The Role of Target Firms’ Accounting Information in Acquisitions*

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Abstract

We examine whether acquisitions are more profitable for acquirers when the firms they target disclose higher-quality accounting information. If accounting information reduces uncertainty in the value of the target firm by facilitating a more precise valuation, we predict that managers of the acquiring firm are able to bid more effectively and pay less to acquire a target firm that has high-quality accounting information. Using a large sample of acquisitions of public firms over the period 1990-2009, we find evidence consistent with our prediction. Specifically, when target firms have higher-quality accounting information, acquirer returns around the acquisition announcement are higher and target returns are lower. These findings, which are robust to a variety of controls and alternative measures of uncertainty and accounting information quality, suggest that higher-quality accounting information leads to better bidding decisions in acquisitions.
1. Introduction

We examine whether acquisitions are more profitable for acquirers when the firms they target disclose higher-quality accounting information.\(^1\) Once a target firm is selected, the value the acquirer would receive from a successful acquisition (i.e., the value of the target plus synergies) is fixed and the acquirer can increase its profit from the acquisition only by negotiating a lower deal price. We posit that when the target firm discloses higher-quality accounting information the acquirer can value the target with greater precision, bid more effectively, and realize greater gains from the acquisition.

Several theories support a potential role for accounting information in acquisitions, and each leads us to the same prediction—that acquisitions are more profitable for acquirers when target firms disclose accounting information that is more useful for valuation. In an acquisition, the acquirer pays consideration in return for the value of the target plus expected synergies. The acquirer should pay no more than the combined value of the target and synergies, while the target should accept no less than its own value. How the synergistic gains are divided between the two parties depends on the negotiation of the deal price. In a simple acquisition model (Hansen 1987), the target sets a reservation price and accepts any bid above that price. In this setting, as the quality of the target’s accounting information increases, the precision in the acquirer’s estimate of the target’s value increases and the acquirer can bid closer to the target’s reservation price. In sum, better accounting information leads to lower deal prices (relative to the target’s reservation price) and thus more profitable acquisitions.

\(^1\) Although accounting researchers have applied accounting information quality to various contexts, we define accounting information quality as decision usefulness in the context of equity valuation (Ball and Brown 1968, Beaver 1968, Francis et al. 2008, Dechow et al. 2009).
In specific settings, high-quality accounting information may prevent overpayment for target firms. Empirical evidence indicates that some acquirers overpay for target firms, as indicated by negative stock returns to acquiring firms at the acquisition announcement (e.g., Andrade et al. 2001, Moeller et al. 2005), and prior research has explored several theories explaining acquirer overpayment. Two prominent theories are principal-agent conflicts and the winner’s curse (Black 1989; Morck et al. 1990). Important for our study, in either scenario overpayment could be mitigated through better information.

Under the principal-agent conflict theory, managers consider personal benefits in addition to shareholder wealth in the acquisition decision. The manager of the acquiring firm may either knowingly or unintentionally overpay for a target firm, in order to ensure his or her bid is accepted and the deal is completed. Incentives for managers often include growth and diversification, even at the expense of shareholders’ return on investment (Black 1989; Morck et al. 1990). However, managers must be able to justify these high bids to their boards of directors. We predict that high-quality accounting information, by reducing uncertainty about the target’s value, aids boards of directors in identifying and preventing potential overpayments.

The winner’s curse is an empirical possibility in competitive bidding situations where a winning bidder pays too much for an asset with an uncertain value. The rationale underlying the winner’s curse is that the winning bidder is the firm that most greatly overestimates the value of the asset. Bazerman and Samuelson (1983) show the incidence of the winner’s curse and magnitude of overpayment is increasing in the degree of uncertainty concerning the value of the item up for bid. We predict that high-quality accounting information can reduce uncertainty about the target’s value and thereby mitigate the incidence and magnitude of the winner’s curse in acquisitions.
Whether in the general setting or in the specific case of either agency conflicts or the winner’s curse, we expect target value uncertainty is negatively related to acquirer stock returns at the acquisition announcement. However, if a target firm discloses accounting information that facilitates a more precise estimate of its value, the acquirer stands to bid more effectively and profit more from the acquisition. Thus, we predict acquirer returns are higher for acquisitions of targets with higher accounting information quality.

We next examine target stock returns to provide additional evidence on the role of accounting information in facilitating value estimates. Because overpayment by the acquirer benefits shareholders of the target firm, we predict that target value uncertainty is positively related to target stock returns at the acquisition announcement. If accounting information reduces uncertainty in the target’s value, we predict that acquisition-announcement returns are lower for targets with higher accounting quality.

We test our predictions using a sample of 2,340 acquisitions of public firms during the period 1990-2009. Consistent with prior research, we measure accounting information quality as the extent a firm’s accounting information reduces inherent uncertainty about future cash flows.\(^2\)\(^3\) We find that acquiring firms experience lower stock returns at the acquisition announcement when the value of the target firm is more uncertain. However, we also find that, controlling for uncertainty, acquirer returns are higher when the target firm has higher accounting information quality—as proxied by the extent accruals relate to past, present, and future cash flows (Dechow and Dichev 2002) or the extent accruals and cash flows predict future cash flows.

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\(^2\) Dechow et al. (2009) distinguish two factors that affect measures of accounting quality: a firm’s fundamental earnings process and the application of accounting measurement to that process. We do not attempt to distinguish these factors in our analysis. From the acquirer’s point of view, what matters is how well it can predict the cash flows and estimate the value of the target, regardless of which factor led to the high-quality accounting information that facilitates the valuation.

\(^3\) Although the valuation of the target firm is presumed to be based on assessments of future cash flows, accounting information helps predict future cash flows (Barth et al. 2001).
cash flows. The positive effect of accounting information quality offsets the negative effect of uncertainty for target firms with high accounting information quality.

Target-firm shareholders, however, experience lower returns upon announcement of an acquisition when the target’s accounting information quality is high. Thus, acquirer gains from higher target accounting information quality seem to come at the expense of target firm shareholders—target firm shareholders extract less from acquirers as a result of their higher-quality accounting information.

Our results have implications for disclosure decisions made by potential target firms. Whereas Easley and O’Hara (2004) and Lambert et al. (2008) show that firms can benefit from higher-quality disclosures (i.e., realize a lower cost of capital), we find that in the specific case of acquisitions target firms fare worse when their accounting disclosures are of higher quality. Thus, target firms must trade off the benefits of more information disclosures against potentially lower gains from an acquisition.

Our findings also suggest that variation in target value uncertainty and accounting information quality explains at least some of the variation in value loss for acquirers and could potentially explain the larger value losses that occurred during the 1998-2001 merger wave. That is, increases in target value uncertainty and decreases in accounting information quality during this time period could potentially explain the value losses documented in prior research (Moeller et al. 2005).

Finally, our results also speak to the value of accounting information in economic decisions generally. A contrary view regarding accounting information is that it is backward looking and arbitrary and therefore not useful in economic decisions such as acquisitions (e.g., Bruner 2004, pages 248 and 255). In addition, it is possible that accounting information is
supplanted by various other sources of information used in the due diligence process.

Nevertheless, our results indicate an important role for accounting information in acquisitions—
higher quality accounting information allows an acquirer to more precisely value the target firm
and determine the bid price.4

Section 2 presents our hypotheses and the basis for our predictions, and Section 3
presents our research design. Section 4 describes our sample, section 5 discusses our results, and
section 6 concludes.

2. Hypotheses and Basis for Predictions

2.1 The Acquisition Model

The acquisition process can be modeled as a two-agent bargaining game under imperfect
information (Hansen 1987). In such a transaction, the acquirer will decide that an optimal
bargaining strategy is to make a first-and-final offer (Samuelson 1984). Consider a potential
target firm that has a standalone value, $V_T$, and an acquirer with value $V_A$. The combination of
the two firms will produce synergies, $S$. The post-acquisition value of the acquirer is $V_C = V_A + 
V_T + S$.

A zone of potential agreement arises from synergies: the value of the target to the
acquirer (including synergies) exceeds the standalone value of the target. The acquirer will pay
up to the combined value of the target and synergies, while the target will accept bids greater
than its own value. How the synergistic gains are divided between the two parties depends on
the negotiation of the deal price. Assume only the target firm knows $V_T$ with certainty, but the

4 Prior research has examined the use of accounting information by investors (Cohen 2003, Francis et al. 2005, Core
et al. 2008) and by lenders (Biddle and Hilary 2006), as well as a firm’s use of its own accounting information in
compensation (Peng 2007) and capital investment decisions (Biddle et al. 2008, McNichols and Stubben 2008). Our
study, in contrast, focuses on one firm’s use of another firm’s accounting information when making corporate
acquisition decisions.
target does not know \( S \) with certainty. When setting a reservation price, the target considers the following trade-off: by requesting a high reservation price, it attempts to extract more merger rents but risks not selling if the synergies are relatively low. When the acquirer bids below the target’s reservation price, no acquisition occurs. Only bids above the target’s reservation price are accepted. If the acquirer knows the target’s value and reservation price with certainty, it will bid just enough to meet the reservation price. The greater the uncertainty, the higher the accepted bids, indicating the acquirer pays more for a target under uncertainty.

Moving from this general setting to more specific settings, acquiring firms may actually overpay for acquisitions (i.e., the deal price exceeds \( V_T + S \)). Overpayment might occur when agency conflicts arise or when acquirers fall victim to the winner’s curse. In each case, overpayment increases with uncertainty in the value of the target.

2.1.1 Principal-Agent Conflicts

Managers’ incentives can motivate them to make decisions that do not maximize shareholder wealth (Jensen and Meckling 1976).\(^5\) In particular, managers can have incentives to grow their firm beyond the optimal size. As Jensen (1986) notes, growth increases managers’ power by increasing the resources they control. Incentives for growth also stem from the link between growth and managers’ compensation (Murphy 1985) and managers’ desire for greater prestige and visibility (Black 1989).

Managers also have incentives to diversify their firms. Incentives behind diversification include risk aversion by managers whose human or financial capital is concentrated in a single firm (Black 1989). Furthermore, Grinblatt and Titman (1997, page 703) posit that managers of

\(^5\) Hartzell et al. (2004) find evidence suggesting that CEOs of target firms benefit at the expense of shareholders. In this study, however, we focus on the incentives influencing managers of the acquiring firm.
firms in declining industries may attempt to protect their jobs by acquiring firms in industries with better long-term prospects.

Managers with such incentives may be willing to complete an acquisition for the private benefits of growth or diversification even if the acquisition is not expected to increase shareholder wealth. Morck et al. (1990) find evidence suggesting managerial objectives do in fact tend to drive acquisitions that reduce bidding firms’ values. Shareholders can attempt to limit divergences from shareholder wealth maximization by establishing appropriate incentives for managers and by monitoring managers’ activities (Jensen and Meckling 1976). A primary monitoring mechanism employed by shareholders is the board of directors, which represents shareholders by approving significant management activities, including acquisitions. However, a board’s ability to effectively monitor management depends on the information available to it. If accounting information reduces uncertainty in the value of the target firm, it is more difficult for management of the acquiring firm to justify a high potential bid to the board by understating risks or overstating potential gains.

Prior research documents the importance of financial accounting information to shareholders and boards in monitoring managers (see Watts and Zimmerman 1986; Bushman and Smith 2001). In the spirit of Holmstrom (1979) and Kanodia and Lee (1998), these studies typically examine the role of a firm’s own ex post accounting information in facilitating the monitoring of prior managerial actions (e.g., Hope and Thomas 2008). In contrast, we consider the ex ante use of another firm’s accounting information by the acquirer’s board to evaluate potential acquisition bids.

2.1.2. The Winner’s Curse
The winner’s curse is an empirical possibility in competitive bidding situations, where a successful bidder pays too much for an asset with an uncertain value. As explained by Bazerman and Samuelson (1983), the rationale for this overbidding is that (1) while the average bidder may accurately estimate the value of the commodity up for sale in an auction, some bidders will underestimate this value and others will overestimate it, and (2) the bidder who most greatly overestimates the value of the commodity will typically win the auction. Samuelson and Bazerman (1985) extend the analysis of the winner’s curse to bilateral negotiations. In either setting, the value of the asset purchased is less than the winning bidder’s estimate, possibly so much that the winning bidder loses money on the purchase.\textsuperscript{6}

In theory, bidders should take into account their competitors’ bidding behavior and discount bids in response to greater uncertainty to counteract the greater likelihood of overbidding—the winner’s curse cannot occur if all bidders are rational (Cox and Isaac 1984). However, Thaler (1988) describes the difficulty of acting rationally in auctions. It is not enough to determine the expected value of the asset conditional on information available at the time of bidding; the bidder must also determine the expected value conditional on winning the auction, taking into account the fact that winning the auction likely means it overestimated the value of the asset relative to other bidders. In addition, bidders must determine the appropriate magnitude of adjustment to their bid that is necessary to compensate for the presence of other bidders. In addition, as Black (1989) notes, even if some managers do take into account the winner’s curse, it is likely that others do not, and these others will be more likely to have a winning bid.\textsuperscript{7}

\textsuperscript{6} Boone and Mulherin (2008) find that 53\% of acquisitions in their sample were negotiations and the other 47\% were auctions. Although the mechanics of these two cases differ, the general predictions are the same: overpayment by the acquirer leads to less profitable acquisitions for its shareholders. Besides, as Black (1989) notes, an auction need not be explicit; other potential bidders could bid if the first bidder’s offer is too low.

\textsuperscript{7} Experimental evidence suggests acquirers do not bid appropriately, even when they are given significant learning opportunities (Thaler 1988).
issues are particularly relevant in the context of acquisitions, which are characterized by uncertainty and information asymmetry.

Whether potential acquirers bid appropriately is an empirical question, and surveys of behavioral finance (Thaler 1988; Barberis and Thaler 2003; Baker et al. 2007) conclude that the winner’s curse holds in the corporate takeover market. One explanation for this is the hubris hypothesis posed by Roll (1986) in which overconfident managers fall victim to the winner’s curse and overbid when acquiring other corporations. Bazerman and Samuelson (1983) discuss two factors that affect the incidence and magnitude of the winner’s curse: the degree of uncertainty concerning the value of the item up for bid and the number of competing bidders. The winner’s curse occurs when winning bidders fail to adapt their strategies to these factors. One test of the winner’s curse, which is a basis for the predictions in this study, would relate acquirer returns to uncertainty in the value of the target firm. As uncertainty in the target’s value increases, so does the variance of bids, leading to higher winning bids. As Bazerman and Samuelson (1983) explain, failure to discount bids (or an insufficient discount) in response to greater uncertainty will increase the likelihood and magnitude of the winner’s curse.

2.2 Hypotheses

As explained in section 2.1, we expect the acquirer is able to successfully bid less for a given target when it is able to more precisely value the firm. The lower payment translates to

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8 In contrast, Boone and Mulherin (2008), using a sample of 308 acquisitions, fails to find evidence for the winner’s curse. Their measure of target firm uncertainty is the fraction of the target firm’s assets that are not capital assets. Our study, in contrast, uses a larger sample, incorporates more comprehensive measures of target firm value uncertainty, and incorporates the effect of accounting information quality on value uncertainty.

9 A concurrent and related study by Martin and Shalev (2009) also examines target firm information and stock returns at the acquisition announcement. Martin and Shalev (2009) study the role of information in pairing acquirers to targets (i.e., maximizing synergies). In contrast, we view the matching process as being determined by factors other than the quality of the target firm’s accounting information. Instead, in our study the acquirer relies on the target’s accounting information to estimate its value and determine a bid price. In other words, instead of focusing on the total value gain in an acquisition, we examine how that gain is split between the acquirer and target. Furthermore, whereas Martin and Shalev (2009) use stock return non-synchronicity to measure the information
increased returns to shareholders of the acquirer and decreased returns to shareholders of the target. In contrast, when the value of the target is more uncertain, completed acquisitions are likely to be characterized by higher payments and lower returns to the acquirer.

H1a: Acquisitions are less profitable for acquirers when the target’s value is more uncertain.

If valuation uncertainty leads to less profitable acquisitions, then to the extent a firm’s accounting information aids in valuation we expect it can lead to more profitable acquisitions for acquirers. Prior research has demonstrated that accounting information does aid in explaining equity prices (e.g., Ball and Brown 1968, Beaver 1968, Dechow 1994, Francis et al. 2005). However, the quality of accounting information varies across firms.\textsuperscript{10} When target firms have high-quality accounting information, we predict that the acquirer is better able to value the target and pays relatively less for the acquisition.\textsuperscript{11} We test the following hypothesis:

H1b: Controlling for uncertainty in the target’s value, acquisitions are more profitable for acquirers when target accounting information quality is higher.

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\textsuperscript{10} Dechow and Dichev (2002) identify innate factors that explain a substantial portion of the variation in accounting information quality across firms. Accordingly, we view accounting information quality as an exogenously determined characteristic of firms. Although accounting information could feasibly be affected by discretionary choices, Erickson and Wang (1999) fail to find significant evidence of discretionary reporting behavior by target firms and conclude that targets do not have sufficient time to manipulate earnings before the acquisition.

\textsuperscript{11} Raman et al. (2008) examine the effect of a target’s accounting information quality on takeover decisions. They find that when the target firm’s accounting information quality is poor, (1) acquirers prefer negotiated acquisitions, (2) acquirers are more likely to offer shares than cash, and (3) acquisition premiums are higher. Raman et al. (2008) do not directly examine the profitability of the acquisition to the acquirer, which is the central focus of our study.
Following Roll (1986), we next examine target stock returns to provide additional evidence on the winner’s curse and, in this study, the role of accounting information in facilitating value estimates. Because overpayment by the acquirer benefits shareholders of the target firm, target value uncertainty is positively related to target stock returns at the acquisition announcement. However, we predict that acquisition-announcement returns are lower for targets with higher accounting quality.12

H2a: Acquisitions are more profitable for targets when the target’s value is more uncertain.

H2b: Controlling for uncertainty in the target’s value, acquisitions are less profitable for targets when target accounting information quality is higher.

3. Research Design

3.1 Measure of Uncertainty

We examine the effect of uncertainty on acquirer and target returns directly (i.e., when testing H1a and H2a), and we also control for uncertainty when examining the effect of accounting information quality on acquirer and target returns when testing H2a and H2b. In the latter case, we attempt to control for inherent uncertainty and then estimate the incremental effect of accounting information quality.

12 Alternatively, one could argue that targets returns would be higher when targets’ accounting quality is higher if better accounting information helps acquirers to identify combinations with greater synergies. The value of these synergistic gains can be split between the acquirer and the target (as determined in the negotiation or bidding process), allowing both the acquirer and the target to benefit from the target’s high-quality accounting information. However, our empirical evidence (i.e., the negative relation between accounting information quality and target stock returns at the acquisition announcement) does not support this explanation.
We use several measures for uncertainty of the target firm’s value (\textit{UNCERT}). The primary measure is based on the volatility of the target firm’s monthly stock returns, measured over the most recent two fiscal years ending before the acquisition announcement. In subsequent regression analyses, volatility is ranked across firms from lowest to highest and then scaled between 0 and 1 to control for outliers and facilitate interpretation of regression coefficients. We base additional measures on the volatility of annual cash flows from operations divided by total assets (\textit{VOLCFO}), and the amount of intangible assets (\textit{INTANG}, measured as one minus the ratio of tangible assets to total assets; see Boone and Mulherin 2008), and the market-to-book ratio (\textit{M/B}). Again, in the regressions, each measure is ranked and scaled between 0 and 1.

\textbf{3.2 Measures of Accounting Information Quality}

We use several approaches to measure the accounting information quality of the target firm—each of which intends to capture innate quality of the target firm’s accounting information rather than any discretionary reporting behavior that might occur shortly before the acquisition. The first general metric is based on Dechow and Dichev’s (2002) model, which posits a relation between current period accounting accruals and operating cash flows in the prior, current, and future periods. As suggested by McNichols (2002), we augment this model with change in sales revenue and gross property, plant, and equipment. According to Francis et al. (2005), in this framework, accruals reflect managerial estimates of cash flows, and the extent to which those accruals do not map into cash flows—due to intentional and unintentional estimation errors—is an inverse measure of the quality of the accruals that are reported. The second general metric is based on the ability of the target firm’s reported accruals and cash flows to predict future cash flows. The extent to which accruals and cash flows do not explain future cash flows is an inverse measure of the quality of the accruals and cash flows that are reported. The quality of
reported accruals, which we use to proxy for overall accounting information quality, is measured as the standard deviation of residuals from the following models:

\[ ACC_{t-1} = a + b_1 \Delta SALES_{t-1} + b_2 PPE_{t-1} + b_3 CF_{t-2} + b_4 CF_{t-1} + b_5 CF_t + e \]  
\[ CF_t = a + b_1 CF_{t-1} + b_2 ACC_{t-1} + e \]

where ACC is accounting accruals, CF is cash from operations, SALES is sales revenue, and PPE is gross property, plant, and equipment, each of which is deflated by average total assets in year \( t \).

We use two separate approaches to estimating the models. Ideally, we would estimate a firm-specific measure of accounting information quality. However, reliable estimation of a firm-specific measure requires several years of data. Many target firms are young firms without a long history of financial statements, leading to a substantial decrease in the size of the sample and a potential selection bias by systematically excluding acquisitions of younger targets.

An alternative approach is to estimate the models by industry and year, and use the industry-level variation in residuals as a proxy for the firm-level accounting information quality of firms in the industry that particular year. This overcomes the selection bias, but the tradeoff is that the measure does not capture differences in accounting information quality of firms within an industry.

Because of the advantages and disadvantages of the two approaches, we present results using both firm- and industry-specific measures of accounting information quality. The firm measures of accounting information quality, \( F_{AIQ1} \) and \( F_{AIQ2} \), are calculated using the approach in Francis et al. (2005). First, we estimate models (1) and (2) separately for each industry and year. \( F_{AIQ1} \) is the standard deviation of firm-specific residuals from model (1)
over the eight-year period leading up to the acquisition.\textsuperscript{13} \( F_{AIQ1} \) is multiplied by -1 so that higher values represent higher accounting information quality. \( F_{AIQ2} \) is measured similarly using model (2), and in subsequent regression analyses both measures are ranked and scaled between 0 and 1. \( F_{AIQ} \) is the mean of \( F_{AIQ1} \) and \( F_{AIQ2} \). The industry measures are calculated from the standard deviation of residuals within an industry. \( I_{AIQ1} \) is the standard deviation of industry residuals from model (1), which is estimated cross-sectionally in the target firm’s industry (two-digit SIC code) in the year such that \( CF_i \) is the most recent fiscal year ending prior to the acquisition announcement. \( I_{AIQ1} \) is multiplied by -1 so that higher values represent higher accounting information quality. \( I_{AIQ2} \) is measured similarly using model (2). \( I_{AIQ1} \) and \( I_{AIQ2} \) are then ranked and scaled between 0 and 1, and \( I_{AIQ} \) is the mean of \( I_{AIQ1} \) and \( I_{AIQ2} \).

\textit{3.3 Models of Acquirer and Target Stock Returns}

According to Andrade et al. (2001), the most statistically reliable evidence on the value created by acquisitions comes from short-window event studies that use the abnormal stock price reaction at acquisition announcement as a gauge of value creation or destruction. In an efficient capital market, stock prices quickly adjust following an acquisition announcement, incorporating any expected value changes.\textsuperscript{14} We use the three-day market-adjusted stock return of the acquiring firm, centered on the date of the acquisition announcement (\textit{ACQ\_RET}), to measure the economic benefit of the acquisition to acquiring firm shareholders.

A large literature examines the returns to acquiring firms’ shareholders upon announcement of an acquisition and generally finds slightly negative average stock returns for

\textsuperscript{13} We require nonmissing data for at least five of the eight years.
\textsuperscript{14} Consistent with this idea, Baker et al. (2007) cite the result in Malmendier and Tate (2008)---that investors are more skeptical about bid announcements made by optimistic CEOs---as being consistent with irrational managers operating in efficient markets.
the shareholders of the acquiring firm. Although the literature has not converged on a single model for acquirer returns, several factors are commonly used, including characteristics of the acquisition deal (e.g., the method of payment or whether it is a tender offer) and of the acquirer (e.g., acquirer size). For example, Travlos (1987) finds that public firm acquisitions paid for with equity have lower returns than public firm acquisitions paid for with cash.

Prior research has also considered the target firm’s industry; specifically, whether the acquisition involves a target in a different industry. Morck et al. (1990) hypothesize that diversifying acquisitions might result from self-serving managers pursuing acquisitions that provide private benefits.

We use the following model to estimate the effect of accounting information quality on the profitability of the acquisition to acquiring firm shareholders:

\[
ACQ\_RET = b_0 + b_1 UNCERT + b_2 AIQ + b_3 SAME\_IND + b_4 STOCK + b_5 TENDER + b_6 ACQ\_SIZE + e
\]

where \( AIQ \) is either \( I\_AIQ \) using the full sample or \( F\_AIQ \) using the subsample of firms for which enough data is available to measure \( F\_AIQ \). \( SAME\_IND \) is an indicator variable that equals one if the acquirer and target firm have the same two-digit SIC code. \( STOCK \) is an indicator variable that equals one if at least 90 percent of the acquisition price was paid with equity. \( TENDER \) is an indicator variable that equals one if the acquisition is a tender offer. Finally, \( ACQ\_SIZE \) is the natural log of the acquirer’s market value of equity.

We use the same model to examine the raw dollar magnitude of acquirer value increase or decrease at the acquisition announcement (\( ACQ\_SRET \)).

\[
ACQ\_SRET = b_0 + b_1 UNCERT + b_2 AIQ + b_3 SAME\_IND + b_4 STOCK + b_5 TENDER + b_6 ACQ\_SIZE + e
\]

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15 See Andrade et al (2001) for a review.
The literature generally uses similar models for target and acquirer returns. We use the following model to examine target returns:

\[
TARG_{RET} = b_0 + b_1 \text{UNCERT} + b_2 \text{AIQ} + b_3 \text{SAME\_IND} + b_4 \text{STOCK} \\
+ b_5 \text{TENDER} + b_6 \text{ACQ\_SIZE} + e
\]  

(6)

where \(TARG_{RET}\) is the three-day market-adjusted stock return of the target firm, centered on the date of the acquisition announcement. The remaining variables are as defined previously.

4. Sample and Descriptive Statistics

4.1 Sample Criteria

We draw the sample of acquisitions from the Securities Data Company’s U.S. Mergers and Acquisitions Database. We select the sample of domestic mergers and acquisitions with announcement dates between 1990 and 2009. Starting the sample period in 1990 allows us to use data from the statement of cash flows to construct measures of accounting information quality (Hribar and Collins 2002). We follow the sample criteria of Moeller et al. (2003), except that we include acquisitions of only public targets. Specifically, we consider only acquisitions of firms by public acquirers where acquiring firms control less than 50% of the shares of the target firms before the acquisition announcement and end up with all the shares of the acquired firm. We further require that the transaction is completed within one thousand days, and the deal value is greater than $1 million and greater than 10% of the acquirer’s pre-acquisition market value.\(^\text{16}\)

Finally, we impose additional requirements for deal characteristics, accounting data needed to calculate accounting information quality, acquirer and target stock returns around the acquisition announcement.

\(^{16}\) We include all acquisitions of at least $1 million when analyzing target returns, but following Moeller et al. (2003) we require acquisitions of at least 10% of the acquirer’s market value when analyzing acquirer returns. This cutoff helps ensure the acquisition is material enough to be reflected in the acquirer returns.
4.2 Descriptive Statistics

Our data requirements yield a sample of 2,340 acquisitions. Table 1 shows sample descriptive statistics by year. Unsurprisingly, the number of acquisitions increases into the late 1990s, followed by a decline in the early 2000s, and then an increase up to the 2008 financial crisis. The average three-day market-adjusted stock return to acquirers centered on the announcement of the acquisition (\(ACQ_{RET}\)) is negative overall (-0.01). The overall mean dollar change in acquirer market value (\(ACQ_{$RET}\)) is negative (-$159 million), and it is negative in each year. The average three-day market-adjusted stock return to target firms centered on the announcement of the acquisition (\(TARG_{RET}\)) is positive in each year, with an average of 0.28, consistent with prior research. The negative acquirer returns and positive target returns are also consistent with overpayment resulting from the winner’s curse or principal-agent conflicts.

Target value uncertainty (\(UNCERT\), the volatility of target stock returns) increases during the 1998-2001 merger wave before peaking in 2002. The quality of accounting information (\(F_{AIQ}\), measured at the firm level), which by its nature is measured with a lag, begins to decline around 2000 and remains low throughout the second half of the sample period. The industry measure of accounting information quality (\(I_{AIQ}\)) exhibits a similar trend around 2000 increases during the final years of the sample period.

We consider three characteristics of the acquisition deal. First, 63% of acquisitions involve a target in the same industry as the acquirer, based on two-digit SIC codes (\(SAME\_IND\)). Overall, 39% of acquisitions are stock deals—the acquirers pay at least 90% of the consideration with stock (\(STOCK\)). A dramatic decline in stock deals is apparent into the 2000s. Roughly half of acquisitions are stock deals throughout the 1990s, but the frequency is down to less than 20%
by 2007. Tender offers (TENDER) comprise 19% of acquisitions. Finally, acquirer size (ACQ_SIZE) exhibits a slight upward trend through the sample period.

Table 2 presents correlations. The Pearson correlations above the diagonal indicate that acquirer returns are positively correlated with target returns (0.10) and industry-level accounting information quality (0.10), and negatively correlated with uncertainty in the target’s value (-0.07). There is no significant correlation between acquirer returns and firm-level accounting information quality or size of the acquirer. Acquirer returns are higher for tender offers (0.13) and lower for diversifying acquisitions (−0.05) and stock-financed acquisitions (−0.13). However, we base our inferences on the multivariate tests presented in the next section.

Table 2 also indicates that industry-level accounting information quality is positively correlated with acquirer returns (0.10) but negatively correlated with target returns (−0.10). Firm-level accounting information quality is also positively (but not significantly) correlated with acquirer returns (0.03), and negatively correlated with target returns (−0.12).17 Finally, the correlation between firm-level accounting information quality and industry-level accounting information quality is significantly positive (0.57). This correlation supports our use of industry-level accounting information quality measures, which appears to capture a significant portion of the firm-level measure but allows us to use a larger sample and more timely measure of accounting information quality.

5. Results

Table 3 presents results relating to the determinants of acquirers’ acquisition announcement period stock returns. In Panel A, the first column of estimates describes the base

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17 We use the term “significant” to denote statistical significance at less than the 0.05 level, based on a one-sided test when we have signed predictions and a two-sided test otherwise.
model, which includes a measure of uncertainty but not accounting information quality. Consistent with H2a, returns to the acquiring firm’s shareholders for acquisitions of targets with the most uncertain values are 400 basis points lower than those of targets with the least uncertain values (t = –4.46). The column also indicates that, on average, the announcement-period stock returns for stock acquisitions is 200 basis points less than that of cash acquisitions (t = –3.90), and the return for tender offers is on average 300 basis points higher (t = 4.70).

Turning to the second column in Panel A, returns to acquiring firm shareholders are higher by 300 basis points when the target has the highest-quality accounting information. For firms acquiring targets with high accounting information quality, the positive effect of accounting information quality (0.03) offsets the negative effect of value uncertainty (-0.02).

The third column of Panel A replaces the firm-level measure of accounting information quality with an industry-level measure. These results are not directly comparable to the previous results using industry measures because the sample size is substantially larger. Nevertheless, a similar finding emerges—the coefficient on the target’s accounting information quality is 0.03 and significantly positive (t = 3.54), indicating that returns to acquiring firm shareholders are higher when the target has higher-quality accounting information.

Table 3, Panel B, presents results using four alternative measures of accounting information quality. The regressions in the first two columns use firm-level estimates of accounting information quality from models (1) and (2) individually. In each case, the coefficient on $F_{AIQ}$ is positive as predicted (coefficients are 0.02 and 0.02). However, the coefficient is significant only for model (2) (t = 1.47 and 2.14). The regressions in the last two columns use industry-level estimates of accounting information quality from models (1) and (2)
individually. The coefficients on $I_{AIQ}$ are positive and significant (coefficients are 0.03 and 0.03; t-statistics are 3.98 and 2.90).

Table 3, Panel C, presents results using three alternative measures of uncertainty in the target firm’s value. The regressions in the first two columns combine uncertainty measured as the volatility of cash flows from operations with firm- and industry-level estimates of accounting information quality. The next two columns measure uncertainty as the percentage of assets that are intangible, and the final two columns measure uncertainty as the market-to-book ratio. In each case, the coefficient on accounting information quality is significantly positive, as predicted (coefficients range from 0.03 to 0.04 and t-statistics range from 2.05 to 4.64).

Table 3, Panel D, presents results from the regression of the dollar change in the acquirer’s market value. As in Panel A, the second column uses the firm-level measure of accounting information quality and the third column uses the industry-level measure. Both are significantly positive, as predicted (t = 2.58 and 2.57, respectively). Based on the firm-level measure of accounting information quality, these findings indicate a relative $423$ million difference in post-acquisition acquirer wealth following acquisitions of targets with the highest- vs. lowest-quality accounting information.

Table 4 presents results relating to the determinants of returns to target firm shareholders upon announcement of an acquisition. The results from the base model presented in the first column of estimates in Panel A indicate that target shareholders experience higher returns on average for tender offers (0.09, $t = 6.35$) and for acquisitions by larger acquirers ($t = 5.02$), and lower returns for stock deals ($-0.05$, $t = -4.58$). In line with expectations, target firms with the most uncertain values experience returns that are 1,100 basis points higher on average upon announcement of an acquisition ($t = 5.87$).
The second column in Table 4, Panel A, indicates that, controlling for uncertainty in value, when target firms have the highest-quality accounting information, they experience lower returns by 600 basis points (t = -1.86). The third column in Table 4, Panel A, finds a similar result using the industry-level measure of accounting information quality. Target firms with high accounting information quality experience announcement period returns that are 200 basis points lower on average (t = –0.77), although this amount is not statistically significant.\textsuperscript{18}

Table 4, Panels B and C replicate the findings in Panel A across alternative measures of accounting information quality and target value uncertainty. Results are generally consistent across these ten models using the various measures, with two exceptions. When accounting information quality is measured at the industry level using model (2), the coefficient on $I_{AIQ}$ is negative as predicted but not significant ($t = -0.05$). Finally, when uncertainty is measured as the volatility of cash flows from operations and accounting information quality is measured at the industry level, the coefficient on accounting information quality is again negative but not statistically significant ($t = -1.32$).

\textbf{6. Conclusion}

We examine whether higher-quality accounting information of target firms leads to more profitable acquisitions for acquirers in a large sample of acquisitions of public firms. Using a sample of 2,340 acquisitions during the period 1990-2009, we find that acquiring firms experience lower stock returns at the acquisition announcement when the value of the target firm is uncertain. However, we also find that, controlling for uncertainty, acquirer returns are higher when the target firm has higher accounting information quality. The positive effect of

\textsuperscript{18} Untabulated analyses reveal that when target value uncertainty is excluded from the regression, the coefficient on industry-level accounting information quality becomes significantly negative as expected ($t = -3.48$).
accounting information quality offsets the negative effect of uncertainty of target firms. Thus, high-quality accounting information may successfully mitigate uncertainty in target firms.

Target firm shareholders, however, experience lower returns upon announcement of an acquisition when the target’s accounting information quality is high. Thus, acquirer gains from higher target accounting information quality seem to come at the expense of target firm shareholders—target firm shareholders extract less from acquirers as a result of their higher-quality accounting information. Taken together, these findings suggest that high-quality accounting information, by allowing a more precise valuation of the target firm, allows acquirers to bid more effectively and pay less for a given acquisition.

Our study sheds light on the negative returns realized, on average, by acquirers at the acquisition announcement. Increases in target value uncertainty and decreases in accounting information quality explain at least some of the variation in value loss for acquirers and could potentially explain the larger value losses that occurred during the 1998-2001 merger wave (Moeller et al. 2005).

Our results also speak to the value of accounting information in economic decisions generally. A contrary view regarding accounting information is that it is backward looking, arbitrary, likely supplanted by various other sources of information, and therefore not useful in economic decisions. In this light, researchers have sought to understand whether better accounting information quality improves outcomes for investors. For example, a sizable literature seeks to assess whether investors reward the equity of firms with high-quality accounting information with a lower cost of capital (e.g., Cohen 2003, Francis et al. 2005, Core et al. 2008). By focusing on returns at acquisition announcements, our study avoids the challenge associated with estimating cost of capital. Our results indicate that accounting
information plays an important role in acquisitions by facilitating better bidding decisions by acquiring firms.

Finally, the study raises some intriguing questions for future research about the role of accounting information in acquisition decisions. For example, why do firms acquire targets with uncertain value and low accounting information quality, especially considering that these acquisitions tend to be less profitable? Do these less profitable acquisition choices contribute to the diversification discount documented by Berger and Ofek (1995)? Additionally, how much of the effect of accounting information quality that we find is attributable to the target firm’s fundamental earnings process as opposed to the application of accounting measurement to that process (Dechow et al. 2009)? If the latter, do targets intentionally obscure information before the acquisition? And how do potential target firms trade off any potential immediate benefits of higher-quality accounting information (e.g., a lower cost of capital) with the amount of payment they would lose in the event of an acquisition?
References


Appendix A: Variable Definitions

\textit{ACQ\_RET} \quad \text{Three-day market-adjusted stock return of acquiring firm, centered on the date of the acquisition announcement.}

\textit{ACQ\_SRET} \quad \text{Three-day change in acquirer market value, centered on the date of the acquisition announcement.}

\textit{ACQ\_SIZE} \quad \text{Natural log of the acquirer’s market value, measured two days prior to the acquisition announcement.}

\textit{M/B} \quad \text{Market-to-book ratio of the target firm, measured at the end of the most recent fiscal year before the acquisition announcement.}

\textit{F\_AIQ} \quad \text{Firm-level accounting information quality (see Appendix B).}

\textit{I\_AIQ} \quad \text{Industry-level accounting information quality (see Appendix B).}

\textit{INTANG} \quad \text{One minus the ratio of the target firm’s tangible assets to total assets, at the end of the most recent fiscal year before the acquisition announcement.}

\textit{SAME\_IND} \quad \text{Indicator, =1 if the acquirer and target firm have the same two-digit SIC code.}

\textit{STOCK} \quad \text{Indicator, =1 if at least 90 percent of the acquisition price was paid with equity.}

\textit{TARG\_RET} \quad \text{Three-day market-adjusted stock return of target firm, centered on the date of the acquisition announcement.}

\textit{TENDER} \quad \text{Indicator, =1 if the acquisition is a tender offer.}

\textit{UNCERT} \quad \text{Volatility of the target firm’s daily stock returns over the most recent two fiscal years prior to the acquisition announcement.}

\textit{VOLCFO} \quad \text{Volatility of the target firm’s annual cash flows from operations divided by total assets, measured over the eight years leading up to the acquisition announcement.}
Appendix B: Description of Accounting Information Quality Measures

Models:

\[ ACC_{t-1} = a + b_1 \Delta SALES_{t-1} + b_2 PPE_{t-1} + b_3 CF_{t-2} + b_4 CF_{t-1} + b_5 CF_t + e \]  \hspace{1cm} (1)

\[ CF_t = a + b_1 CF_{t-1} + b_2 ACC_{t-1} + e \]  \hspace{1cm} (2)

\( CF \) = cash from operations.
\( ACC \) = accruals = net income before extraordinary items – \( CF \)
\( SALES \) = sales revenue
\( PPE \) = gross property, plant, and equipment

Firm-level Measures

Models (1) and (2) are estimated cross-sectionally by industry (two-digit SIC code) and year.

\( F_{\text{AIQ1}} \) = rank (scaled between 0 and 1) of \(-1 \times \) the standard deviation of a firm’s residuals from model (1) calculated over the eight years leading up to the acquisition

\( F_{\text{AIQ2}} \) = rank (scaled between 0 and 1) of \(-1 \times \) the standard deviation of a firm’s residuals from model (2) calculated over the eight years leading up to the acquisition

\( F_{\text{AIQ}} \) = mean of \( F_{\text{AIQ1}} \) and \( F_{\text{AIQ2}} \)

Industry-level Measures

Models (1) and (2) are estimated cross-sectionally in the target firm’s industry (two-digit SIC code) in the year such that \( CF_t \) is the most recent fiscal year ending prior to the acquisition announcement.

\( I_{\text{AIQ1}} \) = rank (scaled between 0 and 1) of \(-1 \times \) the standard deviation of an industry’s residuals from model (1)

\( I_{\text{AIQ2}} \) = rank (scaled between 0 and 1) of \(-1 \times \) the standard deviation of an industry’s residuals from model (2)

\( I_{\text{AIQ}} \) = mean of \( I_{\text{AIQ1}} \) and \( I_{\text{AIQ2}} \)

We require non-missing data for at least five of the eight years.
Table 1: Acquisition Deal Descriptive Statistics by Year

This table presents mean statistics by year for 2,340 deals from 1990 to 2009. The variables included are the number of deals, acquirer return (ACQ_RET), change in acquirer market value (ACQ_$RET), target return (TARG_RET), target uncertainty (UNCERT), target accounting information quality (F_AIQ, I_AIQ), indicators whether target and acquirer are in the same industry (SAME_IND), whether at least 90 percent of the price was paid in equity (STOCK) and whether the acquisition was a tender offer (TENDER), and acquirer size (ACQ_SIZE). Variable definitions are provided in Appendix A.

<table>
<thead>
<tr>
<th>Year</th>
<th># Deals</th>
<th>ACQ_RET</th>
<th>ACQ_$RET</th>
<th>TARG_RET</th>
<th>UNCERT</th>
<th>F_AIQ</th>
<th>I_AIQ</th>
<th>SAME_IND</th>
<th>STOCK</th>
<th>TENDER</th>
<th>ACQ_SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>43</td>
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<td>-123.58</td>
<td>0.36</td>
<td>0.13</td>
<td>-0.10</td>
<td></td>
<td>60%</td>
<td>42%</td>
<td>28%</td>
<td>5.75</td>
</tr>
<tr>
<td>1991</td>
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<td>-41.08</td>
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<td></td>
<td>61%</td>
<td>48%</td>
<td>22%</td>
<td>5.78</td>
</tr>
<tr>
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<td></td>
<td>64%</td>
<td>58%</td>
<td>19%</td>
<td>6.07</td>
</tr>
<tr>
<td>1993</td>
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<td>0.00</td>
<td>-0.54</td>
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<td>0.15</td>
<td>-0.09</td>
<td></td>
<td>63%</td>
<td>40%</td>
<td>16%</td>
<td>6.21</td>
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<td>95</td>
<td>0.00</td>
<td>-1.78</td>
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<td>0.14</td>
<td>-0.09</td>
<td></td>
<td>67%</td>
<td>56%</td>
<td>19%</td>
<td>6.25</td>
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<tr>
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<td>-2.03</td>
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<td>0.13</td>
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<td>53%</td>
<td>26%</td>
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<tr>
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<td>-0.09</td>
<td>56%</td>
<td>51%</td>
<td>17%</td>
<td>7.10</td>
</tr>
<tr>
<td>1997</td>
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<td>-8.70</td>
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<td>0.11</td>
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<td>-0.09</td>
<td>59%</td>
<td>44%</td>
<td>21%</td>
<td>7.11</td>
</tr>
<tr>
<td>1998</td>
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<td>0.14</td>
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<td>51%</td>
<td>18%</td>
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<tr>
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<td>0.37</td>
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<td>-0.11</td>
<td>63%</td>
<td>39%</td>
<td>21%</td>
<td>7.95</td>
</tr>
<tr>
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<td>-0.13</td>
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<td>43%</td>
<td>26%</td>
<td>7.96</td>
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<tr>
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<td>61%</td>
<td>34%</td>
<td>18%</td>
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</tr>
<tr>
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<td>73%</td>
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<td>0.21</td>
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</tr>
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<td>-156.71</td>
<td>0.21</td>
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<td>-0.10</td>
<td>-0.12</td>
<td>66%</td>
<td>21%</td>
<td>4%</td>
<td>8.51</td>
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<tr>
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<td>-135.22</td>
<td>0.28</td>
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<td>-0.09</td>
<td>-0.11</td>
<td>60%</td>
<td>17%</td>
<td>18%</td>
<td>8.48</td>
</tr>
<tr>
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<td>76</td>
<td>-0.02</td>
<td>-225.17</td>
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<td>74%</td>
<td>22%</td>
<td>22%</td>
<td>7.69</td>
</tr>
<tr>
<td>2009</td>
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<td>0.04</td>
<td>-389.03</td>
<td>0.39</td>
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<td>26%</td>
<td>26%</td>
<td>7.92</td>
</tr>
<tr>
<td>Total</td>
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<td>-0.01</td>
<td>-159.08</td>
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<td>0.15</td>
<td>-0.08</td>
<td>-0.13</td>
<td>63%</td>
<td>39%</td>
<td>19%</td>
<td>7.46</td>
</tr>
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</table>
Table 2: Correlations among Regression Variables

This table presents the Pearson (above diagonal) and Spearman (below diagonal) correlation coefficients between the regression variables. Correlations in bold are significantly different from zero at the 0.05 level. All variable definitions are provided in Appendix A.

<table>
<thead>
<tr>
<th></th>
<th>ACQ_RET</th>
<th>ACQ_$RET</th>
<th>TARG_RET</th>
<th>UNCERT</th>
<th>F_AIQ</th>
<th>I_AIQ</th>
<th>SAME_IND</th>
<th>STOCK</th>
<th>TENDER</th>
<th>ACQ_SIZE</th>
</tr>
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<td>ACQ_RET</td>
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<td>-0.07</td>
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<td>0.10</td>
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</tr>
<tr>
<td>ACQ_$RET</td>
<td>0.75</td>
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<td>-0.05</td>
<td>0.05</td>
<td>0.03</td>
<td>-0.21</td>
</tr>
<tr>
<td>TARG_RET</td>
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<td>0.11</td>
<td>-0.12</td>
<td>-0.10</td>
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</tr>
<tr>
<td>UNCERT</td>
<td>-0.07</td>
<td>0.00</td>
<td>0.10</td>
<td>-0.57</td>
<td>-0.50</td>
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<td>0.05</td>
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</tr>
<tr>
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<td>-0.11</td>
<td>-0.57</td>
<td>0.57</td>
<td>0.08</td>
<td>-0.01</td>
<td>-0.08</td>
<td>0.11</td>
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<tr>
<td>I_AIQ</td>
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<td>0.05</td>
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<td>-0.04</td>
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<td>-0.09</td>
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<tr>
<td>STOCK</td>
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<td>-0.01</td>
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<tr>
<td>TENDER</td>
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<td>0.05</td>
<td>-0.08</td>
<td>-0.09</td>
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<td>-0.12</td>
<td>0.10</td>
<td>-0.05</td>
<td>-0.07</td>
<td>-0.11</td>
<td>0.04</td>
<td></td>
</tr>
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</table>
Table 3: Determinants of Acquirer’s Acquisition Announcement Period Return

This table presents coefficient estimates and t-statistics of determinants of acquiring firms’ acquisition announcement period returns (ACQ_RET). The first column of panel A displays results for the base model, while the second and third columns also include measures of firm-level (F_AIQ) and industry-level (I_AIQ) accounting information quality, respectively. Panel B reports regression results obtained by using alternative measures of firm-level (F_AIQ1 and F_AIQ2 in columns 1 and 2) and industry-level (I_AIQ1 and I_AIQ2 in columns 3 and 4) accounting information quality, as defined in Appendix B. Panel C reports regression results obtained by replacing UNCERT with alternative measures of value uncertainty (VOLCFO, INTANG, and M/B) as indicated in the column headings. Panel D reports regression results obtained using the dollar return to the acquirer (ACQ_$RET) in place of the stock return (ACQ_RET). All variable definitions are provided in Appendix A. UNCERT, F_AIQ, and I_AIQ are ranked and scaled between 0 and 1. Separate year intercepts are not tabulated. Acquisitions with deal values less than 10% of the acquirer’s equity market value are excluded. The number of observations ranges from 773 to 1,601.

Panel A: Primary regressions – Dependent variable is ACQ_RET

<table>
<thead>
<tr>
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<th>Est.</th>
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<th>Est.</th>
<th>t-stat</th>
<th>Est.</th>
<th>t-stat</th>
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<td>0.08</td>
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<td></td>
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Table 3 (continued): Determinants of Acquirer’s Acquisition Announcement Period Return

Panel B: Regressions using alternative measures of accounting information quality – Dependent variable is ACQ_RET

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<th>AIQ measure:</th>
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<td>0.02</td>
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</table>

R-squared | 0.08   | 0.09   | 0.08   | 0.08   |
N         | 777    | 777    | 1,601  | 1,599  |
Table 3 (continued): Determinants of Acquirer’s Acquisition Announcement Period Return

Panel C: Regressions using alternative measures of value uncertainty – Dependent variable is ACQ_RET

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<th>VOLCFO</th>
<th>INTANG</th>
<th>INTANG</th>
<th>M/B</th>
<th>M/B</th>
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<td>t-stat</td>
<td>Est.</td>
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<td></td>
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<td></td>
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<td>2.65</td>
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<td>-0.02</td>
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<td>R-squared</td>
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Table 3 (continued): Determinants of Acquirer’s Acquisition Announcement Period Return

Panel D: Regressions using dollar return – Dependent variable is ACQ\_SRET

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<th>Est.</th>
<th>t-stat</th>
<th>Est.</th>
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R-squared 0.13 0.13 0.13
N 1,601 777 1,601
Table 4: Determinants of Target’s Acquisition Announcement Period Return

This table presents coefficient estimates and t-statistics of determinants of target firms’ acquisition announcement period returns (TARG_RET). The first column of panel A displays results for the base model, while the second and third columns also include measures of firm-level (F_AIQ) and industry-level (I_AIQ) accounting information quality, respectively. Panel B reports regression results obtained by using alternative measures of firm-level (F_AIQ1 and F_AIQ2 in columns 1 and 2) and industry-level (I_AIQ1 and I_AIQ2 in columns 3 and 4) accounting information quality, as defined in Appendix B. Panel C reports regression results obtained by replacing UNCERT with alternative measures of value uncertainty (VOLCFO, INTANG, and M/B) as indicated in the column headings. UNCERT, F_AIQ, and I_AIQ are ranked and scaled between 0 and 1. All variable definitions are provided in Appendix A. Separate year intercepts are not tabulated. The number of observations ranges from 1,132 to 2,343.

Panel A: Primary regressions – Dependent variable is TARG_RET

<table>
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<th>UNCERT</th>
<th>F_AIQ</th>
<th>I_AIQ</th>
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<th>STOCK</th>
<th>TENDER</th>
<th>ACQ_SIZE</th>
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<td>Est.</td>
<td>t-stat</td>
<td>Est.</td>
<td>t-stat</td>
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<td>0.09</td>
<td></td>
<td>0.08</td>
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</tr>
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R-squared: 0.08
N: 2,340
Table 4 (continued): Determinants of Target’s Acquisition Announcement Period Return

Panel B: Regressions using alternative measures of accounting information quality – Dependent variable is TARG_RET

<table>
<thead>
<tr>
<th>AIQ measure</th>
<th>F_AIQ1</th>
<th>F_AIQ2</th>
<th>I_AIQ1</th>
<th>I_AIQ2</th>
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<td>Est.</td>
<td>t-stat</td>
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R-squared 0.09 0.09 0.08 0.08
N 1,141 1,141 2,340 2,340
Table 4 (continued): Determinants of Target’s Acquisition Announcement Period Return

Panel C: Regressions using alternative measures of value uncertainty – Dependent variable is TARG_RET

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<th>UNCERT:</th>
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<th>VOLCFO</th>
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<th>INTANG</th>
<th>M/B</th>
<th>M/B</th>
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<td>Est.</td>
<td>t-stat</td>
<td>Est.</td>
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