Shared Auditors in Mergers and Acquisitions

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Abstract

We examine the effect of shared auditors, defined as audit firms that provide audit services to both target and acquirer prior to an acquisition, on transaction outcomes. We find that shared auditors are frequently observed—in a quarter of all public acquisitions—and are associated with significantly lower deal premiums, lower target event returns, higher acquirer event returns, and higher deal completion rates. Moreover, targets are likelier to receive a bid from a firm that has the same auditor. These results are more pronounced when targets and acquirers are audited by the same office of the audit firm and are mitigated to an extent after the adoption of the Sarbanes-Oxley Act. Overall, our results suggest that the bidder benefits from sharing the same auditor with the target, in part because of the lower costs to learn about it.

JEL Classifications: G34, M41, M49

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1. Introduction

We examine how audit firms influence acquisition outcomes if both bidder and target firms share them prior to an acquisition. We hypothesize that shared auditors are able to reduce transaction uncertainty by facilitating the flow of information between bidders and targets, and that the benefits of such mitigated information asymmetry primarily accrue to the acquiring firm.

External auditors are privy to confidential discussions with senior executives, board meeting minutes, and general information about a firm in the conduct of its audit. This information provides auditors an opportunity to discuss strategic initiatives with their clients including, among others, the acquisition or disposition of assets or of other companies altogether. Oftentimes, communication about such opportunities may be in the form of "soft talk" in the course of required auditor discussions with corporate insiders. Because auditors have access to a variety of companies and their management teams, auditors can also serve as information intermediaries for potential targets and acquirers. Naturally, auditors are more likely to reduce information asymmetry between bidders and targets if both are clients of the same auditor. Hence, bidders that share an audit firm with a potential target have an advantage in the process of bidding for it, relative to others, and this advantage may manifest itself in an increased likelihood of submitting a bid for that target.

The impact of shared auditors, however, extends beyond the point of initial target selection. Bidders who share an auditor with a potential target have a bidding advantage which increases their negotiation power. Furthermore, we expect that shared auditors influence acquisition outcomes to the benefit of acquirers. This can take place for at least three reasons. First, we anticipate an incentive for shared auditors to provide "soft" due diligence information that benefits acquirers, as the target will likely no longer be retained as an audit client subsequent to the acquisition. Our intuition here follows the one applied to shared investment bank advisors who are more likely to favor acquiring firms (Agrawal Cooper, Lian, Wang, 2012). Second, target

auditors could be more forthcoming in the due diligence process when the acquirer is audited by the same firm, as auditors will entrust their employees with more information even if assigned to audit different clients (e.g., the acquirer). Lastly, if audit firms interpret accounting standards and apply auditing practices consistently across clients, such approach will lower information uncertainty between clients that are contemplating a merger or an acquisition. Therefore, we propose that bidders with shared auditors are more likely to gain superior acquisition information about targets that may lead to better transaction outcomes including lower premiums, lower target announcement returns, higher acquirer announcement returns and higher completion rates.

Using data on public acquisitions in 1985 through 2010, we illustrate the impact of shared auditors on all acquisitions as well as on a subset of acquisitions—those between firms audited by Big-N audit firms. We find that nearly 26% of all acquisitions among clients of Big-N audit firms have a shared auditor. For comparison, we calculate the probability of randomly drawing two firms with the same Big-N auditor from a sample of Compustat firms, and find it to be seven percent lower than the actual incidence of shared auditors in M&A.[1] The higher percentage of deals with shared auditors suggest that an audit firm may facilitate acquisitions among firms in their clientele list. We also find that deals with shared auditors have fewer bidders relative to deals without, are less likely to be paid for in cash, and are more likely to be statutory mergers than tender offers. These results are consistent with findings in Fishman (1989) and Povel and Singh (2006) and are in support of our thesis that shared auditors may reduce transaction uncertainty as well as reduce competition among bidders to acquirer the target.[2] We also find that premiums paid by acquirers in shared auditor deals are nearly 4.4% lower than deals in which the target and acquirer have different auditors. This finding is

[1] The calculation of the percentage difference is shown in Table 4, Panel B. In it, the probability of randomly drawing two firms with the same Big-N auditor is defined to be the sum of the squares of the market shares of each such auditor. For example, during 1998-2002, the above probability is 0.20 while the actual incidence of shared auditors in M&A is 0.27.

[2] Povel and Singh (2006) suggest that targets benefit from exclusive dealing with a better-informed acquirer. Fishman (1989) posits that the cost of information gathering is positively related to the use of cash as the method of payment, because initial bidders can use cash bids to preempt uninformed bidders following on the initial bid.

economically significant as it represents a reduction of 9.5% in the average premium of 46%, or a discount of $37 million dollars in purchase price.[3] We also find that average announcement day returns are 1.7% lower for targets and 0.6% higher for acquirers in deals with shared auditors.

We next study bids in which both target and acquirer receive audit services from the same auditor office, because the potential for information sharing is most probable at the auditor office level, consistent with prior studies on the effect of auditor practice offices (Francis and Yu, 2009; Chen, Martin, Sun, 2012). We find that the impact of shared auditors on premiums, target returns, and completion rates is about twice as large (as compared to the ones noted above) when the target and acquirer contract with the same auditor office. Importantly, this result is robust to controls for geographic distance between target and acquirer.

Lastly, the Sarbanes-Oxley Act (SOX) in 2002 limited the types of services that audit firms can provide to their clients, and increased overall scrutiny of auditors' independence. We expect that auditors are less likely to influence acquisition outcomes following the passage of SOX. We find that the effect of shared auditors on acquisition outcomes is stronger in the pre-SOX period, when laws governing non-audit services were less stringent. Nonetheless, we confirm that subsequent to SOX passage, having a shared auditor office between the target and the bidder facilitates the acquisition, reduces deal premium and increases deal completion probability.

Our analysis makes three contributions. First, we provide evidence of the effect of shared auditors in the acquisition process. Our results add to the findings in Louis (2005) by showing that shared auditors have a significant impact on acquisition outcomes beyond that of auditor size or reputation.[4] Moreover, we highlight the importance of the heterogeneity of auditor choices by bidders and targets *within* the group of acquisitions completed by Big-N auditor

[3] We calculate the 9.5% reduction in premium as the ratio of negative 4.38% and 45.8%. The $37 million purchase price discount is calculated as the average transaction value (i.e., $1.23 billion) divided by one plus 45.8% premium times the average discount of 4.38%.

[4] See, for example, Golubov, Petzmezas, and Travlos, (2011), Niemi, Ojala and Seppälä, (2008), and Xie, Yi and Zhang, (2010).

clients, a subsample that accounts for nearly 85% of all public acquisitions in our study. Hence, we add to prior work that has mainly focused on the effect of Big-N vs. non-Big-N audit firms in the M&A process. Second, we provide evidence that transaction uncertainty is reduced through shared auditors in M&A. This finding contributes to the prior literature that has shown that information asymmetry affects the form of payment, the probability of receiving a bid, the contractual provisions in merger agreements, and the price reactions to their announcements.[5] Third, we add to the literature on the effects of shared intermediaries on corporate investment choices, and in particular, on mergers or acquisitions.[6] Auditors have incentives to provide value to their clients outside of the scope of the audit. Facilitating M&A through audit firm client network is one potential venue to add such value to clients.

The remainder of the paper is organized as follows. Section 2 discusses prior literature and hypothesis development. Section 3 discusses our data and studies the probability of a shared auditor bid. Section 4 provides our empirical results on the effect of shared auditors on the acquisition outcomes. Section 5 provides supplementary analysis of the effect of the Sarbanes-Oxley Act on the relationship between shared auditors and acquisition outcomes. Section 6 addresses endogeneity of auditor selection. Section 7 concludes.

2. Prior literature and hypothesis development

2.1. Prior literature

Prior research has shown that auditors may influence merger and acquisition activity, even though they may not be bona fide contracted investment advisors—unlike investment banks and transaction attorneys (Louis, 2005; Xie et al., 2013; Golubov et al., 2011; and Niemi et al., 2008). For example, Louis (2005) finds that when acquirers contract with smaller auditors, their stock returns at announcement are higher; interpreting it to mean that smaller auditors provide greater

[5] See, for example, Officer, Poulsen, and Stegemoller (2009), Povel and Singh (2006), Bharadwaj and Shivdasani, (2003), Harford, Klasa, and Walcott (2009), Fishman (1989), Kohers and Ang (2000), Mantecon (2009), Houston and Ryngaert (2012), and Officer (2004).

[6] See, for example, Agrawal, et al. (2012), Bizjak, Lemmon, and Whitby (2009), Cai and Sevilir (2012), and Stuart and Yim (2010).

service, involvement and advice to their clients' in the deal process. Xie et al. (2013) examine target auditors and finds that targets audited by Big-N auditors are more likely to be acquired as Big-N auditors provide both assurance and insurance value to acquirers when they are evaluating potential targets. Golubov et al. (2011) also examines target auditors and find that bidder announcement returns are higher when targets are audited by Big-N auditors; moreover, this relationship is more pronounced in deals with higher information asymmetry about the value of the target. Niemi et al. (2008) finds higher target announcement returns when targets are audited by non-Big-N firms, and attribute it to a depressed pre-bid target price as low expected audit quality may translate into low anticipated targets assets' quality. Bugeja (2011) finds that auditor size is positively related to target premiums when Big 4 auditor audits the target prior to a takeover. Lastly, De Franco, Gavious, Jin, and Richardson (2011) finds that valuation multiples are higher for private targets when they are audited by a Big 4 auditor. Departing from these studies whereas auditor size (i.e., separation between Big-N and non-Big-N auditors) is consistently used to examine the effect of auditors on acquisition outcomes, in this paper we focus on a complementary characteristic of audit firms—them being involved by both parties in the acquisition—and its effect on M&A deals. Importantly, such focus permits us to exploit the substantial heterogeneity in auditor choice between target and acquirer within the group of Big-N-only acquisitions.

A related strand in the literature has focused on the impact of shared advisors in the M&A process. Agrawal et al. (2011) shows that in the absence of separate investment bank representation of the target, deal outcomes favor acquiring firms (and disfavor target firms) as transactions with a shared investment bank advisor have lower deal premiums to target shareholders. The authors suggest that a likely cause for the observed effects is that the shared investment bank advisor may anticipate future fees from the acquirer, but not anticipate such income from the target. Related literature finds that shared directors impact the adoption of governance practices and anti-takeover provisions (Bouwman, 2011; Davis, 1991). Firms with

directors that have established contacts with private equity firms are more likely to receive a bid from such investors (Stuart and Yim, 2010). Information provided by director networks improves target selection and post-acquisition stock and operating performance (Schonlau and Singh, 2009). Acquirers have higher announcement returns and pay lower premiums if an acquirer director is also a target director, which suggests shared directors influence outcomes by sharing acquisition relevant information in favor of the acquiring firm (Cai and Sevilir, 2012). Lastly, in the context of customer-supplier relationships among firms, Chen, Martin, and Sun (2012) find that firms sharing auditors with their customers (or suppliers) reduce the incidence of accounting restatements perhaps due to the superior knowledge of transactions characteristics between the two. Overall, this literature shows that shared directors and intermediaries influence corporate outcomes.

2.2. Hypothesis development

In the conduct of an audit, auditors have frequent confidential communication with senior management alongside with unobstructed access to material private information about current corporate performance. Furthermore, auditors review board meeting minutes and gain an overall understanding of the condition and state of the business during an audit. While auditors are limited on the services they can provide to audit clients for a fee, they are still incentivized to differentiate themselves and provide client value in an effort to retain the auditing relationship. To the extent that clients within an audit firm's portfolio are looking to acquire or dispose of corporate assets, this information may be shared in a relatively benign manner within the auditor's network of clients.[7,8] This transfer of information is similar to the transfer of

[7] We note that auditors have strict independence rules that prevent them from acting in a management capacity, sharing confidential client information with other parties, or acting in a role beyond that of an assurance provider. However, auditors can act in an advisory capacity without violating independence rules. For example, AICPA independence standards state that auditor independence would not be impaired in the event auditors participate in "transaction negotiations in an advisory capacity".

[8] In a presentation to the Public Company Accounting Oversight Board, Richard Breeden, former chairman of the Securities and Exchange Commission, cited a number of reasons companies and audit committees would limit their choice of auditor. Reasons to limit auditor choice include excluding auditors of: their principal competitor, potential

information observed in shared auditors of customers and suppliers where shared auditors reduce the incidence of accounting misstatements (Chen, et al., 2012). If shared auditors help bidder or target clients identify potential merger or acquisition opportunities and help bidders overcome information asymmetry concerns, we expect that shared auditors help increase the probability of an acquirer making a bid. We state our formal hypothesis below.

Hypothesis 1: Shared auditors increase the probability of a target firm receiving a bid relative to non-shared auditors.

After a bid has been accepted by a target firm, the acquirer conducts due diligence to validate the offer price and the value of the target's assets (Skaife and Wangerin 2012). This process includes acquirers gathering non-public information from the target to reduce information risk and to reduce the transaction risk of overpaying or otherwise entering into an unfavorable transaction.[9] We hence anticipate that shared auditors lower information risk and improve acquisition outcomes for acquiring firms. There are several reasons for such anticipated effect.

First, given the annuity nature of an audit, auditors of target firms may prefer an acquisition to fail rather than succeed as an acquisition of a client will result in the loss of future audit fees. On the other hand, auditors of acquirer firms have incentive for a client deal to complete, as the acquisition of a target will increase the size of the acquiring firm, hence providing higher incremental audit fees.[10] In a setting where both target and acquirer contract with the same audit firm, a shared auditor is more likely to favor the acquiring client at the expense of the target client, in order to preserve an ongoing relationship with the surviving firm after the acquisition. Second, shared auditors may provide a more efficient due diligence process for the acquiring firm as audit firms interpret accounting standards and reporting policies consistently across audit

hostile acquirers, companies developing rival technologies. All of these reasons for companies to limit auditor choice center on the risk of information transfer within an audit firm and provide anecdotal evidence that managers are at least aware of potential information transfer within audit firms' client portfolio (Breeden 2012).

[9] Information risk is comprised of information asymmetry and information uncertainty about future cash flows (Lambert, Leuz, Verrecchia 2007; Wangerin 2012).

[10] Prior studies show that company size is the primary determinant of audit fees (See Hay, Knechel, Wong 2006).

clients and therefore there is less uncertainty about the application of accounting standards to the acquirer when the target auditor is the same firm.[11] Third, target auditors may be more willing to share information about the value of their clients' assets and liabilities with the acquirer when they audit both firms.[12] Such increased candor of target auditors coupled with auditor incentives to align with the acquiring firm should reduce information risk for the acquirer and therefore acquisition outcomes with shared auditors are more likely to favor acquiring firms. We formally state our second hypothesis in the alternative form as follows:

Hypothesis 2: Shared auditor deals are more favorable to acquirers than non-shared auditor deals.

Lastly, audit firms are organized into local practice offices and prior research has shown that auditor practice offices have a significant impact on client outcomes.[13] Furthermore, the auditor practice office is where information about clients is concentrated and the auditor network and opportunity to share information is likely strongest. Therefore, we expect the impact of shared auditors on the probability of receiving a bid (H1) and on other acquisition outcomes (H2) to be stronger when both target and acquirer contract with the same practice office of the audit firm. This leads us to our final hypothesis stated below:

Hypothesis 3: The effect of shared auditors on mergers and acquisitions is more pronounced when targets and acquirers contract with the same practice office of an audit firm.

[11] While there is variation in auditor reporting and audit quality at the practice office level, we argue that there is less heterogeneity in audit quality within firms than across firms.

[12] This conjecture is consistent with discussions with various employees of Big-N accounting firms who suggest "we may be looser with information when we know our firm is on the other side [of the transaction]."

[13] Prior literature examines the effect of audit firm offices on various metrics including auditor industry expertise, audit fees and audit quality and finds that the auditor practice office is important when examining the impact of external auditors (e.g., Francis and Yu, 2009; Gaver and Paterson, 2007; Li, 2009; Reichelt and Wang, 2010; Reynolds and Francis, 2000).

3. Data and Summary Statistics

3.1. Data

We obtain bids from Securities Data Corporation's Merger and Acquisition Database (SDC) from the beginning of 1985 to the end of 2010. We limit the sample to bids on public targets from public bidders because we require auditor, accounting, and stock price data for both bidders and targets. We further limit the sample to bids that are economically meaningful. Bidders must own less than 50% of the target before the offer and seek to own more than 50% of the target. Deal size must be at least ten million dollars and targets must have book assets of at least five million dollars. We eliminate deals with related parties including repurchases, buybacks, and exchange offers, in addition to acquirers named as investor group, shareholders, or creditors.[14] We require announcement return data for targets and acquirers from CRSP. Lastly, we merge accounting data from Compustat. There are 3,598 deals meeting these restrictions and included in our final sample.

We define shared auditor deals as those in which the target and bidder receive auditing services from the same auditor *prior to* the announcement of a bid.[15] We define *Shared Auditor* as an indicator variable equal to one if Compustat reports that both the target and acquirer receive audit services from the same auditor in the year prior to the bid. We code *Shared Auditor Office* as an indicator equal to one if the target and acquirer share the same auditor and are both headquartered in the same city.[16] For a detailed list of all variable definitions see Table 1.

3.2. Summary Statistics and Univariate analysis

Table 2, Panel A presents univariate statistics on the sample of bids. We find approximately 24% of sample bids for the period 1985-2010 have shared auditors and 3.5% of bids share

[14] Results are also generally robust to excluding foreign acquirers, asset acquisitions and acquisitions of majority interests.

[15] We find similar results defining shared auditor in the year of the acquisition, although Compustat does not have data on all targets in the year of acquisition.

[16] We assume firms receive audit services from the local practice office of an audit firm rather than from a distance office. Anecdotal evidence suggests it is rare for a firm to contract with a distant office, however, we acknowledge this is a potential limitation of our study.

auditor offices which represents 47.3% (3.5%/7.4%) of bids in which the target and acquirer are headquartered in the same city.[17]

The univariate statistics in Table 2 are similar to previous studies. Deal premiums average approximately 46%, and targets receive announcement day returns of 21%, while bidders have negative announcement returns close to zero (Betton, Eckbo and Thorburn, 2008). The mean transaction value is $1.23 billion. Tender offers make up 21% of the sample, and 30% of bids are all cash. Approximately 5% of bids are hostile, and 82% of bids complete. The average number of bidders is 1.14. Consistent with prior studies, deal protection devices are common. Termination fees and toeholds are used in 58% and 9% of bids, respectively. The vast majority (87%) of bids have Big-N auditors for both the target and acquirer. While our analysis encompasses M&A deals with all audit firm sizes, we also examine the subsample of bids in which both the target and acquirer are Big-N clients to highlight variation in the subsample of acquisitions where both target and acquirer are audited by a Big-N audit firm. Table 2, Panel B reports univariate statistics for deals in which both the target and acquirer are audited by Big-N auditors. Descriptive statistics for the subsample of deals with Big-N auditors are similar to the descriptive statistics of the full sample. We winsorize all variables at the 1% level to reduce the impact of outliers.

Table 3 compares univariate statistics for shared and non-shared auditor deals. We find shared auditor deals are less likely to be tender offers or cash only deals. Shared auditors are more likely to be involved in a within-industry merger, consistent with auditors having specialized industry information. We find that premiums (*Premium*) are 4.69% lower, on average, in bids with shared auditors. Target announcement returns (*Target CAR*) are also 2% lower. However, acquirer announcement returns (*Acquirer CAR*) are insignificantly higher, and deals are more likely to complete (*Completed*) with shared auditors. Overall, the univariate results suggest that, given a bid, shared auditors benefit acquirers and harm target shareholders with lower

[17] In untabulated univariate statistics we find that 7.4% (n=266) of all deals are deals in which both the target and acquirer share the same city.

premiums and lower target abnormal returns. Shared auditors are also associated with lower bid competition (*# of bidders*), which reduces targets' bargaining power.

The number of Big-N accounting firms decreases over time, and we split the sample bids into the different Big-N regimes to examine the frequency of shared auditor deals over time.[18] For comparison, we estimate the probability of randomly drawing two public firms that have the same auditor. We calculate the probability of randomly drawing two Compustat firms as the sum of squares of the market shares of each auditor as follows: *Pr (auditor of firm #1 = auditor of firm #2)* = $(n_1/N)^2 + (n_2/N)^2 + \ldots + (n_k/N)^2$ where n_i is the number of client firms of auditor 1, N is the total number of Compustat firms, and k is the number of auditors in Compustat. We restrict the Compustat sample to firms above five million dollars and calculate the probabilities annually.

Table 4, Panel A reports the results for all bids (Big-N and non-Big-N combined). In each Big-N regime the percentage of bids with shared auditors is significantly higher than the probability of drawing two random firms with the same auditor. From 1985 to 1988, the percentage of shared auditor deals, 17%, is 4% higher than the random probability of two firms sharing an auditor (13%). The percentage of shared auditor bids is consistently higher across all Big-N regimes with shared auditor deals comprising 28% of bids in the period between 2003 and 2010, which is 8% higher than a random expectation. The difference between shared auditor bids and random probability is statistically significant at the 1% level.

Table 4, Panel B reports the results for the subsample of within Big-N deals. We again find that shared auditor deals are 4% to 9% more frequent across time than a random probability would suggest. While this univariate analysis suggests shared auditors influence the probability of a firm receiving an acquisition bid we next conduct a multivariate analysis to control for other factors that influence the probability of a target receiving a bid.

[18] Prior to 1989 there were eight large public accounting firms. From 1989 to 1998 there were six large public accounting firms. From 1998 to 2002 there were five large public accounting firms, and from 2002 to present there are four large public accounting firms.

3.3. Multivariate Analysis of probability of receiving a bid

We model the probability of a firm receiving a bid using all Compustat firms. We require Compustat firms to have book assets of at least five million dollars to make the Compustat sample comparable to our SDC sample. We use probit regressions with the Compustat panel data to estimate the likelihood of receiving a bid.

$$Pr(Bid\ Received = 1 \mid X) = F(a + \beta_1 * Shared\ Auditor\ Proxy_i + \beta_k * Controls + e_i) \quad (1)$$

where F represents the standard normal distribution and X includes a proxy for auditor sharing and control variables. The dependent variable, *Bid Received,* is an indicator variable equal to one if SDC reports that a company received at least one bid in a firm-year.

Because we cannot observe the presence of a shared auditor in a model predicting the probability of receiving a bid, we use two proxies to capture the extent to which a Compustat firm (a potential target) shares an auditor with other Compustat firms (potential bidders). First, we include the breadth of the audit network, (*Auditor Network).* We define *Auditor Network* as the number of clients that an auditor has, divided by the total number of firms in the Compustat sample. We calculate this ratio for each auditor each year. If a firm retains an auditor with a large network, this firm, obviously, shares an auditor with a large number of firms. We create a similar proxy based on two-digit SIC industry classifications. For each year, we calculate each auditors network in each industry, *Auditor Industry Network.*[19] If a firm retains an auditor with a large industry network, then this firm shares an auditor with a relatively high amount of other firms within the industry. The proxies for the potential to share an auditor are lagged one-year.

We control for factors related to the probability of receiving a bid, largely following Palepu (1986). If acquisitions provide a disciplinary effect on target managers, we expect target

[19] We also use alternative proxies for auditor sharing, based on the total number of clients for each auditor, not scaled by the total number of firms in the market. We find similar relations between these proxies for auditor sharing and the probability of receiving a bid.

managerial ineffectiveness increases the probability of receiving a bid. We proxy for managerial effectiveness using the 1-year abnormal return to the target in the year prior to receiving a bid, i.e., *Abnormal 1-Year Return*. Palepu (1986) predicts that financially constrained firms with high growth opportunities (and vice versa) make good acquisition targets. We construct a growth-resource "mismatch" indicator, *GR Dummy,* to proxy for firms that have an imbalance between growth opportunities and financial resources. *GR Dummy* is an indicator variable equal to one if a company has high growth, low liquity and high leverage, or low growth, high liquidity, and low leverage, with high (low) being measured as above (below) the mean value of each variable. .Ambrose and Megginson (1992) predict that illiquid and leveraged firms are more likely to be targets. We, hence, include proxies for financial constraints, *Liquidity* and *Leverage*. Because acquisition activity clusters in time (Andrade, Mitchell, Stafford, 2001), we include an indicator, *Industry Bids,* equal to one if there was a bid in a two-digit SIC industry of the target in the past year. Because smaller firms lack the resources to bid on the largest firms, we control for target size with the book value of target assets, *Target Assets*. We use the target market-to-book ratio, *Target MTB,* and the price-to-earnings ratio, *Price-to-Earnings,* to control for the impact of target value on bidding activity as relatively "cheaper" targets may be more likely to receive a bid. Lastly, we include industry and year fixed effects to control for time and industry variation in the probability of receiving a bid. Details on variable construction are reported in Table 1.

Table 5, Panel A presents the marginal effects of the probit regressions of the probability of a firm receiving a bid on the two proxies for shared auditors. In Model 1, we use *Auditor Industry Network* as a proxy for the magnitude of auditor sharing for Compustat firms. We find a positive and statistically significant marginal effect on the probability of a firm receiving a bid (p-value< 0.01). The coefficient on *Auditor Industry Network* indicates a marginal effect of a 0.04 increase on the probability of receiving a bid. To illustrate the economic significance, a one standard deviation (0.07) increase in the Auditor Industry Network of a company's audit firm increases the probability of a firm receiving a bid by .29% or 8.23% (.29%/3.48%) of the unconditional

probability of receiving a bid. This increase represents 40.57% (.29%/.71%) of the unconditional probability of receiving a shared auditor bid. In Model 2, we use *Auditor Network* as a proxy for the presence of a shared auditor, and we again find a positive and statistically significant marginal effect (p-value<0.01). An increase of one standard deviation (.05) in the auditor network of a company's auditor increases the probability of a firm receiving a bid by .05 × .065 = .32%. This increase represents 9.20% (.32%/3.48%)of the unconditional probability of a firm receiving a bid or 43.04% (.30%/.71%) of the unconditional probability of a firm receiving a shared-auditor bid. Our proxy for auditor sharing is obviously related to auditor size. Larger, more reputable auditors may provide a certification and insurance on the value of the target (Xie et al., 2010). To address concerns that our results are driven by auditor size, in untabulated analysis, we include an indicator equal to one if an auditor is a Big-N auditor. We find the inferences from our above tests (Model 1 and Model 2) are unchanged when we control for presence of Big-N auditor.

To further our analysis, we eliminate all non-Big-N audit clients and and re-run Equation (1) on the subsample of companies with a Big-N auditor. Model (3) and (4) of Table 5, Panel A report the results. We find that the marginal effects on *Auditor Network* (0.03%) and *Auditor Industry Network* (0.063%) remain positive and statistically significant (*p*-value <0.05).

Lastly, we partition our results into the pre- and post-Sarbanes Oxley Act periods to examine the effect of the Act on auditor willingness to reduce information asymmetry between targets and bidders. Model (4) and (5) in Table 5, Panel A report the results. For brevity, we report the results in the pre-SOX (post-SOX) period using *Auditor Industry Network* (*Auditor Network*). Results are qualitatively and statistically similar to untabulated results using the alternate proxy in the pre- and post-SOX periods. We find that the marginal effect on the shared auditor proxy (*Auditor Network*) is positive (0.065%) and statistically significant in the pre-SOX period (*p*-value <0.01). The marginal effect on *Auditor Network* in the post-SOX period is positive (0.026%) and weakly statistically significant (*p*-value<0.10) however it is approximately 60% lower than effect of the shared auditor proxy in the pre-SOX period.

While our proxies for a shared auditor indicate a positive relationship between a shared auditor and the probability of receiving a bid, we next examine the types of bids received, non-shared vs. shared auditor. If shared auditors provide information to clients about potential targets, shared auditors should increase the likelihood of a firm receiving a bid from a bidder with a shared auditor, relative to a bidder with a non-shared auditor. We test this prediction with a multinomial probit analysis because there are three potential outcomes; a target can receive no bid, a non-shared auditor bid, or a shared auditor bid. If a firm receives a bid from a non-shared (shared) auditor, the dependent variable equals one (two), zero otherwise.[20] With these classifications, the multinomial probit model estimates the impact of the independent variables on the three possible choices of bid type (shared auditor bid, non-shared auditor bid, and no bid). The coefficients are jointly estimated with the base case of no bid. That is, in Model 1, the first set of coefficients "Non-shared" estimates the impact of the independent variables on the probability of receiving a non-shared auditor bid, relative to not receiving a bid. The second set of coefficients "Shared" estimates the relation between the independent variables and the probability of receiving a shared auditor bid, relative to not receiving a bid.[21]

Table 5, Panel B reports the results. Model 1 reports the marginal effect using *Auditor Industry Network* as a proxy for the effect of shared auditors on bidding. The marginal effect of *Auditor Industry Network* on non-shared auditor bids is negative and statistically insignificant. This result suggests that our proxy for shared auditor does not impact a target's probability of receiving a non-shared auditor bid. However, the marginal effect of *Auditor Industry Network* (3%) is positive, and significantly related to the probability of receiving a shared auditor bid, relative to no bid (*p*-value<0.05). The result is economically significant. A one standard deviation (0.07) increase in an auditor's industry market share increases the probability of receiving a shared auditor bid by

[20] These three outcomes are simply classifications and do not provide any ordinal ranking, i.e., shared auditor bids are not "higher" than non-shared auditor bids.

[21] In untabulated results we re-run the multinomial logit analysis using a non-shared auditor bid as the base case. We find that the shared auditor proxies significantly, positively increase the probability of receiving a shared auditor bid, relative to a non-shared auditor bid.

0.21% (.03×.07). This represents an increase over the unconditional mean probability of receiving a shared auditor bid of 30.43% (0.21%/0.71%). Overall, our evidence suggests that shared auditors increase the probability that two of their clients engage in an acquisition, but shared auditor proxies do not significantly impact the probability that their clients receive bids from non-clients.

The second model in Table 5, Panel B reports the results of a multinomial probit model that includes *Auditor Network* as a proxy for shared auditors. The marginal effect of *Auditor Network* on the probability of receiving a non-shared auditor bid is statistically insignificant. However, the marginal effect of *Auditor Network* for shared auditor bids is 5.7%. This effect is also economically significant. A one standard deviation increase in *Auditor Network* (.06) increase the probability of receiving a bid from a bidder with a shared auditor by .26% (.05×.06), which is 36.6% (.26%/.71%) of the unconditional probability of receiving a shared auditor bid.

Models 3 and 4 of Table 5, Panel B report the results of Equation (1) for the sub-sample of firms with Big-N auditors only. In this subset the result is more pronounced. The marginal effect on Auditor Industry Network for the probability of receiving a non-shared auditor bid is negative (-0.024%) and statistically significant (p-value<0.01) indicating a larger audit industry network reduces the probability of receiving a bid from a non-shared auditor. We find that the marginal effect of *Auditor Industry Network* on the probability of receiving a shared auditor bid is positive (0.03%) and statistically significant (*p*-value<0.01).

Overall, we find that proxies for shared auditors are related to a higher probability of a firm receiving a bid, specifically from a bidder with the same auditor. These results are consistent with the prediction that acquirers use auditor information when making acquisition decisions. This information likely gives shared auditor bidders an advantage over non-shared auditor bidders, as auditors' network does not impact the probability of receiving a bid, unless the bidder is also their client.

4. Multivariate analysis of acquisition outcomes

We next measure the impact of shared auditors on acquisition outcomes including: (1) deal premium, (2) target announcement day returns, (3) acquirer announcement day returns and (4) deal completion.

4.1. Deal Premiums

We model the effect of shared auditors on deal premiums as follows:

$$Premium = F(\alpha + \beta_1 * Shared\ Auditor + CONTROLS + e) \quad (2)$$

Deal premium (*Premium*) is the difference between the price offered in the bid and the target's trading price four weeks prior, as calculated by SDC. SDC's premium data does not cover all target firms in the sample and has significant outliers (Officer, 2003). We increase the coverage of SDC's premium data with CRSP data and calculate a second measure of deal premium. The second measure is the price offered per target share, as reported by SDC, less the trading price of the target 42 days prior to the bid announcement, provided by CRSP, divided by the price of the target 42 days prior. If the original premium provided by SDC is missing, we fill in the observation with the second measure of premium. This combined measure is winsorized at the 1% level to reduce the impact of outliers.

We include indicator variables for the presence of shared auditors, as well as control variables that impact deal premiums. *Shared Auditor* is an indicator variable equal to one if the target and acquirer receive audit services from the same auditor prior to bid announcement. The size of the target relative to the acquirer can impact the negotiating power of the target and as such we control for relative size (*Relative Size*) (Asquith, Bruner, Mullins, 1983). We also control for the value of the transaction (*Value of Transaction*). As prior research finds managerial performance impacts the valuation of a target and, hence, the benefits of a takeover we proxy for managerial performance and valuation using target return on assets (*Target ROA*) and target market-to-book

ratio (*Target Market-to-Book*), respectively (Lang, Stulz and Walking, 1989). We also control for run-ups in target stock price as Schwert (1996) shows that run-ups increase target premiums. We control for runups with the cumulative abnormal returns to target stock price over the period beginning forty-two days before bid announcement and ending four days before announcement (*Run-up*). Abnormal returns are estimated from a one-factor market model with parameters estimated 259 days before announcement to sixty days before announcement. We control for ther determinants of bid premiums including toeholds (*Toehold Indicator*) and tender offers (T*ender Offer*) (Betton, Eckbo and Thormurn, 2009), termination fees (*Target termination fee*) (Bates and Lemmon, 2003; Officer, 2003), form of payment (*Cash only deal*) (Eckbo and Langohr, 1989), deal hostility (*Hostile deal*) (Schwert, 2002), bid competition (*# of Bidders*) (Bradley, Desai and Kim, 1988), and same industry deals (*Same 2-digit SIC*) (Andrade and Stafford, 2004). Lastly, we include year and industry fixed effects to control for variation by year and industry.

Table 6 reports the results of Equation (2). Model (1) reports the results using all acquisitions as the sample. We find the deal premiums are approximately 4.4 % lower in deals with shared auditors, at the mean. This represents a 9.6% reduction in the average premium of 45.8% suggesting the impact of a shared auditor is economically meaningful to shareholders of the target and acquirer. This result is consistent with shared auditors providing a competitive advantage to those bidders who share auditors with the target. Model (2) reports the results replacing *Shared Auditor* with *Shared auditor office*. Our expectation is the magnitude of the effect of shared auditors should be greater at the local practice office level relative to across practice offices. Again, we find the coefficient on *Shared auditor office* is negative and statistically significant (p-value<0.01) with 11.3% lower premiums, on average, which represents a 24.8% reduction in deal premium. We find that this result also holds when we limit the sample to only deals within the Big-N audit firms as the coefficient on *Shared auditor* (*Shared auditor office*) in Model 3 (4) is negative and statistically significant (p-value <0.01) indicating a 4.9% (12.0%) lower premium or a 10.9% (26.7%) reduction in the average premium of 45%. This result is consistent with H3 as

our expectation would be that the effect of shared auditors is greatest when targets and acquirers contract with the same auditor practice office as the impact of shared auditors on information asymmetry is likely greatest in this setting.

4.2. Target Abnormal Returns

We model the effect of shared auditors on target and acquirer announcement returns as follows:

$$Target\ CAR = F(\alpha + \beta_1 * Shared\ Auditor + CONTROLS + e) \quad (3)$$

Target CAR is the market-adjusted three day cumulative abnormal return to the target (acquirer) around the deal announcement (-1,1). For target announcement returns we expect β_1 to be negative and significant consistent with the notion that shared auditors reduce the target announcement return. Because target returns incorporate the probability of completion, we include only completed deals in this analysis. Control variables included in Equation (3) are consistent with those control variables included in Equation (2) and discussed above.

Table 7 reports the results of Equation (3). We find that the coefficient on *Shared Auditor* and *Shared Auditor Office* is negative and statistically significant in both the full sample of acquisitions (Models 1 and 2) and the sub-sample of Big-N only acquisitions (Models 3 and 4). The coefficient on *Shared Auditor* indicates that shared auditors are associated with a 1.7% lower target announcement return relative to non-shared auditor in acquisitions. For acquisitions where the target and acquirer contract with the same auditor practice office, the coefficient estimate is approximately four times as large at 7.8% and statistically significant (p-value<0.01) again suggesting that the effect of shared auditors on target announcement returns is greater when both the target and acquirer contract with the same practice office. Taken together with the premium data, target shareholders seems to gain significantly less in deals with shared auditors relative to deals with non-shared auditors. The coefficients on control variables are generally consistent with prior literature. That is, the value of the transaction, target market-to-

book, target run-up, toehold indicator and the number of bidders are negatively associated with the target abnormal return, while tender offer indicator, hostile deal indicator, target termination fee indicator and cash only deal indicator are positively associated with the target announcement day abnormal return.

4.3. Acquirer abnormal returns

We model the effect of shared auditors on acquirer announcement returns as follows:

$$Acquirer\ CAR = F(a + \beta_1 * Shared\ Auditor + CONTROLS + e) \quad (4)$$

Acquirer CAR is the market-adjusted three day cumulative abnormal return to the acquirer around the deal announcement (-1,1). We expect β_1 to be positive and significant consistent with the notation that shared auditors acquisitions favor acquirers more so than targets relative to non-shared auditor acquisitions.

Table 8 reports the results of Equation (4). Consistent with the analysis of target announcement returns, we include only completed deals in the analysis. In Model (1) we find the coefficient on *Shared Auditor*s is positive and statistically significant (p-value<0.05) consistent with the notion that shared auditor acquisitions favor acquirers relative to non-shared auditor acquisitions and consistent with bidders with shared auditors paying lower premiums to target shareholders. Coefficient estimates indicate that acquirer returns are on average 0.65% higher in deals with shared auditors which represents a 49% higher acquirer announcement return relative to non-shared auditor acquisition announcement returns (0.65%/-1.31%). The coefficient on *Shared Auditor Office* is also positive, and suggests a 32% increase in the acquirer announcement return (0.42%/-1.31%) but the effect is not statistically significant. We find the results on control variables are largely consistent with prior studies. The value of the transaction, the acquirer market-to-book, target termination fee are all negatively associated with the acquirer

announcement day return, while acquirer size, tender officer indicator and cash only deal indicator are positively associated with the acquirer announcement date abnormal return.

Taken as a whole, we find some, albeit weak evidence, that shared auditors positively impact the acquirer announcement return. In untabulated regressions we examine the effect of shared auditors on total acquisition gains (target plus acquirer announcement day returns). We find that shared auditors are not significantly associated with total acquisition gains. This finding further supports H2 and the notion that acquirers benefit at the expense of targets in the presence of shared auditors relative to non-shared auditor deals.

4.4. Completion rates

We next examine the impact of shared auditors on deal completion rates by estimating the following probit regression.

$$\Pr(Completion=1) = F(\, a + \beta_1 * Shared\ Auditor + CONTROLS + e) \qquad (5)$$

Completion is an indicator variable equal to one if the deal is completed, zero otherwise. *Shared Auditor* is as previously defined. If shared auditors provide information advantages to bidders then acquisitions with shared auditors should have higher completion rates relative to non-shared auditor acquisitions. This is consistent with shared auditors streamlining and improving the due diligence process for the acquirer. Therefore, we expect the coefficient on *Shared Auditor* (β_1) to be positive and statistically significant. Control variables included in Equation (5) are consistent with control variables included in Equation (4) and discussed in Section 4.1 of this paper.

Table 9 reports the results of Equation (5). We find that in each model the coefficient on *Shared Auditor* and *Shared Auditor Office* is positive and statistically significant (p-value<0.01). The coefficient on *Shared auditor* in Model 1 indicates that shared auditors increase the probability of deal completion by 4.2% which is a 5.1% increase in the unconditional probability of deal

completion of 82 %. The effect of shared auditors is more pronounced when the target and acquirer contract with the same auditor practice office. The coefficient on *shared auditor office* indicates a 10.1% higher likelihood of the completion, or a 12.3% increase in the unconditional probability of deal completion (10.1%/82%). Overall, the higher completion rate for shared auditor acquisitions suggests that shared auditors facilitate negotiations, and targets are unable to reject the lower value bids, possibly due to reduced competition associated with shared auditor bids.

5. Effect of Sarbanes-Oxley Act of 2002 on shared auditor deals

A long line of research has examined the impact of the Sarbanes-Oxley Act of 2002 (SOX) on auditor behaviors. We next examine whether SOX influences the impact of shared auditors on acquisition outcomes. Due to the increased scrutiny of auditor independence and the now proscribed non-audit services previously allowed to be provided by auditors, we would expect the relationship between shared auditors and acquisition outcomes would be lower in the post-SOX period relative to the pre-SOX period. We therefore, interact *Shared Auditor* with indicator variables for the pre - and post-SOX periods (*Pre-SOX*, *Post-SOX*) and re-run Equations (2) – (5).

Table 10 reports the results of this analysis. Table 10 Panel A reports the results on Deal Premiums. We find that shared auditors have a negative and statistically significant (*p*-value<0.10) impact on deal premiums in the pre-SOX period. We find the coefficient on *Shared Auditor* **Post-SOX* is also negative, but statistically insignificant in the post-SOX period.[22] We find when a target and bidder contract with the same auditor practice office the effect is more pronounced and is negative and statistically significant in the pre- and post-SOX periods, indicating that auditors still impact deal premiums when both the target and acquirer contract with the same office in the post-SOX period. We find similar results when we limit the sample to include only Big-N auditor observations (Models 3, 4). That is, shared auditors have a negative

[22] The insignificant coefficient on *Shared Auditor* for the post-SOX period may be due to lack of statistical power as there are only 241 bids with shared auditors out of 881 bids in the in the post-SOX period.

and significant effect on deal premiums in the pre-SOX period, and when targets and bidders contract with the same auditor office, there is a negative effect from shared auditors in the pre- and post-SOX periods.

Table 10, Panel B reports the results of shared auditors and target announcement returns partitioned in the pre- and post-SOX periods. We find that the negative effect of shared auditors on target abnormal returns is only found in the pre-SOX period and this negative effect is mitigated in the post-SOX period.

Table 10, Panel C reports the results of the impact of shared auditors on acquirer announcement returns again partitioned into the pre- and post-SOX periods. We find that shared auditors have a positive and significant effect on acquirer announcement returns in the pre-SOX period but this effect is mitigated in the post-SOX period. Lastly, Table 10, Panel D reports the results of shared auditors and deal completion partitioned in the pre- and post-SOX periods. We again find that shared auditors have a positive and significant effect on probability of completion in the pre-SOX period, and only when targets and acquirers share auditors at the practice office level do shared auditors increase the probability of deal completion in the post-SOX period.

Overall, the results suggest that shared auditors had a more significant influence on acquisition activity prior to SOX consistent with additional auditor oversight altering auditor incentives to facilitate acquisition activity with their clients and influence outcomes in favor of acquiring firms. However, when targets and acquirers contract with the same auditor practice office in the post-SOX period, we find that shared auditors continue to be associated with lower deal premiums and higher deal completion rates.

6. Selection issues in multivariate analysis

In the analysis above, we show that shared auditors impact target selection and the outcomes of merger negotiations. In general, the evidence suggests that acquirers benefit from acquisitions

with shared auditors. The source of this benefit could result from auditors helping acquirers find potentially valuable targets, or from auditors helping acquirers' value target assets. We examine both of these possibilities using two-stage selection models of acquisition outcomes.

In the first stage, we predict the probability of receiving a bid, as previously described in Table 5. We construct the inverse Mills ratio from a probit model including the % of firms that share an auditor with the target.[23] We then include the inverse Mills ratio in Equations (2) – (4), the regressions of deal premiums, target returns, and acquirer returns. Because the typical Heckman (1979) procedure requires a least squares regression in the second stage, we use a bivariate probit with sample selection to correct for selection issues in modelling completion rates (Equation (5)). In untabulated results, we also run a Heckman model to model completion probabilities and find similar results to those reported in Table 11.

Table 11 presents the results of the regressions of deal outcomes using the Heckman approach to correct for sample selection bias. In premium regressions (Models 1 and 2), the inverse Mills ratio has a positive and significant relation with deal premiums, revealing that a selection bias is present. Similarly, the inverse Mills ratio has a positive and significant relation with acquirer abnormal returns. Target returns and completion rates show no significant evidence of a selection bias, as the inverse Mills ratio (rho) in Model 3 and 4 is not statistically significant. However, the sign and significance of the coefficients on *Shared Auditor* and *Shared Auditor Office* remains. Premiums and target returns are lower with shared auditors, there is weak evidence that acquirer returns are higher and completion rates are significantly higher for shared auditor acquisitions. The fact that rho is in insignificant in the biavariate probit models of deal completion (Model 7 and 8) suggests that shared auditors facilitate negotiations between targets and acquirers, rather than selecting targets that are more likely to complete.

[23] Results are generally robust to using the inverse Mills ratios with the other proxies for sharing an auditor.

7. Conclusion

We examine the impact of shared auditors on acquisitions. While auditors are not deal advisors per say, prior research has found that audit firms influence acquisition outcomes. We find that shared auditor deals occur more frequently than random probability suggesting shared auditors influence the probability of a target receiving a bid, which is consistent with shared auditors reducing the cost of submitting a bid relative to non-shared auditors. We further hypothesize that shared auditors cater towards acquirers in the acquisition process, similar to investment bankers, and therefore acquisition outcomes with shared auditors appear to favor acquirers relative to non-shared auditor acquisitions. Our findings that shared auditor deals have lower deal premiums, lower target abnormal returns, higher acquirer announcement returns, and higher completion rates suggest that acquirers generally win with a shared auditor. We also find this effect is strongest when targets and acquirers contract for audit services with the same local practice office of an audit firm. This result is intuitive as information flows are likely highest within local practice offices rather than across audit firm offices. Lastly, we find that this result is somewhat mitigated by the Sarbanes-Oxley Act however shared auditors continue to influence deal premiums and completion rates when targets and acquirers contract with the same auditor office.

Overall, our findings provide some evidence that audit firms influence acquisitions outside the previously examined construct of auditor size and its' impact on information quality. Examining shared auditors provides opportunity to observe heterogeneity in the impact of auditors on acquisitions within the Big-N, which has not been done previously. Lastly, this study contributes to our understanding of shared agents in the acquisition process.

A caveat is in order. While we find evidence to suggest that information privy to audit firms may influence the acquisitions outcomes for their clients, we do not suggest a violation of the auditor independence rules, or improper sharing of confidential client information with other

audit clients. Auditor networks may in fact be an efficient mechanism for client firms to use when choosing to buy or sell corporate assets.

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TABLE 1
Variable Definitions

Variable	Definition
Auditor Variables	
Auditor Network	Auditor network in the U.S. audit market calculated as the number of clients an audit firm represents divided by the total audits available in the U.S audit market (as calculated from the compustat file).
Auditor Industry Network	Auditor network in the U.S. audit market in a 2 digit SIC industry calculated as the number of clients an audit firm represents in a 2 digit SIC code divided by the total audits available in the 2 digit SIC code (as defined by the compustat file).
Shared Auditor	An indicator variable that equals one if the target and acquirer have the same audit firm.
Shared Auditor Office	An indicator equal to one if the target and acquirer share the same practice office of an audit firm. We assume all clients contract with the local practice office of their auditor. We proxy for local office by identifying if targets and acquirers share the same MSA and share the same auditor.
Deal Characteristics	
Acquirer CAR	The market-adjusted three day cumulative abnormal return to the acquirer around the deal announcement (-1,1).
Cash Only Deal	An indicator variable equal to one if a deal is paid entirely in cash, zero otherwise.
Completed	An indicator variable equal to one if a bid is completed, zero if withdrawn.
Hostile	An indicator variable equal to one if SDC classifies a bid as hostile, zero otherwise.
# of Bidders	The number of bidders that have made public bids in an auction, as calculated by SDC.
Premium	The percentage difference between the bid offered and the target's trading price four weeks prior, as calculated by SDC. Premiums are truncated at 0% and 200% following Officer (2003) to reduce the impact of extreme observations.
Same 2-digit SIC	An indicator variable equal to one if the target and acquirer share the same two-digit SIC code, zero if they are not in the same two-digit industry. SIC codes are provided by SDC.
Target CAR	The market-adjusted three day cumulative abnormal return to the target around the deal announcement (-1,1).

TABLE 1 - *Continued*

Variable	Definition
Target Termination Fee	An indicator variable equal to one if the merger agreement includes a termination fee, zero otherwise.
Tender Offer	An indicator variable equal to one if a bid is structured as a tender offer, zero if it is a merger.
Time to Completion	The number of days between the bid announcement and the completion or withdrawal of a bid.
Toehold Indicator	An indicator variable equal to one if the acquirer has an ownership interest in the target at the time of announcement, zero otherwise.
Value of Transaction	The deal value reported by SDC in billions.
Target Characteristics	
Abnormal 1-year Returns	The excess return from a one-factor model of expected daily returns. Parameters of the model are estimated for each Compustat firm-year from two years before fiscal year end to one year before fiscal year end (-504,-252). Abnormal returns, the error from the one factor model, are summed across the current fiscal year from the beginning of the fiscal year to the end of the fiscal year (-251,0). A minimum of four months of data (85 observations) is required for estimation and event windows.
Assets	The book value of target assets.
GR Dummy	An indicator equal to one if there is a growth-resource mismatch. The indicator equals one if a firm has the combination low growth-high liquidity-low leverage or high growth-low liquidity-high leverage. The value is zero for all other combinations. High and low represent above and below the median values, respectively. The definitions of growth, liquidity, and leverage are defined below.
Growth (Sales)	The three-year average rate of change in net sales. The rate of change in sales is calculated each year. A running average is calculated over three-year periods.
Industry Bids	An indicator variable equal to one if there was bid activity in the firm's four-digit SIC code in the previous year.
Leverage	The average ratio of long-term debt to firm equity over the previous three years. Equity is the sum of preferred and common equity.
Liquidity	The average ratio of net liquid assets over book assets over the previous three years. Net liquid assets are defined as cash plus marketable securities less current liabilities.
Market-to-Book	The market value of target equity divided by the book value of target assets.
Price-to-Earnings	The ratio of the share price divided by the per share earnings of the company.
Return on Assets (ROA)	The target earnings (EBIT) divided by the book value of target assets.
Run-up	The market adjusted change in the target's stock price from forty-two days before announcement to four days before announcement.
Bidder Characteristics	
Bidder Assets	The book value of acquirer assets.
Bidder Market-to-Book	The market value of acquirer equity divided by the book value of acquirer assets.
Relative Size	The ratio of the market value of target equity divided by the market value of acquirer equity.

TABLE 2

Univariate Statistics for acqusitions bids between 1985- 2010

Panel A - Univariate Statistics for full sample of acquisition bids transactions.

Variables	Obs	Mean	Std. Dev.	Min	Max
Shared auditor	3,598	0.24	0.43	0.00	1.00
Shared auditor office	3,598	0.04	0.18	0.00	1.00
Premium	3,407	45.79	45.75	-51.56	257.78
Acquirer CAR	3,598	-0.01	0.08	-0.23	0.28
Target CAR	3,598	0.21	0.24	-0.27	1.10
Value of Transaction	3,598	1.23	2.82	0.01	16.61
Tender Offer	3,598	0.21	0.41	0.00	1.00
Completed	3,598	0.82	0.39	0.00	1.00
Cash Only Deal	3,598	0.30	0.46	0.00	1.00
Hostile	3,598	0.05	0.22	0.00	1.00
# of Bidders	3,598	1.14	0.43	1.00	5.00
Toehold Indicator	3,598	0.09	0.28	0.00	1.00
Target Termination Fee	3,598	0.58	0.49	0.00	1.00
Same 2-digit SIC	3,598	0.60	0.49	0.00	1.00
Target Assets	3,598	1.27	4.23	0.00	38.68
Target Market to Book	3,598	1.38	1.56	0.03	8.67
Target ROA	3,598	0.01	0.22	-1.29	0.33
Run-up	3,598	0.05	0.26	-0.62	0.99
Acquirer Assets	3,585	8.88	26.46	0.00	228.05
Acquirer Market to Book	3,517	1.71	1.89	0.04	10.55
Relative Size	3,517	0.49	1.61	0.00	57.68

This table reports summary statistics of sample acquisitions from the SDC database for the years 1985 through 2010. All continuous variables are winsorized at the 1% level to reduce the impact of outliers. *Shared auditor* is an indicator variable that equals one if the target and acquirer receive auditing services prior to the bid announcement. *Shared Auditor Office* equals one if the target and acquirer receive audit services from the same local office of an audit firm. *Premium* is the percentage difference between the bid offered and the target's trading price four weeks prior, as calculated by SDC. *Acquirer CAR* is the market-adjusted three day cumulative abnormal return to the acquirer around the deal announcement (-1,1). *Target CAR* is the market-adjusted three day cumulative abnormal return to the target around the deal announcement (-1,1). *Value of Transaction* is the deal value reported by SDC in billions. *Tender Offer* equals one if a bid is structured as a tender offer, zero if it is a merger. *Completed* is an indicator variable equal to one if a bid is completed, zero otherwise. *Cash Only Deal* equals one if a deal is paid entirely in cash, zero otherwise. *Hostile* equals one if SDC classifies a bid as hostile, zero otherwise. *# of Bidders* is the number of bidders that have made public bids in an auction. *Toehold Indicator* equals one if the acquirer has an ownership interest in the target at the time of announcement, zero otherwise. *Target Termination Fee* equals one if the merger agreement includes a termination fee, zero otherwise. *Same 2-digit SIC* equals one if the target and acquirer share the same two-digit SIC code, zero if they are not in the same two-digit industry. *Target Assets* is the book value of target assets. *Target Market-to-Book* is the market value of target equity divided by the book value of target assets. *Target ROA* is the target earnings (EBIT) divided by the book value of target assets. *Run-up* is the market adjusted change in the target's stock price from forty-two days before announcement to four days before announcement. *Acquirer assets* is the book value of acquirer assets. *Acquirer Market-to-Book* is the market value of acquirer equity divided by the book value of acquirer assets. *Relative Size* is the ratio of the market value of target equity divided by the market value of acquirer equity.

TABLE 2 - *Continued*

Panel B - Univariate Statistics for within Big-N auditor acquisition bids for years 1985- 2010					
Variables	Obs	Mean	Std. Dev.	Min	Max
Shared Auditor	3,121	0.26	0.44	0.00	1.00
Shared Auditor Office	3,121	0.04	0.19	0.00	1.00
Premium	2,985	45.02	44.17	-51.56	257.78
Acquirer CAR	3,121	-0.01	-0.08	0.23	0.28
Target CAR	3,121	0.21	0.24	-0.27	1.10
Value of Transaction	3,121	1.38	2.99	0.01	16.61
Tender Offer	3,121	0.22	0.42	0.00	1.00
Completed	3,121	0.82	0.38	0.00	1.00
Cash Only Deal	3,121	0.29	0.45	0.00	1.00
Hostile	3,121	0.06	0.23	0.00	1.00
Number of Bidders	3,121	1.14	0.43	1.00	5.00
Toehold Indicator	3,121	0.09	0.29	0.00	1.00
Target Termination Fee	3,121	0.58	0.49	0.00	1.00
Same 2-digit SIC	3,121	0.60	0.49	0.00	1.00
Target Assets	3,121	1.40	4.49	0.00	38.68
Target Market to Book	3,121	1.41	1.57	0.03	8.67
Target ROA	3,121	0.02	-0.21	1.29	0.33
Run-up	3,121	0.05	-0.25	0.62	0.99
Acquirer Assets	3,109	9.48	27.37	0.00	228.05
Acquirer Market to Book	3,053	1.74	1.89	0.04	10.55
Relative Size	3,053	0.49	1.36	0.00	39.94

This table reports summary statistics of sample acquisitions from the SDC database for the years 1985 through 2010 for deals in which both the target and acquirer are audited by a Big-N audit firm. All continuous variables are winsorized at the 1% level to reduce the impact of outliers. *Shared auditor* is an indicator variable that equals one if the target and acquirer receive auditing services prior to the bid announcement. *Shared Auditor Office* equals one if the target and acquirer receive audit services from the same local office of an audit firm. *Premium* is the percentage difference between the bid offered and the target's trading price four weeks prior, as calculated by SDC. *Acquirer CAR* is the market-adjusted three day cumulative abnormal return to the acquirer around the deal announcement (-1,1). *Target CAR* is the market-adjusted three day cumulative abnormal return to the target around the deal announcement (-1,1). *Value of Transaction* is the deal value reported by SDC in billions. *Tender Offer* equals one if a bid is structured as a tender offer, zero if it is a merger. *Completed* is an indicator variable equal to one if a bid is completed, zero otherwise. *Cash Only Deal* equals one if a deal is paid entirely in cash, zero otherwise. *Hostile* equals one if SDC classifies a bid as hostile, zero otherwise. *# of Bidders* is the number of bidders that have made public bids in an auction. *Toehold Indicator* equals one if the acquirer has an ownership interest in the target at the time of announcement, zero otherwise. *Target Termination Fee* equals one if the merger agreement includes a termination fee, zero otherwise. *Same 2-digit SIC* equals one if the target and acquirer share the same two-digit SIC code, zero if they are not in the same two-digit industry. *Target Assets* is the book value of target assets. *Target Market-to-Book* is the market value of target equity divided by the book value of target assets. *Target ROA* is the target earnings (EBIT) divided by the book value of target assets. *Run-up* is the market adjusted change in the target's stock price from forty-two days before announcement to four days before announcement. *Acquirer assets* is the book value of acquirer assets. *Acquirer Market-to-Book* is the market value of acquirer equity divided by the book value of acquirer assets. *Relative Size* is the ratio of the market value of target equity divided by the market value of acquirer equity.

TABLE 3

Univariate statistics of acquisition bids partitioned on shared auditor for years 1985- 2010

	Non-Shared Auditor		Shared Auditor			
Variable	Obs	Mean	Obs	Mean	Diff	*t*-stat
Shared Auditor Office	2,740	0.00	858	0.15		
Premium	2,597	46.91	810	42.22	-4.69	*2.55***
Acquirer CAR	2,740	-0.01	858	-0.01	0.00	*-0.26*
Target CAR	2,740	0.21	858	0.19	-0.02	*2.20***
Value of Transaction	2,740	1.21	858	1.28	0.07	*-0.65*
Tender Offer	2,740	0.22	858	0.18	-0.04	*2.62***
Completed	2,740	0.81	858	0.85	0.04	*-3.08***
Cash Only Deal	2,740	0.31	858	0.26	-0.05	*2.82***
Hostile	2,740	0.05	858	0.04	-0.01	*1.42*
Number of Bidders	2,740	1.15	858	1.10	-0.05	*3.24***
Toehold Indicator	2,740	0.09	858	0.09	0.00	*0.20*
Target Termination Fee	2,740	0.58	858	0.58	-0.01	*0.42*
Same 2-digit SIC	2,740	0.59	858	0.64	0.05	*-2.83*
Target Assets	2,740	1.25	858	1.33	0.08	*-0.46*
Target Market to Book	2,740	1.39	858	1.34	-0.05	*0.91*
Target ROA	2,740	0.02	858	0.00	-0.02	*1.85***
Run-up	2,740	0.05	858	0.05	0.00	*-0.26*
Acquirer Assets	2,731	9.06	854	8.31	-0.75	*0.76*
Acquirer Market to Book	2,681	1.72	836	1.70	-0.02	*0.27*
Relative Size	2,681	0.48	836	0.51	0.03	*-0.54*

This table reports mean differences across deals in which the target and acquirer contract with the same audit firm for audit services. The set of acquisitions comes from the SDC database for the years 1985 through 2010. All continuous variables are winsorized at the 1% level. *T*-statistics are reported for an unpaired difference-in-means *T*-test. *, **, and *** represent statistical significance at the ten, five, and one percent levels, respectively. *Shared auditor* is an indicator variable that equals one if the target and acquirer receive auditing services prior to the bid announcement. *Shared Auditor Office* equals one if the target and acquirer receive audit services from the same local office of an audit firm. *Premium* is the percentage difference between the bid offered and the target's trading price four weeks prior, as calculated by SDC. *Acquirer CAR* is the market-adjusted three day cumulative abnormal return to the acquirer around the deal announcement (-1,1). *Target CAR* is the market-adjusted three day cumulative abnormal return to the target around the deal announcement (-1,1). *Value of Transaction* is the deal value reported by SDC in billions. *Tender Offer* equals one if a bid is structured as a tender offer, zero if it is a merger. *Completed* is an indicator variable equal to one if a bid is completed, zero otherwise. *Cash Only Deal* equals one if a deal is paid entirely in cash, zero otherwise. *Hostile* equals one if SDC classifies a bid as hostile, zero otherwise. *# of Bidders* is the number of bidders that have made public bids in an auction. *Toehold Indicator* equals one if the acquirer has an ownership interest in the target at the time of announcement, zero otherwise. *Target Termination Fee* equals one if the merger agreement includes a termination fee, zero otherwise. *Same 2-digit SIC* equals one if the target and acquirer share the same two-digit SIC code, zero if they are not in the same two-digit industry. *Target Assets* is the book value of target assets. *Target Market-to-Book* is the market value of target equity divided by the book value of target assets. *Target ROA* is the target earnings (EBIT) divided by the book value of target assets. *Run-up* is the market adjusted change in the target's stock price from forty-two days before announcement to four days before announcement. *Acquirer assets* is the book value of acquirer assets. *Acquirer Market-to-Book* is the market value of acquirer equity divided by the book value of acquirer assets. *Relative Size* is the ratio of the market value of target equity divided by the market value of acquirer equity.

TABLE 4

Shared Auditor Deals vs. Random Probability

Panel A - Random vs. actual probabilities of sharing an auditor.

Big-N Regime	Random Assignment Probability	Percentage of Deals with Shared Auditor	Difference
1985-1988	0.13	0.17	0.04
	(N=19,719)	(N=450)	
1989-1997	0.15	0.24	0.09
	(N=60,687)	(N=1,126)	
1998-2002	0.18	0.24	0.06
	(N=41,321)	(N=1,090)	
2003-2010	0.20	0.28	0.08
	(N=53,807)	(N=932)	
Average			0.07
Tests of Difference from Zero			
T-statistic			8.67***
Signed Rank S-statistic			175.5

Panel B - Random vs. actual probabilities of sharing an auditor for Big-N auditors.

Big-N Regime	Random Assignment Probability	Percentage of Deals with a Shared Auditor	Difference
1985-1988	0.15	0.19	0.04
	(N=19,715)	(N=390)	
1989-1997	0.17	0.26	0.09
	(N=57,181)	(N=1,041)	
1998-2002	0.20	0.27	0.06
	(N=39,053)	(N=1,007)	
2003-2010	0.25	0.33	0.08
	(N=47,140)	(N=683)	
Average			0.07
Tests of Difference from Zero			
T-statistic			6.55***
Signed Rank S-statistic			170.5

This table reports the probability of two randomly drawn Compustat firms sharing the same auditor and the percentage of bidders and targets sharing an auditor in each year. Audit data and bid data come from Compustat and SDC, respectively, for the years 1985 to 2010. Random Assignment Probability is the probability that two Compustat firms, independently drawn, share the same auditor, assuming an equal probability of being drawn. Percentage of Deals with a Shared Auditor reports the percentage of targets and bidders sharing the same auditor. The probabilities are formed annually and averaged over the four Big-N regimes. *T*-statistics and *S*-statistics test that the difference between the Random Assignment Probability and the Percentage of Deals with a Shared Auditor is different from zero. Annual data is used to form test statistics. *, **, and *** represent statistical significance at the ten, five, and one percent levels, respectively.

TABLE 5

The Determinants of Receiving a Bid

Panel A – Marginal effects of logistic estimates of the probability of receiving a bid

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Variable	All	All	Big-N	Big-N	Pre-SOX	Post-SOX
Auditor Industry Network	0.041***		0.030**		0.065***	
	(4.50)		(2.55)		(5.14)	
Auditor Network		0.068***		0.063**		0.026*
		(4.50)		(2.53)		(1.65)
Abnormal 1-Year Returns	-0.001	-0.001	-0.001**	-0.001**	-0.001	-0.001
	(-1.18)	(-1.18)	(-2.01)	(-2.04)	(-1.00)	(-0.88)
GR Dummy	-0.005***	-0.005***	-0.006***	-0.006***	-0.007***	-0.002
	(-4.11)	(-3.86)	(-4.18)	(-4.58)	(-4.57)	(-1.47)
Growth (Sales)	-0.046**	-0.047**	-0.042*	-0.042*	-0.057**	-0.019
	(-2.18)	(-2.16)	(-1.87)	(-1.92)	(-2.20)	(-0.49)
Liquidity	0.012***	0.012***	0.011***	0.011***	0.007*	0.017***
	(3.80)	(3.64)	(3.16)	(3.30)	(1.76)	(4.23)
Leverage	0.038**	0.039**	0.058***	0.058***	0.074***	-0.012
	(1.84)	(1.82)	(2.59)	(2.68)	(2.63)	(-0.43)
Industry Bids	0.006***	0.007***	0.006***	0.006***	0.005***	0.005***
	(4.96)	(4.62)	(4.16)	(4.57)	(3.19)	(2.92)
Target Assets	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.000***
	(-7.18)	(-6.23)	(-5.76)	(-6.94)	(-5.62)	(-4.38)
Market-to-Book	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(-6.33)	(-5.60)	(-4.90)	(-5.55)	(-4.61)	(-4.99)
Price-to-Earnings	-0.000	-0.000	-0.000	-0.000	0.000	-0.000
	(-0.38)	(-0.42)	(-0.41)	(-0.42)	(0.03)	(-0.47)
Industry Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	97,561	97,561	89,729	89,729	60,674	36,887
Pseudo R-Squared	0.036	0.036	0.037	0.037	0.039	0.035

TABLE 5 - *Continued*

Panel B - Multinomial logit estimates of the probability of receiving a non-shared or shared auditor bid

	Model 1		Model 2		Model 3		Model 4	
Variable	Non-shared	Shared	Non-shared	Shared	No Bid	Shared	No Bid	Shared
Auditor Industry Network	-0.008	0.030***			-0.024***	0.030***		
	(-1.19)	(11.21)			(-2.72)	(8.28)		
Auditor Network			0.013	0.057***			-0.021	0.063***
			(1.16)	(8.80)			(-1.04)	(6.14)
Abnormal 1-Year Returns	-0.001	-0.000	-0.001	-0.000	-0.001*	-0.000	-0.001*	-0.000
	(-1.09)	(-0.31)	(-1.11)	(-0.32)	(-1.76)	(-0.77)	(-1.76)	(-0.74)
GR Dummy	-0.004***	-0.001***	-0.004***	-0.001***	-0.005***	-0.001***	-0.005***	-0.001***
	(-3.70)	(-2.90)	(-3.70)	(-2.95)	(-4.45)	(-2.92)	(-4.45)	(-2.98)
Growth (Sales)	-0.042**	0.000	-0.042**	-0.000	-0.037*	0.001	-0.037*	0.000
	(-2.17)	(0.06)	(-2.17)	(-0.04)	(-1.86)	(0.14)	(-1.85)	(0.06)
Liquidity	0.013***	0.001	0.014***	0.000	0.013***	0.001	0.013***	0.001
	(6.05)	(0.85)	(6.19)	(0.42)	(5.40)	(1.02)	(5.57)	(0.55)
Leverage	0.027	0.008	0.028	0.009	0.039**	0.008	0.039**	0.009
	(1.48)	(0.90)	(1.50)	(1.12)	(2.26)	(0.88)	(2.24)	(1.03)
Industry Bids	0.006***	0.003***	0.006***	0.002***	0.006***	0.003***	0.006***	0.003***
	(6.12)	(5.57)	(6.09)	(5.07)	(5.59)	(5.33)	(5.62)	(5.02)
Target Assets	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(-5.77)	(-3.69)	(-5.86)	(-3.74)	(-5.63)	(-3.67)	(-5.61)	(-3.68)
Market-to-Book	-0.002***	-0.000	-0.002***	-0.000	-0.002***	-0.000	-0.002***	-0.000
	(-6.01)	(-0.59)	(-6.06)	(-0.74)	(-5.77)	(-1.36)	(-5.77)	(-1.49)
Price-to-Earnings	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.10)	(-0.64)	(-0.12)	(-0.67)	(-0.33)	(-0.50)	(-0.31)	(-0.51)
Industry Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	97,561		97,561		89,729		89729	
Pseudo R-Squared	0.031		0.030		0.031		0.030	

This table presents estimates of marginal effects of logit (Panel A) and multinomial logit regressions (Panel B) estimating the probability of receiving a bid. We create a panel of potential targets by combining the panel of Compustat firms with SDC bid data for the years 1985- 2010. Model 1 (Model 2) in Panel B estimates the probability of receiving a bid from an acquirer with a different auditor, or shared auditor relative to not receiving a bid using *Auditor Industry Network* (*Auditor Network*) to proxy for the influence of shared auditors. Model 3 (Model 4) in Panel B estimates the probability of receiving no bid, or shared auditor bid , relative to receiving a bid from a non-shared auditor using *Auditor Industry Network* (*Auditor Network*) to proxy for the influence of shared auditors. Marginal effects are reported with *t*-statistics in parentheses. Indicator variables for year and industry fixed effects are included. All continuous variables are winsorized at the 1% level. Standard errors are clustered by company. *, **, and *** represent statistical significance at the ten, five, and one percent levels, respectively. *Auditor Network* is Auditor Network of compustat audit clients. *Auditor Industry Network* is the Auditor Network within a 2 digit

SIC code. *Abnormal 1-year Returns* is the excess return from a one-factor model of expected daily returns. *GR dummy* is an indicator equal to one if there is a growth resource mismatch. *Growth (Sales)* is the three year average rate of change in net sales. *Liquidity* is the average ratio of net liquid assets over book assets of the previous three years. *Leverage* is the average ratio of long-term debt to equity over the previous three years. *Industry Bids* is an indicator or prior bid activity in the firms four digit SIC code. *Target Assets* is the book value of target assets. *Market-to-Book* is the market value of target equity divided by the book value of target assets. *Price to Earnings* is the ratio of the share price divided by the per share earnings of the company.

TABLE 6

Shared Auditors and Deal Premiums

Variable	Model 1 All Deals	Model 2 All Deals	Model 3 4 Big-N Deals	Model 4 Big-N Deals
Shared Auditor	-4.378**		-4.901***	
(t-statistic)	(-2.53)		(-2.85)	
Shared Auditor Office		-11.336**		-12.040**
		(-2.26)		(-2.54)
Relative Size	-0.776*	-0.532	-1.163**	-0.866
	(-1.72)	(-1.34)	(-1.98)	(-1.46)
Value of Transaction	-0.344	-0.387	-0.220	-0.266
	(-1.41)	(-1.50)	(-0.88)	(-1.00)
Target Market-to-Book	-2.085***	-2.400***	-1.715***	-1.947***
	(-3.17)	(-3.51)	(-2.65)	(-3.00)
Target ROA	-20.397***	-16.291**	-21.751***	-17.232**
	(-3.02)	(-2.12)	(-3.18)	(-2.29)
Run-up	34.726***	32.229***	35.734***	34.500***
	(8.09)	(6.66)	(7.99)	(6.68)
Toehold Indicator	-3.586	-2.459	-2.988	-1.369
	(-1.23)	(-0.72)	(-1.02)	(-0.39)
Same 2-digit SIC	-2.091	-1.493	-1.708	-1.136
	(-1.28)	(-0.83)	(-1.01)	(-0.61)
Tender Offer	7.387***	7.293***	8.615***	8.558***
	(3.19)	(2.81)	(3.60)	(3.21)
Hostile Deal	4.685	3.562	6.696**	5.174
	(1.50)	(1.05)	(2.06)	(1.44)
Target Termination Fee	-2.579	-1.709	-0.816	-0.031
	(-1.18)	(-0.70)	(-0.37)	(-0.01)
# of Bidders	8.088***	9.076***	6.306***	6.814***
	(3.39)	(3.36)	(3.07)	(2.98)
Cash Only Deal	2.892	3.468	3.705*	4.359*
	(1.38)	(1.46)	(1.73)	(1.78)
Industry Controls	Yes	Yes	Yes	Yes
Year Controls	Yes	Yes	Yes	Yes
N	3,332	2,651	2,923	2,272
R-Squared	0.140	0.135	0.151	0.145
Adj. R-Squared	0.118	0.107	0.126	0.113

This table reports the results of tobit regressions of deal premiums on indicators for the target and acquirer sharing the same auditor and same auditor office. All continuous variables are winsorized at the 1% level. Standard errors are clustered at the acquirer level. *T*-statistics are reported in parentheses. *, **, and *** represent statistical significance at the ten, five, and one percent levels, respectively. *Premium* is the percentage difference between the bid offered and the target's trading price four weeks prior, as calculated by SDC. *Shared auditor* is an indicator variable that equals one if the target and acquirer receive auditing services prior to the bid announcement. *Shared Auditor Office* equals one if the target and acquirer receive audit services from the same local office of an audit firm. *Relative Size* is the ratio of the market value of target equity divided by the market value of acquirer equity. *Value of Transaction* is the deal value reported by SDC in billions. *Target Market-to-Book* is the market value of target equity

divided by the book value of target assets. *Target ROA* is the target earnings (EBIT) divided by the book value of target assets. *Run-up* is the market adjusted change in the target's stock price from forty-two days before announcement to four days before announcement. *Toehold Indicator* equals one if the acquirer has an ownership interest in the target at the time of announcement, zero otherwise. *Same 2-digit SIC* equals one if the target and acquirer share the same two-digit SIC code, zero if they are not in the same two-digit industry. *Tender Offer* equals one if a bid is structured as a tender offer, zero if it is a merger. *Hostile* equals one if SDC classifies a bid as hostile, zero otherwise. *Target Termination Fee* equals one if the merger agreement includes a termination fee, zero otherwise. # *of Bidders* is the number of bidders that have made public bids in an auction. *Cash Only Deal* equals one if a deal is paid entirely in cash, zero otherwise.

TABLE 7

Shared Auditors and Target CARs

	Model 1	Model 2	Model 3	Model 4
Variables	All Deals	All Deals	Big-N Deals	Big-N Deals
Shared Auditor	-0.017*		-0.018*	
(*t*-stat)	(-1.66)		(-1.75)	
Shared Auditor Office		-0.078***		-0.075***
		(-3.96)		(-3.50)
Relative Size	-0.009*	-0.008*	-0.020**	-0.017**
	(-1.76)	(-1.74)	(-2.29)	(-2.08)
Value of Transaction	-0.004***	-0.004**	-0.004***	-0.004**
	(-2.79)	(-2.51)	(-2.81)	(-2.44)
Target Market-to-Book	-0.015***	-0.017***	-0.015***	-0.017***
	(-4.63)	(-4.71)	(-4.19)	(-4.33)
Target ROA	0.026	0.036	0.014	0.023
	(0.97)	(1.15)	(0.46)	(0.61)
Run-up	-0.052***	-0.062***	-0.048**	-0.057**
	(-2.59)	(-2.71)	(-2.09)	(-2.16)
Toehold Indicator	-0.034**	-0.031	-0.024	-0.018
	(-2.03)	(-1.52)	(-1.40)	(-0.84)
Same 2-digit SIC	0.003	-0.007	0.002	-0.009
	(0.33)	(-0.62)	(0.20)	(-0.74)
Tender Offer	0.069***	0.069***	0.075***	0.075***
	(4.93)	(4.42)	(5.03)	(4.45)
Hostile Deal	0.081***	0.084**	0.081**	0.082**
	(2.64)	(2.34)	(2.56)	(2.20)
Target Termination Fee	0.031***	0.029**	0.026**	0.027*
	(2.61)	(2.17)	(2.07)	(1.86)
Number of Bidders	-0.046***	-0.052***	-0.042***	-0.050***
	(-4.32)	(-4.32)	(-3.72)	(-3.75)
Cash Only Deal	0.062***	0.052***	0.054***	0.045***
	(4.78)	(3.60)	(3.93)	(2.79)
Industry Controls	Yes	Yes	Yes	Yes
Year Controls	Yes	Yes	Yes	Yes
N	2,878	2,279	2,511	1,943
R-Squared	0.132	0.133	0.143	0.144
Adj. R-Squared	0.107	0.100	0.113	0.106

This table reports the results of least-squares regressions of target abnormal announcement returns on indicators for the target and acquirer sharing the same auditor. All continuous variables are winsorized at the 1% level. Standard errors are clustered at the acquirer level. *T*-statistics are reported in parentheses. *, **, and *** represent statistical significance at the ten, five, and one percent levels, respectively. The dependent variable, *Target CAR* is the market-adjusted three day abnormal return to the target around the deal announcement (-1,1). *Shared auditor* is an indicator variable that equals one if the target and acquirer receive auditing services prior to the bid announcement. *Shared Auditor Office* equals one if the target and acquirer receive audit services from the same local office of an audit firm. *Relative Size* is the ratio of the market value of target equity divided by the market value of acquirer equity. *Value of Transaction* is the deal value reported by SDC in billions. *Target Market-to-Book* is the market value of target equity divided by the book value of target assets. *Target ROA* is the target earnings (EBIT) divided by the book value of target assets. *Run-up* is the market adjusted change in the target's stock price from forty-two days before announcement to four days before announcement. *Toehold Indicator* equals one if the acquirer has an ownership interest in the target at the time of announcement, zero otherwise. *Same 2-digit SIC* equals one if the target and acquirer share the same two-digit SIC code, zero if they are not in the same two-digit industry. *Tender Offer* equals one if a bid is structured as a tender offer, zero if it is a merger. *Hostile* equals one if SDC classifies a bid as hostile, zero otherwise. *Target Termination Fee* equals one if the merger agreement includes a termination fee, zero otherwise. # *of Bidders* is the number of bidders that have made public bids in an auction. *Cash Only Deal* equals one if a deal is paid entirely in cash, zero otherwise.

TABLE 8

Shared Auditors and Acquirer CARs

	Model 1	Model 2	Model 3	Model 4
Variables	All Deals	All Deals	Big-N Deals	Big-N Deals
Shared Auditor	0.007**		0.006*	
(t-stat)	(2.06)		(1.82)	
Shared Auditor Office		0.004		0.003
		(0.60)		(0.39)
Value of Transaction	-0.003***	-0.002***	-0.003***	-0.003***
	(-5.48)	(-3.71)	(-5.66)	(-4.00)
Acquirer Asset Size	0.000**	0.000	0.000	0.000
	(1.97)	(0.93)	(1.42)	(0.72)
Acquirer Market-to-Book	-0.002*	-0.002**	-0.002*	-0.002**
	(-1.92)	(-2.54)	(-1.75)	(-2.21)
Same 2-digit SIC	0.001	-0.000	0.002	0.001
	(0.52)	(-0.12)	(0.70)	(0.26)
Tender Offer	0.006*	0.005	0.005	0.003
	(1.82)	(1.24)	(1.28)	(0.64)
Target Termination Fee	-0.010***	-0.008*	-0.009**	-0.005
	(-2.90)	(-1.95)	(-2.32)	(-1.20)
# of Bidders	-0.002	0.001	-0.002	0.002
	(-0.56)	(0.30)	(-0.47)	(0.43)
Cash Only Deal	0.021***	0.024***	0.019***	0.023***
	(6.72)	(6.06)	(5.80)	(5.15)
Industry Controls	Yes	Yes	Yes	Yes
Year Controls	Yes	Yes	Yes	Yes
N	2,987	2,357	2,608	2,010
R-Squared	0.087	0.091	0.089	0.092
Adj. R-Squared	0.061	0.059	0.060	0.055

This table reports the results of least-squares regressions of acquirer abnormal announcement returns on indicators for the target and acquirer sharing the same auditor. All continuous variables are winsorized at the 1% level. Standard errors are clustered at the acquirer level. *T*-statistics are reported in parentheses. *, **, and *** represent statistical significance at the ten, five, and one percent levels, respectively. The dependent variable, *Acquirer CAR,* is the market-adjusted three day abnormal return to the acquirer around the deal announcement (-1,1). *Shared auditor* is an indicator variable that equals one if the target and acquirer receive auditing services prior to the bid announcement. *Shared Auditor Office* equals one if the target and acquirer receive audit services from the same local office of an audit firm. *Value of Transaction* is the deal value reported by SDC in billions. *Acquirer Assets* is the book value of acquirer assets. *Acquirer Market-to-Book* is the market value of acquirer equity divided by the book value of acquirer assets. *Same 2-digit SIC* equals one if the target and acquirer share the same two-digit SIC code, zero if they are not in the same two-digit industry. *Tender Offer* equals one if a bid is structured as a tender offer, zero if it is a merger. *Target Termination Fee* equals one if the merger agreement includes a termination fee, zero otherwise. *# of Bidders* is the number of bidders that have made public bids in an auction. *Cash Only Deal* equals one if a deal is paid entirely in cash, zero otherwise.

TABLE 9

Shared Auditors and Deal Completion

	Model 1	Model 2	Model 3	Model 4
Variables	All Deals	All Deals	Big-N Deals	Big-N Deals
Shared Auditor	0.042***		0.035***	
	(3.43)		(2.73)	
Shared Auditor office		0.101***		0.086***
		(6.13)		(4.50)
Value of Transaction	-0.002	-0.003	-0.003	-0.005*
	(-0.79)	(-1.23)	(-1.36)	(-1.78)
Same 2-digit SIC	0.022*	0.022	0.031**	0.030*
	(1.72)	(1.51)	(2.27)	(1.90)
Toehold Indicator	-0.046*	-0.045*	-0.046*	-0.052*
	(-1.87)	(-1.69)	(-1.85)	(-1.82)
Tender Offer	0.122***	0.130***	0.122***	0.127***
	(10.39)	(9.33)	(9.63)	(8.56)
Hostile Deal	-0.426***	-0.438***	-0.415***	-0.427***
	(-9.34)	(-8.70)	(-8.69)	(-7.90)
Target Termination Fee	0.238***	0.228***	0.237***	0.221***
	(14.74)	(12.59)	(13.72)	(11.63)
# of Bidders	-0.158***	-0.169***	-0.153***	-0.163***
	(-9.89)	(-8.88)	(-8.87)	(-7.87)
Cash Only Deal	0.008	0.014	0.003	0.010
	(0.53)	(0.81)	(0.16)	(0.52)
Industry Controls	Yes	Yes	Yes	Yes
Year Controls	Yes	Yes	Yes	Yes
N	3,598	2,866	3,121	2,428
Pseudo R-Squared	0.258	0.258	0.269	0.266

This table reports the marginal effects of probit regressions of deal completion on indicators for the target and acquirer sharing the same auditor. All continuous variables are winsorized at the 1% level. Standard errors are clustered at the acquirer level. *T*-statistics are reported in parentheses. *, **, and *** represent statistical significance at the ten, five, and one percent levels, respectively. The dependent variable, *Completed,* is an indicator variable equal to one if a bid is completed, zero otherwise. *Shared auditor* is an indicator variable that equals one if the target and acquirer receive auditing services prior to the bid announcement. *Shared Auditor Office* equals one if the target and acquirer receive audit services from the same local office of an audit firm. *Value of Transaction* is the deal value reported by SDC in billions. *Same 2-digit SIC* equals one if the target and acquirer share the same two-digit SIC code, zero if they are not in the same two-digit industry. *Toehold Indicator* equals one if the acquirer has an ownership interest in the target at the time of announcement, zero otherwise. *Tender Offer* equals one if a bid is structured as a tender offer, zero if it is a merger. *Hostile* equals one if SDC classifies a bid as hostile, zero otherwise. *Target Termination Fee* equals one if the merger agreement includes a termination fee, zero otherwise. *# of Bidders* is the number of bidders that have made public bids in an auction. *Cash Only Deal* equals one if a deal is paid entirely in cash, zero otherwise.

TABLE 10

Deal Outcomes with Shared Auditors and the Sarbanes-Oxley Act of 2002

Panel A - Deal Premiums, Shared Auditors, and Sarbanes-Oxley

	Model 1	Model 2	Model 3	Model 4
Variables	All Deals	All Deals	Big-N	Big-N Deals
*Shared Auditor * Pre-SOX*	-4.216*		-4.453**	
	(-1.91)		(-2.08)	
*Shared Auditor * Post-SOX*	-3.049		-4.314	
	(-1.10)		(-1.49)	
*Shared Auditor Office * Pre-SOX*		-11.018*		-11.696**
		(-1.72)		(-2.01)
*Shared Auditor Office * Post-SOX*		-9.953*		-10.195**
		(-1.84)		(-2.24)
Deal Controls	Yes	Yes	Yes	Yes
Industry Controls	Yes	Yes	Yes	Yes
N	3,332	2,651	2,923	2,272
Pseudo R2	0.140	0.135	0.151	0.145
	0.117	0.106	0.125	0.112

Panel B - Target Announcement Returns, Shared Auditors, and Sarbanes-Oxley

	Model 1	Model 2	Model 3	Model 4
Variables	All Deals	All Deals	Big-N	Big-N
*Shared Auditor * Pre-SOX*	-0.026**		-0.025**	
	(-2.21)		(-2.03)	
*Shared Auditor * Post-SOX*	0.011		0.009	
	(0.70)		(0.55)	
*Shared Auditor Office * Pre-SOX*		-0.079***		-0.072***
		(-3.39)		(-2.92)
*Shared Auditor Office * Post-SOX*		-0.041		-0.049
		(-1.45)		(-1.39)
Deal Controls	Yes	Yes	Yes	Yes
Industry Controls	Yes	Yes	Yes	Yes
N	2,878	2,279	2,511	1,943
R-Squared	0.117	0.114	0.123	0.121
Adj. R-Squared	0.098	0.090	0.102	0.093

TABLE 10 - *Continued*

Panel C - Acquirer Announcement Returns, Shared Auditors, and Sarbanes-Oxley

	Model 1	Model 2	Model 3	Model 4
Variables	All Deals	All Deals	Big-N	Big-N
*Shared Auditor * Pre-SOX*	0.008*		0.008*	
	(1.87)		(1.87)	
*Shared Auditor * Post-SOX*	0.003		0.001	
	(0.61)		(0.18)	
*Shared Auditor Office * Pre-SOX*		0.009		0.011
		(0.87)		(1.10)
*Shared Auditor Office * Post-SOX*		0.000		-0.015
		(0.04)		(-1.34)
Deal Controls	Yes	Yes	Yes	Yes
Industry Controls	Yes	Yes	Yes	Yes
N	2,878	2,279	2,511	1,943
R-Squared	0.079	0.082	0.081	0.084
Adj. R-Squared	0.061	0.059	0.060	0.057

Panel D - Deal Completion, Shared Auditors, and Sarbanes-Oxley

	Model 1	Model 2	Model 3	Model 4
Variables	All Deals	All Deals	Big-N	Big-N
*Shared Auditor * Pre-SOX*	0.043***		0.033**	
	(3.11)		(2.30)	
*Shared Auditor * Post-SOX*	0.008		0.000	
	(0.34)		(0.02)	
*Shared Auditor Office * Pre-SOX*		0.099***		0.086***
		(5.27)		(4.13)
*Shared Auditor Office * Post-SOX*		0.091***		0.052
		(2.62)		(0.95)
Deal Controls	Yes	Yes	Yes	Yes
Industry Controls	Yes	Yes	Yes	Yes
N	3,598	2,866	3,121	2,428
Pseudo R-Squared	0.241	0.242	0.253	0.253

This table reports the coefficient estimates of regressions of several deal outcomes on interactions of indicators for shared auditors and indicators for the years before and after the enactment of the Sarbanes-Oxley Act of 2002. In Panel A, the dependent variable, *Premium* is the percentage difference between the bid offered and the target's trading price four weeks prior, as calculated by SDC. In Panel B, the dependent variable, *Target CAR* is the market-adjusted three day abnormal return to the target around the deal announcement (-1,1). In Panel C, the dependent variable, *Acquirer CAR,* is the market-adjusted three day abnormal return to the acquirer around the deal announcement (-1,1). In Panel D, the dependent variable, *Completed,* is a binary variable equal to one if a bid is completed, zero if withdrawn. *Shared Auditor* is an indicator variable that equals one if the target and acquirer have the same audit firm. *Shared Auditor Office* equals one if the target and acquirer contract for audit services with the same local office of an audit firm. *Pre-SOX* (*Post-SOX*) is an indicator equal to one for bids announced before (after) July 30, 2002. Control variables consistent with models reported in the previous tables are included but not tabulated for brevity. All continuous variables are winsorized at the 1% level. Standard errors are clustered at the acquirer level. *T*-statistics are reported in parentheses. *, **, and *** represent statistical significance at the ten, five, and one percent levels, respectively.

TABLE 11

Acquisition outcomes, shared auditors and selection correction

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Variables	Premium	Premium	Target CAR	Target CAR	Acquirer CAR	Acquirer CAR	Completed	Completed
Shared Auditor	-4.386**		-0.015		0.006*		0.191***	
	(-2.48)		(-1.37)		(1.89)		(2.58)	
Shared Auditor Office		-11.430**		-0.085***		-0.007		0.477**
		(-2.57)		(-3.89)		(-0.89)		(2.51)
Inverse Mills Ratio	127.835***	156.852***	0.378	0.342	-0.154**	-0.123		
	(3.14)	(3.39)	(1.59)	(1.28)	(-2.04)	(-1.52)		
Value of Transaction	-0.113	-0.133	-0.003**	-0.003**	-0.003***	-0.003***	-0.006	-0.006
	(-0.45)	(-0.48)	(-2.17)	(-2.03)	(-5.89)	(-4.37)	(-0.52)	(-0.49)
Same 2-digit SIC	-3.346*	-3.365*	-0.000	-0.011	0.004	0.003	0.069	0.075
	(-1.91)	(-1.75)	(-0.01)	(-0.93)	(1.43)	(0.83)	(1.08)	(1.18)
Tender Offer	8.579***	7.390***	0.073***	0.069***	0.006*	0.005	0.761***	0.761***
	(3.40)	(2.61)	(4.87)	(4.12)	(1.71)	(1.29)	(8.44)	(8.39)
Target Termination Fee	-1.254	-0.970	0.025**	0.026*	-0.011***	-0.009**	0.959***	0.959***
	(-0.56)	(-0.39)	(1.99)	(1.88)	(-2.92)	(-2.21)	(13.40)	(13.14)
Number of Bidders	9.335***	9.671***	-0.049***	-0.056***	-0.001	0.002	-0.737***	-0.736***
	(4.39)	(3.99)	(-4.22)	(-4.21)	(-0.29)	(0.50)	(-14.52)	(-14.25)
Cash Only Deal	3.312	4.571*	0.059***	0.053***	0.020***	0.023***	0.005	0.002
	(1.50)	(1.80)	(4.39)	(3.45)	(6.22)	(6.33)	(0.07)	(0.02)
Toehold Indicator	-2.302	-2.118	-0.032*	-0.026			-0.103	-0.107
	(-0.72)	(-0.56)	(-1.87)	(-1.30)			(-1.01)	(-1.03)
Hostile Deal	6.946**	7.381**	0.086***	0.090**			-1.251***	-1.248***
	(2.04)	(1.97)	(2.84)	(2.57)			(-9.78)	(-9.66)
Run-up	30.270***	28.644***	-0.054**	-0.062**				
	(6.80)	(5.60)	(-2.40)	(-2.45)				
Relative Size (MVE)	-0.570	-0.332	-0.009*	-0.007*				
	(-1.41)	(-0.96)	(-1.74)	(-1.74)				
Target Market-to-Book	-1.208*	-1.553**	-0.011***	-0.014***				
	(-1.78)	(-2.36)	(-3.05)	(-3.35)				
Target ROA	-16.421**	-11.976	0.014	0.038				
	(-2.32)	(-1.56)	(0.43)	(0.97)				
Acquirer Asset Size					0.000**	0.000		
					(2.15)	(1.53)		
Acquirer Market-to-Book					-0.003*	-0.003**		
					(-1.96)	(-2.10)		
Deal Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,803	2,214	2,541	1,998	2,605	2,038	3,248	3,248
R-Squared	0.146	0.148	0.135	0.136	0.094	0.101		
Adj. R-Squared	0.120	0.114	0.105	0.098	0.065	0.063		
Rho							-.040	.004
LR Test Chi2 (p-value)							0.904	0.990

This table reports the coefficient estimates of regressions of several deal outcomes on indicators for deals in which the target and acquirer share the same auditor after correcting for sample selection. In models of premiums and announcement returns the inverse Mills ratio corrects for selection bias. A bivariate probit model with sample selection corrects for sample selection in the estimates of bid completion. The inverse Mills ratio comes from a probit model of the probability of receiving a bid. All continuous variables are winsorized at the 1% level. Standard errors are clustered at the acquirer level. *T*-statistics are reported in parentheses. *, **, and *** represent statistical significance at the ten, five, and one percent levels, respectively. *Shared auditor* is an indicator variable that equals one if the target and acquirer receive auditing services prior to the bid announcement. *Shared Auditor Office* equals one if the target and acquirer receive audit services from the same local office of an audit firm. *Value of Transaction* is the deal value reported by SDC in billions. *Same 2-digit SIC* equals one if the target and acquirer share the same two-digit SIC code, zero if they are not in the same two-digit industry. *Tender Offer* equals one if a bid is structured as a tender offer, zero if it is a merger. *Target Termination Fee* equals one if the merger agreement includes a termination fee, zero otherwise. *# of Bidders* is the number

of bidders that have made public bids in an auction. *Cash Only Deal* equals one if a deal is paid entirely in cash, zero otherwise. *Toehold Indicator* equals one if the acquirer has an ownership interest in the target at the time of announcement, zero otherwise. *Hostile* equals one if SDC classifies a bid as hostile, zero otherwise. *Run-up* is the market adjusted change in the target's stock price from forty-two days before announcement to four days before announcement. *Relative Size* is the ratio of the market value of target equity divided by the market value of acquirer equity. *Target Market-to-Book* is the market value of target equity divided by the book value of target assets. *Target Return on assets* is the target earnings (EBIT) divided by the book value of target assets. *Acquirer assets* is the book value of acquirer assets. *Acquirer Market-to-Book* is the market value of acquirer equity divided by the book value of acquirer assets.