations, which is roughly similar to the 50-50 split between auctions and negotiations reported by Boone and Mulherin (2007).

In Panel B of Table 1, we summarize the number of deals in each year by method of sale (Auction vs. Negotiation) and by merger outcome (Completed vs. Withdrawn). In general, the transactions cluster in the latter part of the sample period, though the distributions of each subcategory appear to be similar over time. In addition, negotiations appear to be slightly more likely to be withdrawn than are auctions: 95 out of the 159 withdrawn deals (60%) were sold via negotiation versus 361 out of the 693 completed deals (52%) of the completed deals. A chi-square test indicates that negotiated deals are marginally more likely to be subsequently withdrawn than are auction deals (p=0.09). We discuss this further in the next subsection.

Descriptive statistics

Table 2 presents summary statistics (means and medians) for the entire sample of M&A deals, and also by method of sale and deal outcome. Column 1 presents the statistics for

the entire sample. Columns 2 and 3 show averages for the auction and negotiation *completed* deals, respectively, while Columns 4 and 5 show averages for the auction and negotiation *withdrawn* deals, respectively. We indicate significant differences between auction and negotiation means and medians for the completed deals in Column 3 and for the withdrawn deals in Column 5. In Column 6 (7), we test for differences in means and medians between completed and withdrawn auction (negotiation) deals.

We first examine bid characteristics. As Table 2 shows, the average deal value is US$1,441 million, and the ratio of target's market value to acquirer's market value (Relative Size) is 0.295. Furthermore, when we compare statistics by method of sale and deal outcome, we observe that the deal value is marginally significantly higher for completed deals than for withdrawn, and Relative Size is significantly lower for auctions versus negotiations.

Table 2 also shows that, not surprisingly, auction deals have significantly more bidders than negotiated deals, with means and medians of about 14 and 6, respectively, versus the single bidder in negotiated deals. Of greater interest is the significant difference in the number of MAEs. While the mean (median) for the full sample is 3.9 (3.0), auction deals have means (medians) of 5 to 6 MAEs versus 2 for negotiated deals. This may help explain why auctions have a somewhat lower failure rate than negotiations.

Auctions also take longer to complete than negotiations, mainly due to a significantly longer post-announcement period. The mean (median) number of days in the post-announcement period is 174 (136) and 179 (157) for auction completed and withdrawn deals, respectively, versus 121 (97) and 133 (108) for negotiated completed

and withdrawn deals, respectively. This pattern is consistent with the fact that much of the due diligence work in auctions occurs after the merger proposal is announced rather than prior to announcement of a deal, as is often the case in negotiations. We also find that auctions are characterized by significantly smaller toehold percentages, are less likely to involve tender offers, and are more likely to be an all cash deal.

Table 2 also presents data on target characteristics. First, we compare mean and median AQ across categories. As expected, we find that AQ is significantly higher when the target firm is sold through negotiation. However, AQ does not differ significantly with deal outcome, though we note that differences for the auction firms are approaching conventional levels of significance: the p-values for the reported t-statistic of 1.27 is 0.206 and for the reported Z-statistic of 1.53 is 0.126, based on two-tailed tests. In addition, we decompose AQ into its innate and discretionary components and find that both components are significantly lower for auction deals versus negotiations. We also find that target firms in auctions are significantly smaller and have higher stock return volatility than their counterparts in negotiations and that target firms with higher debt/equity and PE ratios have significantly higher chances of deal completion. Lastly, we examine acquirer firm size and find acquirers in negotiated deals are marginally significantly larger than in auctions.

5. Empirical Results

AQ and the method of sale

We present the results from estimating equation 2 – our model of sales method choice – in Table 3. We present four different specifications. In Model 1, we present the baseline

model, with *AQ* added to the variables identified by Boone and Mulherin (2007) as known determinants of sale method choice. In Model 2, we decompose AQ into its innate and discretionary components. In Models 3 and 4, we add additional control variables identified by Raman et al. (2008).

As shown in the table, the results are consistent across all four specifications. In Model 1, the estimated coefficient on *AQ* is significantly negative at -0.372 and a p-value of less than 0.001, consistent with our hypothesis that *AQ* will be negatively (positively) associated with the use of auctions (negotiations) in M&A transactions. In addition, we find that the estimated coefficients on both *Relative Size* and *Acquirer Size* are significantly negative, indicating that small acquirers and target firms that are small in relation to their acquirer are more likely to engage in auctions than in negotiations. We also find that cash deals are more likely with auctions.

In Model 2, where AQ is decomposed into its innate and discretionary components, we find that both components are significant in explaining sales method choice. The estimated coefficient on *InnateAQ* is -0.279 (p=0.001), and the coefficient on *DiscAQ* is -0.109 (p=0.001). In addition, an F-test for the difference between their estimated coefficients is highly significant (F-statistic =5.25, p=0.005), indicating that the innate component of AQ is more important in explaining sales method choice than is the discretionary component. This effect is particularly evident when we also consider that the absolute magnitude of *InnateAQ* is far larger than that of *DiscAQ*. As shown in Table 2, mean (median) *InnateAQ* for the full sample is -0.041 (-0.029) versus 0.000 (-0.001) for *DiscAQ*. This finding suggests that valuation uncertainty stemming from economic fundamentals is a stronger driver of target firm sales method choice than is uncertainty

arising from managers' financial reporting choices. This does seem to make sense intuitively because the target firm presumably possesses some ability to resolve uncertainty created by its own financial reporting policies and can communicate this information to bidders if it so chooses. In addition, with the exception of hostile or unsolicited bids, the target is choosing the sales mechanism and would arguably ignore or discount the effects of their own discretionary choices in making this decision.

None of the additional control variables in Models 3 and 4 are significant in explaining sales method choice, and our basic results from Models 1 and 2 are unchanged. We thus conclude that accruals quality, and innate accruals quality related to economic fundamentals in particular, is a significant determinant of sales method choice, consistent with H1.

AQ and acquirer and target announcement returns

Acquirer returns

In Panel A of Table 4, we present our regression results for acquirer returns. In Model 1, the estimated coefficient of 0.038 on *AQ* is positive and marginally significant ($p<0.10$), consistent with our hypothesis that *AQ* will be positively associated with acquirer returns (H2a). In Model 2, the interaction term *Auction * AQ* has an estimated coefficient of 0.042 and is highly significant ($p<0.01$), consistent with our prediction that the positive effect of AQ on acquirer returns is stronger in the case of auctions than in negotiations (H3c). In addition, the estimated coefficient of 0.033 on *AQ* is no longer significantly different from zero. It appears that high AQ *only* increases acquirer returns in auctions and has no effect on returns in negotiated deals.

In Model 3, we decompose *AQ* into *InnateAQ* and *DiscAQ* and find that both components are marginally significantly positive. An F-test comparing their estimated coefficients of 0.049 and 0.021, respectively, does not reveal a significant difference between the two. However, in Model 4, when we interact *InnateAQ* and *DiscAQ* with *Auction*, some differences become apparent. We find that the estimated coefficients on *InnateAQ* and *Auction * DiscAQ* are marginally significantly positive, but the coefficients on *Auction * InnateAQ* and *DiscAQ* are insignificant. In other words, reporting quality related to economic fundamentals weakly increases acquirer returns in negotiations, but reporting quality related to discretionary policy choices weakly increase acquirer returns in auctions. Market participants thus respond differently to proposed deals based on both sales method and the source of accruals quality.

Regarding the control variables, we find that acquirer returns are positively associated with stock offers and hostile takeovers and significantly negatively associated with acquirer size. We also find that acquirer returns are marginally significantly lower for auctions than for negotiations, which is consistent with previous findings that have reported evidence of a winner's curse.

Target returns

The results for target returns, in general, are stronger and more clearcut than those for acquirer returns. As shown in Panel B of Table 4, the estimated coefficient of -0.063 on *AQ* in Model 1 is significantly negative ($p<0.05$), consistent with H2b where we predict that target returns are negatively associated with target *AQ*. We also find that both *AQ* and the interaction term *Auction * AQ* have significantly negative coefficients of -0.055

and -0.141, respectively, in Model 2 ($p<0.05$ and $p<0.01$). This finding is consistent with H2c: the association between target returns and AQ is stronger in the case of auctions than for negotiations. In addition, it indicates that *AQ* is a significant determinant of target returns for both auctions and negotiations.

In Model 3, we find that the both components of *AQ* influence target returns. The estimated coefficients on *InnateAQ* and *DiscAQ*, respectively, are -0.077 ($p <0.05$) and -0.051 ($p<0.01$). An F-test comparing these two coefficients fails to reject the null of no difference ($F=1.85$, $p=0.158$). In addition, in Model 4 we report significantly negative coefficients on *InnateAQ*, *DiscAQ*, and *Auction*DiscAQ* but the coefficient on *Auction*InnateAQ* is insignificant. These results indicate that AQ associated with financial reporting choices affects target returns for both auctions and negotiations, but the effect is stronger for auctions, while AQ associated with economic fundamentals appears to affect target returns of auctions and negotiations equally.

AQ and the likelihood of bid completion

In Table 5, we report logit estimation results for our model of bid completion. Consistent with Bates and Lemmon (2003), we find that tender offers and stock offers are significantly more likely to completed and that prior bidding, hostile takeovers, litigation associated with the transaction, and family ownership significantly reduce the likelihood of completion. We also find that proposed deals within the same industry and deals where the target firm has higher total assets are significantly more likely to be completed. These results are consistent across all five models.

However, the results for our variables of interest vary both with the sales method and with the source of accruals quality. For example, in Model 1, the benchmark model, and Model 2, where additional control variables are included, the estimated coefficient on *AQ* is positive at 1.013 and 1.026, respectively, but neither is significantly different from zero. Thus, for the average firm in the full sample, *AQ* does not appear to play a significant role in determining deal outcome. We thus fail to find evidence consistent with Hypothesis 3a that *AQ* is positively associated with the likelihood of bid completion. However, in Model 3, the interaction term *Auction * AQ* is significantly positive with an estimated coefficient of 0.271 and a p-value of 0.049, which is consistent with H3b – *AQ* is more strongly associated with the likelihood of bid completion in the case of auctions.

In Models 4 and 5, we decompose AQ into *InnateAQ* and *DiscAQ*. As shown for Model 4, the discretionary component of *AQ* is a significant determinant of deal outcome – the estimated coefficient of 0.037 on *DiscAQ* is positive with a p-value of 0.025 – but the innate component remains insignificant. This finding is consistent with the crucial role that financial reporting quality plays in M&A due diligence. Because the review of financial statements is the "single most important aspect of due diligence" (see Lajoux and Elson 2000), the discretionary reporting choices made by managers are of greater consequence during this phase of the acquisition, particularly in the case of auctions, where much of the due diligence occurs after the merger proposal is publicly announced. Indeed, consistent with this last point, in Model 5 the estimated coefficient of 0.077 on *Auction * DiscAQ* is positive and highly significant (p=0.008), indicating that discretionary reporting choices play a more important role in explaining deal outcomes for auctions versus negotiations.

To explore our above conjecture that the increased importance of discretionary AQ in explaining bid completion might be related to its usefulness in meeting due diligence requirements, we perform an additional analysis where we examine the relationship between the number of days in the pre- and post-announcement periods and our AQ measures. We assume that a longer due diligence process, either before or after the merger agreement is publicly announced, will increase the length of time it takes to reach resolution on the transaction. If AQ, and AQ related to discretionary accounting choices in particular, is useful in the due diligence process, as we argue, then we expect it to be *negatively* related to the number of days in the announcement periods. That is, good quality accounting information should speed the due diligence process, resulting in fewer days between the initial discussion of the acquisition and the merger announcement (the pre-announcement period), as well as a shorter period between the announcement date and the ultimate decision regarding its completion or failure (the post-announcement period).

We regress the log of days in the pre- and post-announcement periods on our AQ measures and a number of the control variables from our previous tests and present the results in Table 6. Models 1-4 present results for the pre-announcement period. The estimated coefficient on *AQ* is significantly negative in Models 1 and 2, indicating that high quality accounting information does significantly shorten the pre-announcement process. Furthermore, in Models 3 and 4, we find that only discretionary component of *AQ* has a significant effect on the length of the process, and this effect is more pronounced in the case of auctions. This is consistent with our supposition that AQ

related to discretionary reporting choices is relatively more important in carrying out due diligence work.

Models 5-8 present results for the post-announcement period. Here we find that only the interaction term *DiscAQ*Auction* is significant in explaining the length of the post-announcement period, consistent with the idea that due diligence work in auctions continues after the announcement date, while in negotiations most of this effort is completed prior to public announcement of a proposed deal.

We thus conclude that *AQ* plays a significant role in determining not only the sales method, market responses, and completion rates of M&A transactions, but also affects the length of the process itself.

6. Conclusions

We examine the role of target firms' accruals quality (AQ) on the course of the corporate acquisition process. We begin with the choice of sale method (auction vs. negotiation), proceed through the market response to the announcement of the proposed transaction, and finish with the eventual completion or withdrawal of the deal. Drawing on auction theory, we predict that target AQ is negatively (positively) associated with the use of auctions (negotiations), positively (negatively) associated with acquirer (target returns), and positively associated with the likelihood of deal completion. We also predict that AQ will have a more important role in the determining the course of an M&A transaction in a more competitive setting, i.e., an auction. We present strong empirical evidence consistent with each of these hypotheses.

In addition, we examine the relative importance of AQ driven by discretionary financial reporting choices and AQ driven by economic fundamentals. Our results suggest that innate AQ is more relatively important in determining the method of sale. However, after controlling for this effect in our subsequent analyses of acquirer and target announcement returns and the likelihood of bid completion, we find that the discretionary component of AQ begins to take on increased importance, particularly in the question of bid completion. We also report evidence consistent with discretionary AQ playing a relatively more important role in M&A due diligence process, significantly reducing the length of the acquisition process. Overall, our results provide new evidence on the role of financial accounting quality in the efficient allocation of the economy's capital resources.

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TABLE 1
Sample selection and distribution

Panel A: Sample Selection Procedure

	No. of Observations
Announced M&A deals for years 1990-2007	161,016
Less:	
Deals without value information	82,957
Deal in which the target/acquirer is a private company	54,675
Deals in which the acquirer owned (sought to owned) less than 100% of the target's shares after the transaction	17,580
Deals in which less than 50% of the target was acquired (or sought to be acquired)	221
Deal in which the target is not US company	1,162
Number of M&A deals in the final sample	**4,421**
Less:	
Deals with missing target accounting quality data	3,050
Deals with missing other target COMPUSTAT data	422
Deals with missing SEC data	97
Number of deals with accounting quality data	**852**
Of which	
Completed vs. Withdrawn status of deal	
Completed deals	693
Withdrawn deals	159
Auction vs. Negotiation method of sale	
Auction	396
Negotiation	456

Notes:
This table reports descriptive statistics for the final M&A sample. The sample consists of takeover bids involving US publicly listed acquirers and targets from the Securities Data Corporation database (SDC). The final sample consists of 852 publicly announced M&A between 1990 and 2007. Panel A describes the sample selection procedure. Panel B summarizes the number of deals in each year by the method of sale. Completed Deals are all the deals in which the proposed merger is ultimately consummated. Withdrawn Deals are all the deals in which the proposed merger is ultimately not consummated. Auction is all the deals where there is more than one bidder in the pre-announcement acquisition process. Negotiation is all the deals where there is only one bidder in the pre-announcement acquisition process.

Panel B: Sample Distribution by Announcement Year

	Completed Deals			Withdrawn Deals		
	Full Sample	Auction	Negotiation	Full Sample	Auction	Negotiation
1990	18	9	9	6	3	3
1991	13	5	8	2	2	0
1992	13	8	5	2	0	2
1993	13	6	7	4	4	0
1994	27	12	15	3	0	3
1995	42	21	21	11	4	7
1996	37	14	23	7	2	5
1997	49	21	28	9	5	4
1998	57	23	34	8	3	5
1999	53	17	36	13	6	7
2000	51	19	32	11	3	8
2001	41	24	17	10	4	6
2002	34	20	14	7	3	4
2003	36	21	15	13	7	6
2004	36	20	16	7	4	3
2005	45	24	21	11	3	8
2006	67	36	31	17	6	11
2007	61	32	29	18	5	13
Total	693	332	361	159	64	95

TABLE 2
Descriptive statistics

	Full Sample (*N*=852)	Completed Deals: Auction (*N*=332)	Completed Deals: Negotiation (*N*=361)	Withdrawn Deals: Auction (*N*=64)	Withdrawn Deals: Negotiation (*N*=95)	*t*-Stat [Z-Stat] for Diff. between Columns 2 and 4	*t*-Stat [Z-Stat] for Diff. between Columns 3 and 5
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bid Characteristics							
Deal Value ($M) [Median]	1,441 [562]	1,473 [581]	1,552 [609]	1,102 [438]	1,134 [414]	1.89* [1.67]*	2.04** [1.74]*
Relative Size [Median]	0.295 [0.142]	0.236 [0.108]	0.351*** [0.164]**	0.219 [0.096]	0.321*** [0.161]***	0.51 [0.62]	0.33 [0.10]
Number of Bidders [Median]	7.1 [4.0]	14.2 [6.0]	1.0*** [1.0]***	13.7 [6.0]	1.0*** [1.0]***	1.34 [1.19]	0.00 [0.00]
Number of MAE [Median]	3.9 [3.0]	6.1 [5.0]	2.3*** [2.0]**	5.3 [5.0]	2.2*** [1.0]***	0.82 [0.51]	0.26 [0.20]
Number of Days Pre-Announcement [Median]	116 [104]	121 [108]	103* [89]*	128 [102]	124 [109]	1.43 [1.07]	2.29** [2.02]**
Number of Days Post-Announcement [Median]	148 [117]	174 [136]	121** [97]***	179 [157]	133*** [108]***	0.76 [1.03]	1.15 [1.22]
% of Premium [Median]	46.69% [38.49%]	45.31% [36.92%]	47.19% [40.07%]	48.63% [39.89%]	48.23% [40.95%]	1.19 [1.15]	0.97 [0.76]
No. of Toehold (% of sample)	49 (5.75%)	18 (5.42%)	22 (6.10%)	3 (4.68%)	6 (6.31%)	χ^2=0.05	χ^2=0.95
% of Toehold [Median]	20.35% [0.00%]	14.43% [0.00%]	25.31%** [0.00%]	12.78% [0.00%]	24.82%*** [0.00%]	0.91 [0.38]	0.26 [0.10]
Tender Offer (% of sample)	246 (28.88%)	63 (18.97%)	134*** (37.11%)	12 (18.75%)	37*** (38.94%)	χ^2=0.00	χ^2=0.10
Only Stock Offer (% of sample)	254 (29.81%)	106 (31.91%)	103 (28.53%)	17 (26.56%)	28 (29.47%)	χ^2=0.72	χ^2=0.03
Only Cash Offer (% of sample)	288 (33.80%)	133 (40.06%)	95*** (26.31%)	31 (48.43%)	29** (30.52%)	χ^2=1.55	χ^2=0.67
Prior Bidding (% of sample)	44 (5.16%)	17 (5.12%)	21 (5.81%)	4 (6.25%)	2 (2.10%)	χ^2=0.13	χ^2=2.16
Hostile (% of sample)	31 (3.63%)	5 (1.56%)	9 (2.49%)	6 (9.37%)	11 (11.57)	χ^2=12.30***	χ^2=14.80***

Litigation (% of sample)	25 (2.93%)	6 (1.87%)	14 (3.87%)	4 (6.25%)	1 (1.05%)	χ^2=4.30**	χ^2=1.88
Family Firm (% of sample)	9 (1.05%)	0 (0.00%)	2 (0.55%)	5 (7.81%)	2 (2.10%)	χ^2=2.528	χ^2=2.08
Same Industry (% of sample)	443 (51.99%)	157 (47.28%)	201** (55.67%)	36 (56.25%)	49 (51.57%)	χ^2=1.724	χ^2=0.51
Target Characteristics							
AQ	-0.041 [-0.032]	-0.055 [-0.043]	-0.027*** [-0.027]***	-0.067 [-0.061]	-0.031*** [-0.027]***	1.27 [1.53]	1.08 [0.91]
InnateAQ	-0.041 [-0.029]	-0.051 [-0.037]	-0.031*** [-0.025]**	-0.064 [-0.047]	-0.031*** [0.028]***	1.47 [1.29]	0.17 [0.09]
DiscAQ	[-0.000] [-0.001]	-0.004 [-0.006]	0.005*** [0.003]***	-0.003 [-0.004]	0.000** [0.002]**	0.86 [0.62]	1.56 [0.85]
Target Size($M) [Median]	1309 [336]	1136 [285]	1419** [392]**	1274 [350]	1519** [417]*	1.68* [1.36]	1.29 0.82]
ROE [Median]	0.047 [0.103]	0.053 [0.110]	0.049 [0.106]	0.038 [0.097]	0.035 [0.091]	1.86 [1.77]	1.61 [1.53]
Intangible Assets [Median]	0.618 [0.513]	0.627 [0.528]	0.594 [0.481]*	0.644 [0.547]	0.632 [0.507]	0.62 [0.47]	0.84 [0.75]
LIQ [Median]	0.175 [0143]	0.178 [0.149]	0.172 [0.145]	0.169 [0.135]	0.175 [0.141]	0.67 [0.53]	0.26 [0.20]
Debt/Equity [Median]	0.623 [0.435]	0.693 [0.457]	0.704 [0.452]	0.279 [0.185]	0.274 [0.193]	3.91*** [3.69]***	3.47*** [3.01]***
Market/Book [Median]	3.814 [3.243]	3.734 [3.159]	3.971* [3.406]*	3.485 [2.816]	3.591 [2.911]	1.02 [0.83]	0.94 [0.81]
PE Ratio [Median]	17.943 [17.175]	18.601 [17.659]	18.511 [17.168]	14.921 [15.048]	15.648 [15.847]	1.73* [1.66]*	1.89* [1.73]*
Return SD	0.0216 [0.0191]	0.0243 [0.0207]	0.0189*** [0.0170]**	0.0235 [0.0198]	0.0191*** [0.0171]**	0.69 [0.41]	0.79 [0.65]
Acquirer Characteristics							
Acquirer Size($M) [Median]	10,662 [2,153]	10,161 [1,912]	11,048* [2,478]*	10,712 [2,008]	10,935 [2,175]	0.36 [0.11]	0.77 [0.69]

Notes:

This table reports descriptive statistics for the final sample of M&A deals. The sample comprises 852 deals that were announced over the 1990 to 2007 period. The table reports descriptive statistics for the full sample (column 1), for completed (columns 2 and 3) and withdrawn deals (columns 4 and 5), and for auctions (columns 2 and 4) and negotiations (columns 3 and 5). Columns 3 and 5 also contain significance levels for test for differences between the means (medians) between auction and negotiation samples. Columns 6 and 7 show the *t*-stat [Z-stat] (or the Chi-Square) testing for differences between the completed and withdrawn deals. Deal Value is the value in millions of dollars of the M&A deal (from SDC). Relative Size is the ratio of target's market value to acquirer's market value. The market value is calculated as the book value of assets (data#6) - book value of equity (data#60) + Common Shares (data#25) * Fiscal Year Price (data1#99). Number of bidders is the number of partied contacted (from SEC files). Number of MAE is the number Material-Adverse-Event that prevent abandonment options (from SEC files). Number of Days Pre-Announcement is the number of days between the first call or discussion about the specific acquisition (from SEC files) to the to the M&A announcement date (from SDC). Number of Days Post-Announcement is the number of days between the M&A announcement date (from SDC) and the completed or withdrawn date (from SDC). % of Premium is the offer Price to

Target Stock Price Premium 1 Week Prior to Announcement (from SDC). No. of Toehold is the number of deals in which the acquirer holds part of the targets' stocks prior to the current deal (from SDC). %. of Toehold is the percentage of holding acquirers had in the targets prior to the current deal (from SDC). Tender Offer reports the fraction of cases in which the acquisition was by tender offer (from SDC). Only Stock Offer reports the number of cases in which the offered price was 100% in stock exchange (from SDC). Only Cash Offer reports the number of cases in which the offered price was 100% in cash (from SDC). Prior Bidding is the number of bids following a prior bid within the last 356 calendar days (from SDC). Hostile is the number of bids in which the target managers rebuff the bidder's offer (from SDC). Litigation is the number of bids where associated litigation is launched (from SDC). Family Firm is the number of firms that a family, group of families, firm founder, or non-founding chairman controls more than 20% of the outstanding equity of the target (from SDC). Same industry is the number of deals in which the acquirer and target are part of the same industry, based on the Fama and French (1997) 48 industry classifications. AQ_{adj} is the accruals quality calculated in the eight fiscal years prior to the M&A announcement date based on the Dechow and Dichev (2002) accruals quality measure, as adjusted by McNichols (2002) and Francis et al. (2005) (from COMPUSTAT). InnateAQ is the predicted value of AQ from annual estimation of AQ_{adj}. DiscAQ is the residual value of AQ from annual estimation of $AQ_{adj.}$ Target Size($M) is market value of target's assets (from COMPUSTAT). ROE is the ratio of target's earning to average equity (data#20/data#60) in the end of the year prior to the deal announcement date. Intangible Assets is one minus the ratio of the target's property, plant and equipment divided by its assets in the year prior to the merger (from COMPUSTAT). LIQ is the ratio of target's net liquid assets to total assets ((data#4-data#5)/data#6). Debt/Equity is the ratio of debt to equity (data#9/data#60). Market/Book is the ratio of market value of target's equity to book value of equity (data#24*data#25/data#60). PE Ratio is the ratio of target's price to earning (data#24/data#58). Return SD report the standard deviation of target stock returns between days -317 and -64 prior to the deal announcement date.). Acquirer Size($M) is market value of acquirer's assets (from COMPUSTAT). All data are winsorized at the 1% and 99% levels. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 level, respectively

TABLE 3
Logit estimation of sales method choice

	Auction Vs. Negotiation			
Variable	Model 1	Model 2	Model 3	Model 4
Intercept	-1.620 (0.344)	-1.519 (0.281)	-1.628 (0.357)	-1.557 (0.310)
AQ	-0.372*** (0.001)		-0.394*** (0.001)	
InnateAQ		-0.279*** (0.001)		-0.284*** (0.001)
DiscAQ		-0.109*** (0. 001)		-0.123*** (0. 001)
Relative Size	-0.013** (0.029)	-0.018** (0.037)	-0.015** (0.034)	-0.016** (0.036)
Target Size	-0.103 (0.325)	-0.137 (0.417)	-0.119 (0.358)	-0.128 (0.393)
Acquirer Size	-0.095* (0.069)	-0.104* (0.082)	-0.105* (0.072)	-0.118* (0.096)
Intangibles	0.237 (0.102)	0.274 (0.118)	0.260 (0.116)	0.284 (0.135)
Cash	0.031* (0.053)	0.047* (0.072)	0.026** (0.043)	0.038* (0.051)
Tender	-0.073 (0.299)	-0.067 (0.314)	-0.082 (0.351)	-0.093 (0.326)
Return SD	0.011 (0.429)	0.008 (0.537)	0.009 (0.539)	0.005 (0.576)
ROE			-0.069 (0.252)	-0.074 (0.235)
LIQ			0.021 (0.359)	0.023 (0.345)
Debt/Equity			-0.011 (0.478)	-0.010 (0.471)
Market/Book			-0.129 (0.106)	-0.138 (0.114)
PE Ratio			-0.048 (0.618)	-0.041 (0.582)
Likelihood Ratio	163.79	171.13	217.01	221.75
Pseudo R-Squared	0.167	0.169	0.173	0.174
N	396/456	396/456	396/456	396/456

Notes:
This table reports logit regression results for the choice of sale procedure (Auction(=1) vs. Negotiation (=0)). Target [Acquirer] Size is the natural logarithm of Target [Acquirer] Size($M). Cash is an indicator variable equal to 1 in cases in which the offered price was partly or fully in cash. All other variables are described in Table 2. All data are winsorized at the 1% and 99% levels. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 level, respectively.

TABLE 4
Regression analysis of market-adjusted announcement returns

Panel A: The Regression Analysis of Acquirer Returns

	Acquirer Abnormal Returns (-1, +1)			
	Model 1 Coef. (*t*-Stat)	Model 2 Coef. (*t*-Stat)	Model 3 Coef. (*t*-Stat)	Model 4 Coef. (*t*-Stat)
Intercept	0.503***	0.461***	0.468***	0.478***
	(3.10)	(2.70)	(2.78)	(2.95)
Auction	-0.072**	-0.061*	-0.060*	-0.058**
	(-2.01)	(-1.91)	(-1.93)	(-1.97)
AQ	0.038*	0.033		
	(1.79)	(0.70)		
Auction * AQ		0.042***		
		(3.06)		
InnateAQ			0.049*	0.047*
			(1.76)	(1.72)
Auction * InnateAQ				0.089
				(1.24)
DiscAQ			0.021*	0.013
			(1.68)	(1.31)
Auction * DiscAQ				0.173*
				(1.68)
Tender	-0.182	-0.189	-0.188	-0.193
	(-1.19)	(-1.27)	(-1.27)	(-1.28)
Stock	0.073**	0.081**	0.084**	0.086**
	(2.19)	(2.43)	(2.45)	(2.45)
Prior Bidding	-0.037	-0.021	-0.036	-0.027
	(-0.25)	(-0.10)	(-0.12)	(-0.12)
Hostile	0.063*	0.068*	0.069*	0.069*
	(1.80)	(1.75)	(1.75)	(1.74)
Litigation	-0.006	-0.006	-0.005	-0.005
	(-0.76)	(-0.78)	(-0.80)	(-0.79)
Family Firm	0.143	0.146	0.148	0.149
	(1.28)	(1.24)	(1.21)	(1.20)
Same Industry	-0.001	-0.001	-0.001	-0.002
	(-0.99)	(-0.96)	(-0.94)	(-0.91)
Relative Size	0.038	0.039	0.040	0.040
	(0.69)	(0.63)	(0.65)	(0.70)
Acquirer Size	-0.031***	-0.022***	-0.021***	-0.024***
	(-5.36)	(-5.42)	(-5.40)	(-5.51)
Adj R-Squared	0.055	0.061	0.59	0.060
N=	852	852	852	852

Panel B: Regression Analysis of Target Returns

	Target Abnormal Returns (-1, +1)			
	Model 1	Model 2	Model 3	Model 4
	Coef.	Coef.	Coef.	Coef.
	(*t*-Stat)	(*t*-Stat)	(*t*-Stat)	(*t*-Stat)
Intercept	0.265***	0.244**	0.205**	0.193**
	(2.91)	(2.44)	(2.24)	(2.17)
Auction	-0.019	-0.012	-0.017	-0.018
	(-0.60)	(-0.52)	(-0.57)	(-0.59)
AQ	-0.063**	-0.055**		
	(-2.49)	(-2.21)		
Auction * AQ		-0.141***		
		(-5.29)		
InnateAQ			-0.077**	-0.076**
			(-2.01)	(-2.09)
Auction * InnateAQ				-0.112
				(-0.93)
DiscAQ			-0.051***	-0.029***
			(-3.06)	(-2.61)
Auction * DiscAQ				-0.076***
				(-3.28)
Tender	0.39***	0.043***	0.045***	0.045***
	(5.16)	(5.64)	(5.69)	(5.71)
Stock	-0.045***	-0.045***	-0.044***	-0.043***
	(-2.74)	(-2.81)	(-2.83)	(-2.85)
Prior Bidding	-0.010	-0.009	-0.010	-0.010
	(-0.38)	(-0.33)	(-0.30)	(-0.29)
Hostile	-0.116*	-0.119*	-0.116*	-0.115*
	(-1.87)	(-1.89)	(1.88)	(-1.89)
Litigation	-0.021	-0.023	-0.023	-0.023
	(-1.19)	(-1.01)	(-0.99)	(-0.99)
Family Firm	-0.137	-0.141	-0.155	-0.157
	(-1.37)	(-1.32)	(-1.27)	(-1.24)
Same Industry	0.046	0.053	-0.049	0.049
	(0.88)	(0.97)	(-0.90)	(0.87)
Relative Size	-0.049***	-0.048***	-0.049***	-0.049***
	(-5.08)	(-5.21)	(-5.27)	(-5.29)
Acquirer Size	0.005	0.004	0.005	0.005
	(1.50)	(1.53)	(1.48)	(1.47)
Adj R-Squared	0.084	0.089	0.091	0.094
N=	852	852	853	852

Notes:
This table reports the cross-sectional relation between the market-adjusted stock returns surrounding the M&A announcement dates and the deal characteristics. Panel A (B) reports regression analysis of target (acquirer) returns. All variables are described in Tables 2 and 3. All data are winsorized at the 1% and 99% levels. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 level, respectively.

TABLE 5
Probit estimation of bid completion

	Completed Vs. Withdrawn				
	Model 1	Model 2	Model 3	Model 4	Model 5
	Coef. (P-Value)	Coef. (P-Value)	Coef. (P-Value)	Coef. (P-Value)	Coef. (P-Value)
Intercept	0.966*** (0. 001)	0.914*** (0. 001)	0.883*** (0. 001)	0.904*** (0. 001)	0.837*** (0.001)
Auction	0.686* (0.069)	0.672* (0.075)	0.702* (0.087)	0.675* (0.075)	0.683* (0.077)
Number of MAE	0.095** (0.037)	0.099** (0.40)	0.098** (0.040)	0.096** (0.039)	0.097** (0.040)
AQ	1.013 (0.119)	1.026 (0.125)	0.983 (0.134)		
Auction * AQ			0.271** (0.049)		
InnateAQ				0.891 (0.156)	0.730 (0.195)
Auction * InnateAQ					0.155 (0.279)
DiscAQ				0.037** (0.025)	0.033** (0.034)
Auction * DiscAQ					0.077*** (0.008)
Tender Offer	1.182*** (0. 001)	1.173*** (0. 001)	1.175*** (0. 001)	1.173*** (0. 001)	1.171*** (0.001)
Stock Offer	0.481*** (0. 001)	0.475*** (0. 001)	0.465*** (0.002)	0.471*** (0. 001)	0.470*** (0.001)
Prior Bidding	-0.781** (0.011)	-0.778** (0.015)	-0.776** (0.016)	-0.776** (0.016)	-0.776** (0.016)
Hostile	-1.704** (0.032)	-1.684** (0.038)	-1.689** (0.037)	-1.681** (0.040)	-1.683** (0.039)
Litigation	-0.271** (0.045)	-0.262* (0.052)	-0.257* (0.053)	-0.267* (0.050)	-0.262* (0.051)
Family Firm	-0.974** (0.019)	-0.956** (0.026)	-0.955** (0.026)	-0.971** (0.022)	-0.968** (0.023)
Premium		-0.179 (0.323)	-0.183 (0.325)	-0.168 (0.331)	-0.171 (0.329)
Deal Value		-0.015 (0.729)	-0.015 (0.730)	-0.014 (0.735)	-0.011 (0.761)
Same Industry		0.141*** (0.001)	0.143*** (0.001)	0.141*** (0.001)	0.140*** (0.001)
Total Assets		0.007* (0.056)	0.010* (0.058)	0.008* (0.056)	0.010* (0.056)
ROE		0.051	0.050	0.053	0.052

		(0.351)	(0.377)	(0.342)	(0.341)
LIQ		-0.059 (0.469)	-0.053 (0.478)	-0.057 (0.471)	-0.064 (0.459)
Debt/ Equity		0.017 (0.639)	0.017 (0.640)	0.014 (0.631)	0.011 (0.628)
Market/ Book		0.011 (0.207)	0.009 (0.210)	0.015 (0.198)	0.015 (0.194)
PE Ratio		0.003 (0.625)	0.002 (0.635)	0.003 (0.629)	0.002 (0.630)
Likelihood Ratio	178.51	188.92	194.56	191.43	191.02
Pseudo R^2	0.103	0.109	0.116	0.112	0.113
N=	693/159	693/159	693/159	693/159	693/159

Notes:

This table reports probit regression analysis for the probability of completing a proposed M&A transaction (Completed(=1) vs. Withdrawn(=0)). All variables are described in Tables 2 and 3. All data are winsorized at the 1% and 99% levels. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 level, respectively.

TABLE 6
Regression Analysis of Number of Days

	Number of Days Pre-Announcement				Number of Days Post-Announcement			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Coef. (*t*-Stat)	Coef. (*t*-Stat)	Coef. (*t*-Stat)	Coef. (*t*-Stat)	Coef. (*t*-Stat)	Coef. (*t*-Stat)	Coef. (*t*-Stat)	Coef. (*t*-Stat)
Intercept	0.903***	0.854***	0.749***	0.734***	0.471***	0.429**	0.367**	0.334**
	(4.53)	(4.19)	(3.43)	(3.31)	(2.65)	(2.33)	(2.07)	(1.98)
Auction	0.019*	0.008*	0.007*	0.005	0.019**	0.011**	0.015**	0.010*
	(1.83)	(1.69)	(1.66)	(1.35)	(2.44)	(2.13)	(2.17)	(1.86)
AQ	-0.003**	-0.002*			-0.001	-0.001		
	(-2.13)	(-1.93)			(-1.44)	(-1.06)		
Auction * AQ		-0.004				-0.001		
		(-1.53)				(-0.53)		
InnateAQ			-0.000	-0.000			-0.003	-0.002
			(-0.43)	(-0.32)			(-0.99)	(-0.93)
Auction * InnateAQ				0.001				-0.000
				(0.14)				(-0.27)
DiscAQ			-0.011**	-0.008**			-0.002	-0.002
			(-2.36)	(-2.05)			(-1.51)	(-1.43)
Auction * DiscAQ				-0.013***				-0.007**
				(-2.49)				(-2.44)
Tender Offer	0.017	0.017	0.018	0.019	0.027	0.027	0.025	0.024
	(1.32)	(1.31)	(1.25)	(1.24)	(0.97)	(0.99)	(1.09)	(1.05)
Stock Offer	-0.003	-0.004	-0.004	-0.004	-0.010**	-0.010**	-0.011**	-0.013**
	(-0.59)	(-0.64)	(-0.65)	(-0.64)	(-2.51)	(-2.55)	(-2.51)	(-2.46)
Prior Bidding	-0.023**	-0.028**	-0.025**	-0.025**	-0.007	-0.005	-0.005	-0.004
	(-2.36)	(-2.23)	(-2.31)	(-2.18)	(-1.07)	(-1.18)	(-1.26)	(-1.29)
Hostile	-0.019*	-0.019	-0.024**	-0.022*	-0.022***	-0.024***	-0.024***	-0.023***
	(-1.85)	(-1.84)	(-2.03))	(-1.91)	(-2.75)	(-2.84)	(-2.81)	(-2.76)
Litigation	0.003	0.003	0.002	0.000	0.002	0.002	0.002	0.001
	(0.84)	(0.80)	(0.59)	(0.32)	(0.23)	(0.21)	(0.20)	(0.018)
Family Firm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
N	852	852	852	852	852	852	852	852
Adj R-Squared	0.193	0.188	0.219	0.225	0.172	0.177	0.179	0.186

Notes:
This table reports the cross-sectional relation between the number of days that take to sign the deal and the deal characteristics. Columns 1-4 report regression analysis of the number of days between the first call or discussion about the specific acquisition to the M&A announcement date. Columns 5-8 report regression analysis of the number of days between M&A announcement date and the completed or withdrawn date. All variables are described in Tables 2 and 3. All data are winsorized at the 1% and 99% levels. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 level, respectively.