

## The Value of Big N Target Auditors in Corporate Takeovers

**Abstract:** Louis (2005) documents that acquirers benefit from *non-Big N acquirer auditors* in corporate takeovers due to small auditors' superior local knowledge and their close relationships with clients. We hypothesize that acquirers, in contrast, will value *Big N target auditors* in mergers and acquisitions for their assurance (i.e., lowering information risk) and insurance (i.e., deep pockets in the case of litigation) values. Using a large sample between 1987 and 2006, we find that firms with Big N auditors are (1) more likely to become M&A targets, (2) more likely to be ultimately acquired in M&A deals, and (3) are associated with greater acquirers' three-day M&A announcement returns. Cross-sectional analyses further suggest that the effect of Big N auditors on the likelihood of becoming targets and on deal completion rates are more pronounced for firms with low innate accrual quality (our proxy for higher information risk). Overall, we contribute to the literature by providing evidence on the value of *Big N target auditors* in M&As, which is in sharp contrast with the value of *non-Big N acquirer auditors* documented in Louis (2005).

**Keywords:** M&A Targets; Big N Auditor; Mergers and Acquisitions; Acquirer Returns

**Data Availability:** All data used in this study are publicly available from the sources identified in the paper.

# The Value of Big N Target Auditors in Corporate Takeovers

## I. INTRODUCTION

While prior literature examines the value of Big N auditors in various corporate financing activities<sup>1</sup>, there is only limited evidence on the value of Big N auditors in one of the biggest investment decisions a company ever makes – mergers and acquisitions (hereafter referred to as “M&As”). One exception is Louis (2005), which documents a somewhat surprising result that *acquirers audited by non-Big 4 accounting firms* outperform those audited by Big 4 accounting firms in the M&A announcement returns window. Louis (2005) conjectures that his results are likely driven by non-Big 4 audit firms’ superior knowledge of local markets and their close relationships with clients. Controlling for acquirers’ auditor quality examined in Louis (2005), this study investigates the value of *Big N target auditors*.

We argue that acquirers have at least two reasons to value *Big N target auditors* in corporate takeovers. First, an acquirer’s *ex ante* assessment of the viability of M&As critically hinges on the quality of the target’s firm-specific information, and Big N auditors provide high quality assurance of financial statement information in this process. Indeed, Cole et al.’s survey (2009) points out that M&A advisors in practice view accounting policy and quality—especially any deviation from generally accepted accounting principles—as a major component of information risk regarding the intended target deals. Therefore, acquirers are more likely to appreciate high quality assurance provided by Big N auditors for target firms (*the assurance value perspective*). Second, it is not uncommon for acquirers to charge target auditors with misrepresenting the viability of the business being sold (e.g., Gormley 1980). Given this litigation risk, acquirers are likely to prefer target firms with Big N auditors due to their “deep

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<sup>1</sup> These include equity issuance (e.g., Beatty 1989; Hogan 1997; Willenborg 1999) and debt issuance (e.g., Pittman and Fortin 2004; Mansi et al. 2004; Fortin and Pittman 2007).

pockets” (DeAngelo 1981; Dye 1993; Menon and Williams 1994). This insurance value of target auditors also likely motivates acquirers to value Big-N auditors of potential target firms (*the insurance value perspective*).

If acquirer managers value assurance and insurance values provided by Big N target auditors in corporate takeovers, we have the following two predictions. First, since acquirer managers use high quality accounting assurance as a criterion in screening potential target candidates, the likelihood of Big N auditor engagement will be higher *ex post* in target firms than in non-target firms.<sup>2</sup> Second, as Big N auditors provide better assurance about the financial statements, acquirers are less likely to discover new unfavorable information, which would result in failure of the deal. At the same time, because acquirer managers take into account the insurance value provided by Big N auditors when calculating the expected costs of M&A deals, the deal is more likely to be completed when involving target firms with Big N auditors than those with non-Big N auditors. Similarly, if acquirer investors value assurance and insurance values provided by Big N target auditors, we expect to observe greater acquirer’s announcement returns in M&A deals involving targets audited by Big N auditors.

Based on a large sample of M&As from 1987 to 2006, we find evidence consistent with these conjectures: (1) the likelihood of a company becoming an M&A target is higher when it engages Big N auditors; (2) the likelihood of a target being eventually acquired is higher when it engages Big N auditors; and (3) an acquirer’s three-day cumulative abnormal returns around the

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<sup>2</sup> *Ex ante* assessment of the viability of M&A is particularly difficult due to unobservable market prices of the combined entity. Consequently, target firm-specific information quality has greater implications for the eventual economic outcome of M&A. In addition, due diligence conducted by acquirers usually takes place after an acquirer has signed a confidential agreement with the potential target. Therefore, due diligence can only increase transparency of one specific target to one specific potential acquirer, rather than to all potential acquirers interested in the target. As a result, a cross sectional difference in target firm-specific information quality is an important issue to resolve at acquirers’ search-for-target stage (Martin and Shalev 2009).

M&A announcement (i.e., a typical measure to examine the source of M&A value creation<sup>3</sup>) are higher when the target engages Big N auditors.

In order to provide further evidence on the assurance and insurance values of Big N auditors in M&As, we also examine whether our main findings are more pronounced for firms with higher information risk. The rationale behind these tests is that because both the demand for assurance quality and the likelihood of audit failure increase with information risk, acquirer managers and investors will value assurance and insurance values of Big N target auditors more in dealing with targets with information opacity (i.e., higher information risk) (McNichols and Stubben 2009). In these cross-sectional tests, we use the firm's innate accruals quality (Francis et al. 2005)<sup>4</sup> as a proxy for its information risk, and interact it with the Big N target auditor indicator variable in each test. We find that the likelihood of becoming an M&A target and the probability of subsequent deal completion are higher for firms with low innate accounting quality (i.e., higher information risk). However, we failed to document similar evidence in the announcement returns test, which suggests that investors may not fully incorporate the implication of the targets' information risk in rewarding acquirers' choice of targets with Big N auditors.<sup>5</sup>

Overall, our results suggest that the assurance and insurance values of Big N target auditors lower targets' information risk and/or litigation cost, and facilitate M&A deals. This study makes several contributions to the accounting (auditing) and finance literature. First, to our best knowledge, only one prior study (Louis 2005) examines the role of auditors in an M&A setting, despite the importance of M&As as the largest and most readily observable form

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<sup>3</sup> Theoretically, an acquirer's three-day cumulative abnormal return measures acquisition profitability and captures the market's expectation of both the *ex ante* M&A investment decision and the *ex post* M&A decision making (Francis and Martin 2010).

<sup>4</sup> See Appendix A for the detailed definition and measurement.

<sup>5</sup> An alternative explanation is the misspecification of the model used to calculate abnormal returns.

of corporate investment (Francis and Martin 2010). In contrast to the finding of Louis (2005) regarding the value of *non-Big N acquirer auditors* in corporate takeovers, our evidence documents the assurance and insurance values of *Big N target auditors* in M&As.

Second, our evidence suggests a positive association between deal completion and Big N target auditors. This provides useful information to acquirer managers and investors, as *ex ante* acquirers can expect a lower deadweight loss associated with a failed M&A deal if the target firm employs a Big N auditor.<sup>6</sup>

Finally, our finding concerning the positive association between the target likelihood and Big N target auditor is useful to fund managers. That is, given recent evidence that a portfolio selection strategy based on the probability of a firm becoming a target in an M&A generates premium returns (Cremers et al. 2009), whether a firm is engaged with a Big N auditor can be used as a low cost M&A target screening device.

There are two related working papers that explore the role of target information transparency in corporate takeovers. McNichols and Stubben (2009) find that acquirers' announcement returns are higher for target firms with high quality accounting information (proxied by accruals quality). Similarly, Martin and Shalev (2009) show that targets' stock return non-synchronicity (their proxy for information transparency) is positively associated with acquirers' returns around acquisition announcements. Our study differs from these two studies in several major ways: (1) our study is a natural extension of the research on the role of acquirer *auditors* in corporate takeovers (i.e., Louis (2005)) whereas these studies focus on explaining acquirer returns using different target information quality proxies; (2) due to the difference in

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<sup>6</sup> Acquirers, on average, have negative returns around merger announcements (e.g., Bradley 1980; Moeller et al. 2005) and the share price of the acquirer does not revert to the pre-announcement level if a merger proposal is not executed (Davidson et al. 1989; Sullivan et al. 1994). Therefore, shareholders of the acquirer suffer a deadweight loss when a merger proposal fails.

motivation, we examine not only the acquirer returns, but also the likelihood of becoming a target and the likelihood of deal completion to confirm both assurance and insurance values of Big N target auditors<sup>7</sup>; (3) finally, our cross-sectional test using innate accrual quality shows that the value of Big N target auditors is incremental to the role of targets' information transparency documented in these studies.

The remainder of this paper proceeds as follows. Section II discusses prior research related to this study and develops our hypotheses. Section III describes the research design. Section IV provides sample selection, descriptive statistics and the results of our hypotheses tests. We present additional test results in Section V and Section VI concludes the paper.

## **II. RELATED LITERATURE AND HYPOTHESES DEVELOPMENT**

### **The Value of Big N Auditors**

Dye (1993) proposes that the value of an audit consists of two components: an “informational component” and a “liability component.” The informational component relies on different assurance values across auditors (the assurance value perspective), whereas the liability component represents the insurance value of the claim investors have on the auditor in the event of an audit failure (the insurance value perspective). Prior audit research has documented both the assurance and insurance values of Big N auditors in various corporate settings. For example, the evidence shows that firms audited by Big N audit firms exhibit lower earnings management (e.g., Becker et al. 1998) and higher earnings response coefficients (e.g., Ettredge et al. 1988, Teoh and Wong 1993), consistent with the assurance value provided by Big N audit firms.

Similarly, prior studies document the insurance value of Big N auditors in the settings of auditor

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<sup>7</sup> McNichols and Stubben (2009) do not investigate these issues and Martin and Shalev (2009) only examine deal completion. In contrast with the reasoning in Martin and Shalev (2009), we believe the insurance value provided by Big N target auditors provides a compelling explanation for deal completion rate.

bankruptcy, initial public offerings, and other business contexts (e.g. Menon and Williams 1994; Baber et al. 1995; Willenborg 1999).

Regarding corporate investment and financing decisions, prior evidence suggests that firms engaging Big N auditors benefit in both equity issuance (Beatty 1989; Hogan 1997; Willenborg 1999) and debt issuance (Pittman and Fortin 2004; Mansi et al. 2004; Fortin and Pittman 2007) settings. However, given the importance of M&A as one of the largest and most readily observable forms of corporate investment (Francis and Martin 2010), it is surprising how little has been documented about the role of auditors in the market for corporate controls in audit literature.<sup>8</sup> An exception is Louis (2005), which documents a *negative* association between engagement of *Big N auditors* at the *acquirer* and merger announcement returns (i.e., high M&A announcement returns for acquirers audited by *non-Big 4* accounting firms). Louis (2005) attributes his findings to small auditors having superior local knowledge and playing prominent advisory roles for their clients (referred to as the “auditor clientele effect”).<sup>9</sup> As a natural extension to Louis (2005), this paper examines the value of target auditors in M&As.

Two recent working papers, McNichols and Stubben (2009) and Martin and Shalev (2009), are related to our study. Motivated by traditional finance literature examining the source of synergy, these papers investigate the role of target firms’ information environment in M&As. Martin and Shalev (2009) document that acquirers’ abnormal returns around acquisition announcements are negatively related to targets’ information asymmetry (proxied by stock return non-synchronicity). Similarly, drawing on the winner’s curse theory, McNichols and Stubben

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<sup>8</sup> Accounting research on the M&A market focuses heavily on how acquirers’ and targets’ incentives affect abnormal accruals prior to M&A activity. Examples include Erickson and Wang (1999), Louis (2004), Shen (2007), Gong et al. (2008), Baik et al. (2008), Botsari and Meeks (2008) and Pungaliya and Vijh (2009). One study (Kravet 2009) examines how accounting quality (conservatism) affects M&A activities.

<sup>9</sup> In contrast, Dee et al. (2009) re-examine the auditor clientele effect using a matched sample design and find evidence supporting the “size effect”- small acquirers have high abnormal M&A announcement returns (Moeller et al. 2005). Examining whether Louis’ (2005) findings are indeed due to the clientele effect or the size effect is beyond the scope of this paper.

(2009) predict and find that acquirers overpay for targets with uncertain value and have lower acquisition announcement returns when the target firms have lower quality accounting information.

These studies are solely motivated by targets' information quality and thus focus on acquirers' returns. In contrast, our paper examines both the assurance and insurance values of target Big N auditors in M&As. More specifically, our study differs from them in the following ways. First, our paper is an extension of Louis (2005), which investigates the role of the acquirer's auditor in M&As; in contrast, McNichols and Stubben (2009) and Martin and Shalev (2009) motivate their studies under the traditional finance framework (i.e., the role of transparency or information risk in synergy). Given the somewhat surprising results of Louis (2005) that *non-Big N acquirer* auditors explains the positive announcement returns, we believe that a natural next step in *auditing research* is to investigate the target Big N auditor's role in M&A. Second, in addition to target auditors' assurance value (i.e., information risk reduction), this paper identifies a unique role of target auditors in M&As – the insurance value, which is different from the lower information risk associated with targets' better information quality emphasized in both studies. Third, our study performs additional tests compared to both studies. Namely, in addition to the announcement return test, we also test the likelihood of being a target and the likelihood of deal completion, whereas McNichols and Stubben (2009) focus on the return test, and Martin and Shalev (2009) do not perform the target likelihood test. Thus, we believe that our paper provides evidence on a target auditor's role in M&As on more dimensions.

## **Hypotheses**

### ***Screening of Target Candidates Based on Big N Auditors***

The cross sectional difference in targets' firm-specific information quality is an important issue for acquirers to consider in researching their potential targets for two reasons (Martin and Shalev 2009). First, *ex ante* assessment of the viability of M&As is particularly difficult due to unobservable market prices of the combined entity. Consequently, targets' firm-specific information quality has greater implications for the eventual economic outcome of M&As. Second, due diligence conducted by acquirers usually takes place *after* an acquirer has signed a confidential agreement with the potential target. Therefore, the due diligence process reduces uncertainty related to the target's information risks for one specific potential acquirer, not for all potential acquirers interested in the target.

Facing this information asymmetry, acquiring firms at the search-for-target stage are likely to take into account whether target candidates engage Big N audit firms, as these potential targets have lower information risk.<sup>10</sup> Targets' Big N auditors can lower their information risk about the viability of the acquisition along two dimensions: (1) financial statements and (2) qualitative information in financial reports. First, the projections of any gains acquirers might reap depend mainly on the financial information generated by targets' management, and are attested to by their auditors. Cole et al.'s survey (2009) confirms that M&A advisors view accounting policy as one major component of information regarding intended targets.<sup>11</sup> The

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<sup>10</sup> From the market discipline perspective, acquiring firms may take over poor corporate governance firms and create value (e.g., Jensen 1986). To the extent that external audits are viewed as a corporate governance mechanism, one may argue that some acquiring firms might be interested in targeting firms with non-Big N auditors (i.e., poor quality corporate governance firms). However, even if some firms might be interested in a firm with poor governance (i.e., consistent with the market discipline hypothesis), these firms still prefer potential targets with credible financial information (i.e., clients of Big N auditors) to assess their management quality. Thus, it is unclear whether firms will be more likely to target clients of Big N auditors or not, so we simply motivate our study based on the insurance and the assurance values of Big N auditors, and control for key governance mechanisms such as anti-takeover provisions in our research designs. We thank an anonymous referee for pointing this out.

<sup>11</sup> Some practitioner articles (e.g., Gorman 1988) indicate that a target's auditor is involved in consulting or preparing the forecasts of the results of operations for the next several years. However, Cole et al. (2009) explain that M&A advisors seldom consulted with the target firm auditors due to the conflict of interest concern prior to SOX, after which such consulting activities were officially banned. Our position in this paper is that without direct

survey indicates that “most important is the adherence or deviation from generally accepted accounting principles (GAAP).” Thus, to the extent that financial reports of firms audited by Big N auditors are less likely to deviate from GAAP, such firms are associated with lower information risk.

The second dimension of information risk which we believe Big N auditors can reduce is other disclosures in the financial reports. According to the Statement on Auditing Standards No. 8 (AICPA 1975) and Section AT 701 of the AICPA Professional Standards, auditors have a professional responsibility to evaluate Management’s Discussion and Analysis (MD&A) to ensure it does not contain materially misleading information. Since MD&A provides an “insider’s view” of the target firm’s financial performance and risks, the information risk of the target is likely lower when it engages a Big N auditor.

If acquirers value Big N target auditors because they lower targets’ information risk along these two dimensions, it is likely that acquiring firms screen potential targets by a simple yet cost-effective information cue such as Big N auditor engagement. Accordingly, our first hypothesis, stated in null form, concerns the first stage of the M&A process – target selection.

***H1a:** The likelihood of a firm becoming an M&A target is independent of its auditor being a Big N auditor.*

Studies on audit fees suggest that the amount of audit services firms purchase increases with client risks and complexities (e.g. Simunic 1980; Hay et al. 2006). Therefore, auditors’ assurance value of the credibility of targets’ financial reports should increase with clients’ information risk. As a result, we expect the positive correlation between the likelihood of a firm being a target and its engagement of a Big N auditor to be more pronounced when potential target firms have higher information risk. This is because firms with higher information risk are

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contact with the target firm’s auditor, the acquirer and its M&A advisor will rely mainly on the target’s financial reports audited by their auditors at the search-for-target stage.

more likely to benefit from Big N auditors and pass the screening tests of acquirers. This discussion leads to the following hypothesis in null form:

***H1b:*** *The association between the likelihood of a firm becoming an M&A target and its auditor being a Big N auditor is independent of the potential target's information risk.*

Note that the predictions in H1a and H1b are not straightforward, as the agency cost argument in the literature (e.g., Jensen 1986, Shleifer and Vishny 1990, Masulis et al. 2007) suggests that if the entrenched managers of acquirers want to mask their personal incentives for acquisitions, they will bid for a target with high information risk. Thus, whether clients of Big N auditors are more likely to be targeted is an empirical question.<sup>12</sup>

#### ***Completion of M&A deals and Big N Target Auditors***

Next, we examine the role of Big N target auditors in deal completion. In the due diligence stage, target firm managers may selectively and strategically share information with acquirers due to their own incentives. In such cases, acquirers will have to rely on targets' financial reports to make decisions related to bid price, takeover method, payment method, etc. Therefore, the assurance value perspective suggests that the low information risk (i.e., more precise information) associated with Big N audits will help facilitate the execution of a deal. Furthermore, as a target with lower audit quality has a more opaque information environment and higher information risk, acquirers are more likely to learn new unfavorable information that would lead them to withdraw the acquisition subsequent to the announcement (Martin and Shalev 2009). It follows that deals involving targets with Big N auditors (i.e., lower information risk) are more likely to be completed.

In addition, in the case of future acquirer litigation against target auditors for misrepresentation of the viability of the target, acquirers can take advantage of the deep pockets

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<sup>12</sup> We thank an anonymous referee for pointing this out.

of Big N target auditors (i.e., the insurance value perspective). A survey by Haleblan et al. (2009) shows that acquirers generally do not benefit from acquisitions. Alexander (1994, p. 1441) notes that “one might expect ... that investors would be willing to pay more for the stock because of the availability of a potential recovery under the securities laws.” One source to recover the loss from is the target auditor. Gormley (1980) discusses professional risks in M&A audits and provides classic examples where acquirers charge target auditors with misrepresenting the viability of the business being sold in the litigation process. Indeed, it is not uncommon that target auditors are sued by acquirers, especially when the post M&A performance is poor.<sup>13</sup> Based on the above reasoning, we expect the completion of M&As to be more likely for deals involving targets that engage Big N auditors. The discussion so far leads to our next hypothesis stated in null form:

***H2a:** The likelihood of M&A deal completion is independent of the target’s auditor being a Big N auditor.*

We also expect the assurance and insurance values of Big N auditors to be more pronounced for firms with high information risks. Therefore, we test the following hypothesis in null form.

***H2b:** The association between the likelihood of M&A deal completion and the target’s auditor being a Big N target is independent of the target’s information risk.*

### ***Target Big N Auditor and Acquirer Returns***

Our final set of hypotheses examine whether acquirers’ shareholders perceive Big N target auditors to be valuable, consistent with the perspectives of acquirers’ management in the previous tests. We examine the association between Big N target auditors and acquirers’

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<sup>13</sup> For example, Coram Healthcare (Denver, CO), which acquired a home infusion therapy business from Caremark, sued PriceWaterhouse for \$165 million in damages relating to PriceWaterhouse’s role as Caremark International’s auditor in connection with the acquisition.

announcement returns to provide evidence on this research question. If acquirers' shareholders believe that a Big N target auditor is associated with higher assurance and insurance values, we expect a positive association between acquirer returns and targets being clients of Big N auditors. Similar to H1b and H2b, we also examine whether investors recognize incremental value of Big N target auditors around M&A announcements for deals involving targets with higher information risk. This leads to our final hypotheses in the null form:

***H3a:** The three-day announcement return for an acquirer is independent of the target's auditor being a Big N auditor.*

***H3b:** The association between the three-day announcement return for an acquirer and the target's auditor being a Big N auditor is independent of the target's information risk.*

### III. RESEARCH DESIGN

#### Screening of Target Candidates Based on Big N Auditors (H1a and H1b)

To test if the likelihood of a firm becoming a takeover target is associated with its auditor being a Big N auditor (H1a), and whether this association is more pronounced for firms with high information risk as proxied by innate accrual quality (H1b), we estimate the following logistic model equation (1) using the maximum likelihood estimator.<sup>14</sup>  $G(-)$  stands for the cumulative distribution function of the logistic random variable:

$$\begin{aligned} \text{Prob}(TARGET_i=1) = G & (\beta_0 + \beta_1 BIGN_i + \beta_2 BIGN_i * INNATEAQ_i + \beta_3 INNATEAQ_i \\ & + \beta_4 TOBINQ_i + \beta_5 PPE_i + \beta_6 CASH_i + \beta_7 BLOCK_i + \beta_8 SIZE_i \\ & + \beta_9 LEV_i + \beta_{10} ROA_i + \beta_{11} AGE_i + \beta_{12} RATED_i \\ & + \beta_{13} HIGHYIELD_i + INDUSTRY AND YEAR DUMMIES + \varepsilon_i) \end{aligned} \quad (1)$$

The dependent variable, TARGET, is the likelihood of a firm being an M&A target, and it is coded as 1 for a takeover target and 0 for other firms. BIGN is coded as 1 if a firm's auditor is one of the Big N auditors and 0 otherwise. The coefficient on BIGN is  $\beta_1$  that tests H1a. The

<sup>14</sup> We use logistic regression throughout the paper when the dependent variable is a dummy variable. Results reported in Tables 4-6 are qualitatively identical, however, if we use the probit estimation.

rejection of  $\beta_1 = 0$  in favor of  $\beta_1 > 0$  is consistent with the proposition that bidders seek targets with Big N auditors in order to benefit from their assurance value and insurance value.

INNATEAQ is a proxy for a firm's innate accrual quality, and it is the accrual quality driven by innate features of the firm's business model and operating environment, including firm size, loss proportion, sales volatility, cash flow from operations volatility, and operating cycle (Francis et al. 2005). Appendix A provides details on the measurement of INNATEAQ. The coefficient on the interaction between BIGN and INNATEAQ ( $\beta_2$ ) tests H1b—whether the association between Big N auditor and the likelihood of being an M&A target varies with a firm's *ex ante* information risk proxied by innate accrual quality. We expect  $\beta_2$  to be positive if the association between the likelihood of a firm becoming an M&A target and its auditor being a Big N auditor is more pronounced for potential targets with higher information risk. Note that greater values of INNATEAQ represent worse accrual quality (i.e., higher information risk).

We control for the known determinants of becoming an M&A target described by Cremers et al. (2009) and Ivashina et al. (2009), and provide reported signs for variables in parentheses: Tobin's Q (TOBINQ, -), property, plant, and equipment (PPE, insignificant), log of cash (CASH, insignificant), the existence of block shareholders (BLOCK, +), log of the market value of the target (SIZE, -), book debt to asset ratio (LEV, +), return on assets (ROA, -), the firm age (AGE, insignificant), the existence of debt rating in Compustat (RATED, -), and below investment grade firm (HIGHYIELD, +). Appendix C provides detailed variable definitions.

### **Completion of M&A deals and Big N Target Auditors (H2a and H2b)**

We estimate the following logistic model in order to test whether the likelihood of M&A deal completion is associated with the target's hiring a Big N auditor (H2a) and whether this

association is different for targets with different *ex ante* information risk (proxied by innate accrual quality) (H2b):

$$\begin{aligned} \text{Prob}(\text{COMPTAKE}_{i=1}) = G & (\gamma_0 + \gamma_1 \text{BIGN}_i + \gamma_2 \text{BIGN}_i * \text{INNATEAQ}_i + \gamma_3 \text{INNATEAQ}_i & (2) \\ & + \gamma_4 \text{ABIGN}_i + \gamma_5 \text{SAME}_i + \gamma_6 \text{TOBINQ}_i + \gamma_7 \text{BLOCK}_i + \gamma_8 \text{SIZE}_i \\ & + \gamma_9 \text{AGE}_i + \gamma_{10} \text{ATOBINQ}_i + \gamma_{11} \text{ABLOCK}_i + \gamma_{12} \text{ASIZE}_i + \gamma_{13} \text{AROA}_i \\ & + \gamma_{14} \text{INDR}_i + \gamma_{15} \text{NONNEGO}_i + \gamma_{16} \text{PILL}_i + \gamma_{17} \text{DEFENSE} \\ & + \gamma_{18} \text{CASHP}_i + \gamma_{19} \text{TENDER} + \gamma_{20} \text{POOL}_{it} + \gamma_{21} \text{PREMIUM} \\ & + \gamma_{22} \text{ACAR} + \text{INDUSTRY AND YEAR DUMMIES} + \varepsilon_i ) \end{aligned}$$

The dependent variable, COMPTAKE, is coded as 1 if the M&A deal is completed and 0 otherwise. BIGN is coded as 1 if a target's auditor is one of the Big N auditors and 0 otherwise. INNATEAQ is innate accrual quality as defined in equation (1). Note that  $\gamma_1$  tests H2a. Rejecting  $\gamma_1 = 0$  in favor of  $\gamma_1 > 0$  suggests that deals are more likely to be completed for clients of Big N auditors. The coefficient  $\gamma_2$  on the interaction between BIGN and INNATEAQ tests whether innate accrual quality influences the association between deal completion and Big N auditor identity (H2b). We expect  $\gamma_2$  to be positive if targets with higher information risk benefit more from the assurance value and insurance value of Big N auditors.

It is possible that our results can be affected by the acquirer's auditor identity or the fact that target and acquirer engage the same auditor. To rule out these possibilities, we control for ABIGN, which is 1 if the acquirer's auditing firm is one of the Big N auditors and 0 otherwise, and SAME, which is 1 if the target and the acquirer employ the same audit firm and 0 otherwise. Control variables such as TOBINQ, BLOCK, SIZE, and AGE are defined in the same way as those in equation (1) and they serve as proxies for the impact of target firm characteristics on the likelihood of deal completion. In addition, we include the following variables to control for the impact of the acquirer's characteristics on the likelihood of deal completion. ATOBINQ, ABLOCK, ASIZE, and AROA are the acquirer's Tobin's Q, block holder existence, log of market value, and return on assets, respectively. We also control for industry membership

(INDR), and anti-takeover mechanisms such as the existence of a non-negotiated bid (NONNEGO), poison pill (PILL), and an indicator variable that takes the value of 1 if the target has any anti-takeover tactics in place during the contest, and 0 otherwise (DEFENSE). We also control for cash only payment (CASHP), and tender offers (TENDER), as well as the use of the pooling of interest method (POOL). Finally, we control for the psychology of prior price as an anchor in M&A pricing by including PREMIUM (Baker et al. 2009) and the acquirer's three-day announcement returns (ACAR).<sup>15</sup> See Appendix C for detailed variable definitions.

### **Targets Engaging Big N auditors and Acquirers' Returns (H3a and H3b)**

Finally, we estimate the following equation to test whether acquirers' three-day announcement returns are associated with the targets' engaging Big N auditors:

$$\begin{aligned}
 ACAR_i = & \delta_0 + \delta_1 BIGN_i + \delta_2 BIGN_i * INNATEAQ_i + \delta_3 INNATEAQ_i + \delta_4 ABIGN_i & (3) \\
 & + \delta_5 SAME_i + \delta_6 TOBINQ_i + \delta_7 BLOCK_i \\
 & + \delta_8 SIZE_i + \delta_9 AGE_i + \delta_{10} ATOBINQ_i + \delta_{11} ABLOCK_i + \delta_{12} ASIZE_i \\
 & + \delta_{13} AROA_i + \delta_{14} INDR_i + \delta_{15} NONNEGO_i + \delta_{16} PILL_i + \delta_{17} DEFENSE_i \\
 & + \delta_{18} CASHP_i + \delta_{19} TENDER_i + \delta_{20} POOL_i + \delta_{21} PREMIUM_i \\
 & + INDUSTRY AND YEAR DUMMIES + \varepsilon_i
 \end{aligned}$$

The dependent variable is ACAR, the abnormal returns for the acquirer cumulated over a three-day period centered on the acquisition announcement day. Prior studies use ACAR to measure acquisition profitability and capture the market's expectation of both the *ex ante* M&A investment decision and *ex post* M&A decision making (Francis and Martin 2010). BIGN and INNATEAQ are defined the same as in equations (1) and (2). The coefficient  $\delta_1$  tests H3a. If acquirers' investors believe that Big N target auditors are associated with higher assurance and insurance values and this is impounded in the three-day announcement return, we expect  $\delta_1$  to be positive and significant. The coefficient  $\delta_2$  on the interaction term between BIGN and

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<sup>15</sup> As in Luo (2005), we believe that acquirer announcement returns control for market learning effects not related with target auditor choice. We thank an anonymous reviewer for this suggestion.

INNATEAQ tests whether the main effect is more pronounced for targets with higher information risk.

As in equation (2), we also include the auditor quality of acquirers (ABIGN) and an indicator variable for the same auditor engaged by the target and the acquirer (SAME). Note that Louis (2005) finds that acquirers audited by Big N auditors have lower merger announcement returns than those audited by non-Big N auditors. If the finding of Louis (2005) holds in our sample, we will observe a negative and significant  $\delta_4$ . Other control variables included are defined in the same way as those in equation (2).

#### **IV. DESCRIPTIVE STATISTICS AND EMPIRICAL FINDINGS**

##### **Data**

We identify firms being targeted in M&As from the Securities Data Corporation's (SDC) data over the period ranging from 1987 to 2006. We require that the bidder seeks to achieve at least a 50 percent stake in the target. To examine the first hypothesis regarding M&A target determinants, we merge the sample with both the Center for Research in Security Prices (CRSP) data and Compustat data, and require the following:

- (1) the target has auditor and annual financial statement information from Compustat,
- (2) the target is covered by CRSP for calculation of firm age.

We retain observations for both takeover targets and non-takeover targets, and there are 96,902 firm-year observations with complete data on variables for the test of H1a. Among them, 3,000 observations are takeover targets. Note that our sample only includes public bidder/target companies.

Panel A and Panel B of Table 1 provide the industry breakdown and the year breakdown of the target companies, respectively.<sup>16</sup> Panel A indicates that in our sample, takeover bids are well spread out across industries, and that firms in the business equipment industry account for the largest number of takeover bids. Panel B shows the trend of takeover bids in our sample over time. Consistent with the notion that M&As are a function of market liquidity (e.g., Fuller et al. 2002), the frequency of M&As increases right before the market collapse in the early 2000's.

Our deal completion and acquirer returns tests require that acquirer firms have daily stock returns data from CRSP and acquirer firms have auditor identity and other firm characteristics from Compustat. We also require that our sample firms have non-missing deal characteristics, such as target premium, from SDC. Thus, 870 observations are deleted for missing data on the above items. Our final sample used to test H2a and H3a includes 2,130 firm-year observations.

Note that to test H1b, H2b and H3b, we also include the variable innate accrual quality (INNATEAQ). The availability of INNATEAQ further reduces our sample size to 44,227 for H1b and 1,038 for H2b and H3b, respectively.

*[Insert Table 1 here]*

## **Descriptive Statistics**

Panel A of Table 2 presents descriptive statistics on firm characteristics included in the tests of H1a and H1b (equation (1)).<sup>17</sup> We find that about 82% of firm-year observations in our sample are audited by Big N auditors.<sup>18</sup> The mean for TARGET is 0.031, implying that the probability of a firm becoming a takeover target is only about 3% in our sample. The mean (median) SIZE is 4.637 (4.551) respectively, which translates into an equity market value of

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<sup>16</sup> We define industry based on the Fama-French (1997) 12 industry portfolios.

<sup>17</sup> To ensure the results are not driven by outliers, we winsorize all continuous variables at both extreme percentiles each year.

<sup>18</sup> As a comparison, the General Accounting Office (2003) reports that Big N firms audit 78 percent of U.S. public companies.

\$103 (\$95) million. Our sample firms, on average, have been listed on CRSP for 12 years. The mean BLOCK is 0.459, which suggests that 45.9% of firms in our sample have at least one institutional investor that holds more than 5% of the firm's stock.<sup>19</sup> The mean INNATEAQ is 0.058, comparable to 0.044, the mean value of INNATEAQ in Francis et al. (2005).

Panel B of Table 2 reports descriptive statistics for the variables used in our test of H2a, H2b, H3a and H3b (equations (2) and (3)). Among 2,130 takeover bids, 85% of such deals have been ultimately completed. Consistent with prior research that documents negative acquirers' three-day announcement returns, we report that the mean and median values for ACAR are both negative. In this sample, 93.1% of the target firms are clients of Big N auditors. This ratio is comparable to the statistic reported in prior studies that also focus on public targets (e.g., 93% Big 4 firms in Dee et al. (2009)). Note the frequency of Big N auditors in this sample is higher than the frequency reported in Panel A, which is consistent with the notion that firms with Big N auditors are more likely to be targeted for M&As. Descriptive statistics show that 73.7% of the deals are in the same industry (INDR) and 8.4%, 2.1%, 14.1%, 28.7%, and 21.3% of these deals are non-negotiated (i.e., hostile), poison pill present, any anti-takeover provision present, cash only, and on tender offer basis, respectively. Moreover, 20.0% of these deals are accounted for using the pooling-of-interest method.<sup>20</sup> Finally, the mean (median) premium for the target over 63 trading days leading up to the merger announcement is 17.8% (11.8%).

*[Insert Table 2 here]*

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<sup>19</sup> Despite the sample period difference between our study and other studies such as Cremers et al. (2009) and Ivashina et al. (2009), we find that the distributions of most of our variables are similar to those reported in these papers. For example, Ivashina et al. (2009) reports a median of natural logarithm of total assets of 4.566 and mean blockholder ownership of 0.471.

<sup>20</sup> Although the sample varies across studies, these statistics are generally similar to those reported in Louis (2005), Cremers et al. (2009), Dee et al. (2009) and Ivashina et al. (2009). In addition, we acknowledge that the pooling-of-interest method was eliminated in 2001, but we include it as it captures the accounting method difference that existed in a part of our sample period (up to year 2000).

Table 3 presents the Pearson correlation matrix for the determinants of becoming a takeover target (N=96,902). The positive correlation between Big N auditor and the likelihood of being a takeover target (0.04) is consistent with the proposition that bidders seek targets with Big N auditors because of their assurance and insurance values. In addition, our tests are not likely to suffer from multi-collinearity because only one correlation coefficient in Table 3 (RATED and HIGHYIELD) is higher than 0.5 and statistically significant.<sup>21</sup> However, we cannot clearly conclude that Big N clients are more likely to be targeted for M&As, as there are other covariates that could systematically affect the likelihood of being a takeover target. We next examine the association between employment of a Big N auditor and the likelihood of being a takeover target in a multivariate setting.

*[Insert Table 3 here]*

## **Empirical Findings**

### ***Big N Auditor and Firm's Likelihood of Becoming an M&A Target (H1 and H1a)***

Table 4 presents the primary results of estimating equation (1) that examines whether a firm's hiring a Big N auditor is associated with its likelihood of becoming an M&A target (H1a), and whether this association is more pronounced when potential target's information risk is high (H1b). Columns (I) and (II) display results of tests of H1a and H1b using logistic regression, respectively. Columns (I) and (II) differ in that the latter includes INNATEAQ and its interaction term with BIGN.

In column (I), the coefficient on BIGN is 0.597 and is statistically significant (p-value < 0.01), indicating that firms with Big N auditors are more likely to become takeover targets. In order to assess economic importance, we also report the marginal effect next to the z-statistics in

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<sup>21</sup> We also calculate the variance inflation factors (VIFs) for all columns in Tables 4, 5 and 6. We do not find any VIF greater than 10, the conventional level of significant multi-collinearity.

each column. For example, the average marginal effect of BIGN in column (1) is 1.45%, which suggests that if a firm switches from a non-Big N auditor to a Big N auditor, the probability that the firm will become a takeover target increases by 1.45% on average.<sup>22</sup> With respect to control variables, the results show that firms with low Tobin's Q and more blockholders are more likely to become takeover targets. These results are consistent with the results in Cremers et al. (2009). The model's Pseudo R<sup>2</sup> is 4.5% and is comparable to that of 3.13% reported in Cremers et al. (2009).<sup>23</sup> Note that Cremers et al. (2009) demonstrate that a portfolio selection strategy based on a model with Pseudo R<sup>2</sup> of 3.13% generates abnormal returns of 11.77%. This result suggests that an important target determinant reported in this study – Big N auditor identity – could provide investors with useful information.

Column (II) reports the regression results with INNATEAQ and BIGN\*INNATEAQ. Note that a larger value of INNATEAQ indicates poorer innate accrual quality. The coefficient on BIGN\*INNATEAQ is 5.520 (p-value<0.05), which implies that the positive association between firm with Big N auditor and the likelihood of it becoming a takeover target is more pronounced for firms with high information risk (i.e., lower innate accrual quality).<sup>24</sup> Following Norton, Wang and Ai (2004), who call for caution when generating marginal effects for interactive terms in logit models, we calculate the corrected marginal effect on BIGN\*INNATEAQ in all logit models. The marginal effect for BIGN\*INNATEAQ is 17.06%.

The results in Table 4 shed light on whether firms with Big N auditors are more likely to be targets in the corporate takeover market.<sup>25</sup> As discussed earlier, the assurance value of Big N

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<sup>22</sup> The average marginal effect is calculated as the sample average of individual marginal effects over all the observations. Greene (1997, p. 876) suggests averaging the individual marginal effects for small samples.

<sup>23</sup> Throughout this paper, pseudo R<sup>2</sup> is calculated following McFadden (1973).

<sup>24</sup> Higher values of INNATEAQ represent lower innate accrual quality.

<sup>25</sup> Unreported results show that our inferences remain unchanged when we use yearly regressions and test the time-series t-statistics of yearly coefficients. In these tests, the coefficient on BIGN (H1a) is positive and significant (t-stat=11.204) and the coefficient on the interaction term (H1b) is also positive and significant (t-stat=1.794).

auditors suggests a positive association between hiring a Big N auditor and becoming a takeover target. Although external auditors are key determinants of financial information quality, no prior study examines a target's auditor identity as a determinant of M&A targets. Thus, our results provide new evidence confirming the assurance value of Big N auditors in corporate takeovers, adding to the short list of studies that have found similar results in other corporate events.

*[Insert Table 4 here]*

### ***Targets with Big N Auditors and the Likelihood of M&A Deal Completion (H2a and H2b)***

Table 5 reports the results of estimating equation (2), which tests whether a target's Big N auditor identity is associated with the likelihood of M&A deal completion (H2a), and whether this association is more pronounced for targets with high information risk (H2b). As in Table 4, columns (I) and (II) present the results of the tests of H2a and H2b using logistic regression. In column (I) the coefficient on BIGN is positive and significant (0.580, p-value < 0.05), with the average marginal effect being 6.21%. These results suggest that M&A deals are more likely to be completed when targets engage Big N auditors (H2a). In addition, the coefficient on BIGN\*INNATEAQ is positive and significant in column (II) (15.577, p-value < 0.10), suggesting that the impact of targets' auditor size on deal completion is more pronounced for firms with higher information risk (i.e., lower innate accrual quality) (H2b).

Other control variables also yield interesting results. For instance, the coefficient on SAME is positive and significant, implying that when the acquirer and the target employ the same auditor, deal is more likely to be completed.<sup>26</sup> In addition, the results also show that deals classified as tender offers (paid in part with stock), and deals with blockholders on the target side are more likely to be completed. In contrast, deals involving bigger and older target firms, or

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<sup>26</sup> This could be due to the expected lower cost for accounting information system integration in the post-merger period.

classified as hostile or unsolicited, are less likely to be completed. Deal-specific variables included in these models increase the explanatory power of our models, which results in pseudo  $R^2$ s of 24.5% and 27.3% for tests of H2a and H2b, respectively. P-values from the Hosmer and Lemeshow test are 0.976 and 0.979, indicating that we have a well-fitted model in this test.<sup>27</sup>

*[Insert Table 5 here]*

Overall, Table 4 and Table 5 provide evidence consistent with the assurance value and insurance value of Big N auditors: firms with Big N auditors are more likely to become M&A targets (H1a), and deals involving these targets are more likely to be completed (H2a). Further tests show that these results are more pronounced for firms with higher information risk (i.e., lower innate accrual quality) (H1b and H2b). Overall, our evidence suggests that the assurance value (i.e., information risk reduction) and insurance value (i.e., deep pockets in case of litigation) of Big N auditors increase the likelihood that their clients become targets in the corporate takeover market, and also increases the likelihood of such deals' completion.

### ***Targets with Big N Auditors and Acquirers' Three-Day Announcement Returns (H3a and H3b)***

Table 6 presents the results of estimating equation (3), which examines whether acquirers' investors value targets with Big N auditors (H3a), and whether gains for acquirers are more pronounced when the targets have higher information risk (H3b). Columns (I) and (II) present the test results of H3a and H3b using OLS regression. Note that these tests are joint tests of market efficiency and our research questions. The results show that the coefficient on ABIGN (i.e., acquirers with Big N auditors) is *negative* and significant, consistent with the finding in Louis (2005). In contrast, in column (I) the coefficient on BIGN is *positive* and significant (0.013, p-value < 0.10). Our results not only replicate Louis' (2005) finding in our sample, but also

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<sup>27</sup> We would like to thank an anonymous reviewer for suggesting this test.

provide an incremental contribution to auditing literature by documenting new insights regarding the role of Big N target auditors in the market for corporate control. Namely, we show that when targets hire a Big N auditor, investors believe that the acquirers' investment decisions are more informed due to the lower information risks associated targets and/or higher insurance value associated with targets' auditors (H3a). However, the interaction term of BIGN with INNATEAQ (H3b) is not significant in column (II), which suggests that, unlike acquirer managers, acquirer shareholders might not fully appreciate the additional value provided by Big N auditors for targets with higher information risk (i.e., lower innate accrual quality).<sup>28</sup>

For other variables, we find that the coefficient on SIZE (i.e., target size) is significantly negative, which suggests acquirers' abnormal return decreases in the size of the target and is consistent with Louis (2004).<sup>29</sup> We also find the acquirers' abnormal return increases with the age of the target firm, acquirer size, cash payment, and decreases in the acquirers' Tobin's Q, the use of the pooling-of-interest method, and the target premium.

*[Insert Table 6 here]*

In sum, results in Table 6 suggest acquirers that target firms with Big N auditors have higher merger announcement returns.

## V. ADDITIONAL TESTS

In this section, we report results of several additional tests.

### **The Endogeneity Related to the Big N Auditor Choice**

As the choice of auditor is not random, it is possible that the selection of a Big N auditor is omitted as an important covariate in equations (1), (2) and (3). To ensure that the documented

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<sup>28</sup> Alternatively, the results might merely reflect the low-power joint hypothesis test. Namely, the misspecification of the model used to calculate abnormal returns.

<sup>29</sup> The explanation offered in Louis (2004) is that small targets are usually more manageable.

correlations in these equations are not driven by the determinants of auditor choice, we use the Heckman (1979) two-step procedure and control for the inverse Mills ratio (IMRs) from a first-stage auditor choice model. As several major changes took place in the auditing market during our sample period, we estimate the auditor choice model by year. Appendix B provides details on the auditor choice model. Unreported results suggest that IMRs are insignificant in all the three equations and our inferences remain unchanged after including IMRs.

### **Reverse Causality**

We rely on the Heckman procedure to deal with the probability that firms' selection of Big N auditors is affected by correlated omitted variables. Our results are robust to the Heckman procedure. However, our results on the association may be subject to reverse causality. Firms may want to increase their chances of being taken over by switching from a non-Big N auditor to a Big N auditor. Therefore, potential targets hiring Big N auditors could be the consequence of, but not the reason for, a higher likelihood of being takeover targets.

To address this issue, we limit our sample to firms that have not switched from non-Big N auditors to Big N auditors during our sample period. For this sample, a firm's choice of Big N (or non-Big N) auditor is determined well before subsequent takeover activities. We repeat our regressions in this sample and unreported results suggest that our inferences remain qualitatively the same as those reported in Table 4.

### **Alternative Governance Mechanisms**

To the extent that external audits are viewed as a corporate governance mechanism, controlling for corporate governance, and especially anti-takeover provisions, is important in our tests. Researchers often use G-index (Gompers et al. 2003) and E-index (Bebchuk and Cohen 2005) as proxies for corporate governance mechanisms. Upon our inspection of G-index and E-

index, we find that these databases only cover S&P 1500 membership companies. Therefore, the use of these indices changes our sample in model (1) from 90,192 to 15,892 (G-index) and 14,385 (E-index) observations. In addition, because S&P 1500 firms are more likely to choose Big N auditors due to higher analyst following and institutional investor attention, we end up with less variation for our test variable (BIGN means are 0.964 and 0.967 in these sub-samples). Although the reduced sample size and less variation in the BIGN variable are likely to lower the test power, the coefficient on BIGN in model (1) continues to be positive and significant after controlling for either G-index ( $p=0.021$ , two-tailed) or E-index ( $p=0.058$ , two-tailed).

However, we find it infeasible to use these indices for our second and third tests, because the number of observations available after merging with G-index (E-index) is only 275 (242). In addition, there are only two observations out of the 275 and 242 that have non-Big N auditors. These data restrictions keep us from using G-index and E-index in our models (2) and (3). However, recall that in estimating our models (2) and (3), we include available anti-takeover provisions from the SDC database and control for the existence of poison pills (PILL) and the existence of defensive tactics (DEFENSE).

### **Moderating Effects of Deal Characteristics**

We examine the moderating effects of industry membership, industry relatedness, payment method, high tech industry membership, and deal size following Masulis et al. (2007). Unreported results suggest that the interaction terms between the Big N auditor dummy and each of these deal characteristics are not statistically significant. We believe that although these variables have good theoretical foundations to capture additional information risk, the variances in these variables may not be big enough to capture the suggested effects.

## **Industry Specialist Auditors**

When we add industry specialist auditor proxies (as in Balsam et al. 2003) in our models (1) through (3), unreported results suggest that the industry specialist dummy (incremental to the Big-N dummy) is positive and significant in model (1) but not in models (2) and (3).

These findings might not be surprising, as our study relies on both the assurance value and the insurance value of Big N auditors, and all industry specialist auditors in our sample are Big N auditors. More specifically, similar to the findings in Behn et al. (2008), Big-N specialists may not provide incremental assurance value compared with Big-N non-specialists in our setting.<sup>30</sup> Second, Big N auditors provide insurance value (i.e., deep pockets in case of litigation) compared with non-Big N auditors, but there is no such distinction in insurance value between specialists and non-specialists that are both Big N auditors. Taken together, it's not clear whether Big-N specialist auditors would provide incremental assurance value and/or insurance value compared with Big-N non-specialists. This might help explain why we do not find results regarding specialist identity in models (2) and (3).

In addition, it is also possible that the lack of significant results is partly due to the fact that the sample size is relatively small for tests in models (2) and (3) compared with most studies on industry specialization, and the sample is comprised mainly of Big-N clients so that there is little cross-sectional variation in the sample.

## **VI. CONCLUSIONS**

Based on the assurance value and insurance value of Big N target auditors in the corporate takeover market, we examine whether the likelihood of a company becoming an M&A

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<sup>30</sup> Behn et al. (2008) find that auditor industry specialization is associated with higher predictability of accounting earnings only in the non-Big 5 sample but not in the Big 5 auditor sample.

target, the likelihood of deal completion and the magnitude of acquirers' announcement return are associated with the potential target engaging a Big N auditor. Using a sample of M&As from 1987 to 2006, we provide evidence that firms with Big N auditors are more likely to become targets for M&As. We also find that deals involving targets with Big N auditors are more likely to be completed than deals involving targets with non-Big N auditors. These results are consistent with the assurance value (i.e., information risk reduction) and insurance value (i.e., deep pockets in case of litigation) of Big N target auditors. In addition, our results suggest that the likelihood of clients with Big N auditors becoming M&A targets and subsequently completing the deals is more pronounced for firms with high information risk (i.e., lower innate accrual quality).

Finally, consistent with the assurance value and insurance value of Big N target auditors, we find that acquirers' three-day announcement cumulative abnormal returns are higher when their targets are clients of Big N auditors. This finding contrasts with the negative association between acquirer returns and acquirer Big N firms documented in Louis (2005), and adds to the auditing literature by confirming the value of Big N auditors in a major corporate event. Overall, our results indicate that Big N target auditors facilitate M&A deals by lowering information risks and expected litigation costs.

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## Appendix A Innate Accrual Quality

In order to measure innate accruals quality as in Francis et al. (2005), we first estimate the overall accrual quality proxy ( $AQ$ ) by estimating the following regression by industry:

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

$\Delta WC$  is the change in working capital accruals from year  $t-1$  to  $t$ , defined as  $\Delta$  Accounts Receivable +  $\Delta$  Inventory –  $\Delta$  Accounts Payable –  $\Delta$  Taxes Payable +  $\Delta$  Other Current Assets.  $CFO$  is cash flow from operations.<sup>31</sup> Following McNichols (2002) and Francis et al. (2005), we include in equation (a) the current year change in sales ( $\Delta REV$ ) and the current year level of property, plant, and equipment ( $PPE$ ). We draw all of these data used in estimating equation (a) from *Compustat*. Consistent with the prior literature, we scale all variables in Equation (a) by average total assets and winsorize them annually at the 1st and 99th percentiles. The residuals from regression equation (a) measure the extent to which current accruals ( $\Delta WC$ ) do not effectively map into past, present, or future cash flows ( $CFO$ ). Dechow and Dichev (2002) use the standard deviation of these firm-specific residuals to proxy for overall accrual quality ( $AQ$ ), with a higher standard deviation denoting worse quality.

Following Francis et al. (2005), we estimate the annual cross-sectional version of equation (a) within each of the 48 Fama-French (1997) industry classifications. If an industry group has less than 20 observations in any given year, the observations pertaining to that industry are deleted. We aggregate the residuals by firm and calculate the standard deviation of residuals ( $AQSTD$ ), by firm, requiring a minimum of four years of data out of the seven years. Note that

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<sup>31</sup> We use information from the statement of cash flows, rather than the balance sheet, to estimate current accruals because the balance sheet approach can lead to noisy estimates (Hribar and Collins 2002).

we use annual *Compustat* data from 1985–2006 and a seven-year rolling window (four minimum years) ending at the beginning of the year<sup>32</sup>, which generates 15 years of data from 1992–2006.

To capture innate accrual quality (*INNATEAQ*) which is not affected by auditor quality, we then estimate the following annual pooled regression of firm-specific accrual quality (*AQSTD*) on each firm’s innate firm characteristics suggested by Francis et al. (2005):

$$AQSTD_j = \phi_0 + \phi_1 SIZE_j + \phi_2 LOSSPRO_j + \phi_3 CFOVOA_j + \phi_4 SALESVOA_j + \phi_5 OPERATINGCYL_j + \varepsilon_q \quad (b)$$

The innate firm characteristic variables in equation (b) include firm size, loss proportion, cash flow from operations volatility, sales volatility, and operating cycle. All of these variables are measured using available data within the seven-year rolling window. All data are from *Compustat*. We define each firm’s predicted value from equation (b) as the innate features of the firm (*INNATEAQ*).

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<sup>32</sup> The reason we use *Compustat* data starting from 1985 is as follows. In the model of calculating innate accrual quality, cash flow from operations volatility is extracted from the cash flow statement, which is not available until 1988. Using *Compustat* data starting earlier than 1985 results in our sample firms having less than four years of data available for cash flow from operations volatility (as we employ seven-year rolling window) which does not meet our requirement that sample firms have a minimum of four years of data within the seven-year window.

## Appendix B

We estimate the following first stage probit regression annually to obtain the inverse

Mills ratio to control for the selection of Big N auditor:

$$\begin{aligned} \text{BIGN}_i = & \eta_0 + \eta_1 \text{ASSETS}_i + \eta_2 \text{AGE}_i + \eta_3 \text{PRICE}_i + \eta_4 \text{TURNOVER}_i \\ & + \eta_5 \text{GROWTH}_i + \eta_6 \text{ROA}_i + \eta_7 \text{EARNVOL}_i + \eta_8 \text{LITIGATION}_i \\ & + \eta_9 \text{TOBINQ}_i + \eta_{10} \text{SEGMENTS}_i + \eta_{11} \text{RD}_i + \eta_{12} \text{RDDUM}_i \\ & + \eta_{13} \text{PPE}_i + \varepsilon_i \end{aligned} \quad (\text{c})$$

We draw on previous studies for the determinants of choosing a Big N auditor (Willenborg 1999, Chaney et al. 2004, Chang et al. 2009). Previous literature has shown firm size, profitability, risk, and complexity as important determinants for choosing a Big N auditor. Following Willenborg (1999), we include total asset (ASSETS), firm age (AGE), stock price (PRICE), asset turnover (TURNOVER), and asset growth (GROWTH). Following Chaney et al. (2004), we also include return on assets (ROA). Following Chang et al. (2009), we finally include earnings volatility (EARNVOL), litigation industry (LITIGATION), Tobin's Q (TOBINQ), number of business segments (SEGMENTS), R&D to sales ratio (RD), an indicator variable for R&D (RDDUM) and property, plant, and equipment-to-assets ratio (PPE). Appendix C provides detailed variable definitions.

Overall model accuracy (the overall fraction of correctly classified observations) ranges between 78.84% and 88.41% during our sample period from 1987 to 2006. Compared with a “naïve” model that predicts all firms employ Big N auditors, we find this model outperforms the “naïve” model in all years, with the difference in accuracy ranging from 0.1% (year 1992) to 13.6% (year 2004).

## Appendix C Definitions for Variables

Variable Name	Data Source	Description
ABIGN	Compustat	1 if the acquirer's auditor is a Big-N auditor; 0 otherwise.
ABLOCK	Compustat	1 if at least one institutional investor holds more than 5% of the acquirer's stock; 0 otherwise.
ACAR	CRSP	the abnormal return to the acquirer cumulated over the period from day -1 to day 1 where day 0 is the acquisition announcement date; the abnormal returns are calculated from the market model using EVENTUS at the Wharton Research Database System (WRDS).
AGE	CRSP	the number of years the target has been covered by CRSP.
AROA	Compustat	ROA (return on average assets) of the acquirer.
ASIZE	Compustat	natural logarithm of the market value of equity of the acquirer.
ASSETS	Compustat	natural logarithm of total assets.
ATOBINQ	Compustat	the acquirer's market-to-book value of assets; where market assets are defined as total assets plus market value of common stock minus book common equity and deferred taxes.
BIGN	Compustat	1 if the target's auditor is a Big-N auditor; 0 otherwise.
BLOCK	Thompson Financial	1 if at least one institutional investor holds more than 5% of the target's stock; 0 otherwise.
CASH	Compustat	natural logarithm of cash and cash equivalents of the target.
CASHP	SDC	1 if the deal is paid for using cash only; 0 otherwise.
COMPTAKE	SDC	1 if the takeover is a success; 0 otherwise.
DEFENSE	SDC	1 if the target firm is reported by SDC to have any kind of anti-takeover tactics in place during the contest; 0 otherwise.
EARNVOL	Compustat	standard deviation of the EBIT-to-asset ratios over the minimum of the firm's entire life in Compustat or 10 years.
GROWTH	Compustat	change in log of total assets from the previous year.
HIGHYIELD	Compustat	1 if the target's debt rating is below investment grade; 0 otherwise.
INDR	Compustat	1 if the two merging partners are in the same three-digit SIC code; 0 otherwise.
INNATEAQ	Compustat	see Appendix A.
LEV	Compustat	the ratio of book value of debt to book value of total assets of the target.
LITIGATION	Compustat	1 if the firm is in a high litigation industry and 0 otherwise.
NONNEGO	SDC	1 if a non-negotiated bid (classified as hostile or unsolicited by SDC) is made for the target firm; 0 otherwise.
PILL	SDC	1 if the target firm is reported by SDC to have a poison pill in place during the contest; 0 otherwise.
POOL	SDC	1 if the merger is accounted for by the pooling-of-interest method, and 0 if it is accounted for by the purchase method.
PPE	Compustat	property, plant, and equipment to assets ratio of the target.
PREMIUM	CRSP	the abnormal returns for the target cumulated over the period from day -63 to day 0 where day 0 is the acquisition announcement date; the abnormal returns are obtained from a market model with the CRSP value-weighted index return as the market return.
PRICE	Compustat	stock price at the fiscal year end.
RATED	Compustat	1 if the target has a debt rating; 0 otherwise.

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RD	Compustat	R&D expense divided by net sales.
RDDUM	Compustat	1 if R&D expenses are missing.
ROA	Compustat	return on average assets of the target.
SAME	Compustat	if the target and the acquirer employed the same auditor; 0 otherwise.
SEGMENTS	Compustat	number of business segments from Compustat segment data.
SIZE	Compustat	natural logarithm of market value of equity of the target.
TARGET	SDC	1 if the firm is listed as a take-over target in SDC in the year; 0 otherwise.
TENDER	SDC	1 if the deal is classified as a tender offer by SDC; 0 otherwise.
TOBINQ	Compustat	target's market-to-book value of assets; where market assets are defined as total assets plus market value of common stock minus book common equity and deferred taxes.
TURNOVER	Compustat	net sales divided by average total assets.

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**Note:** This appendix provides the list of variables, data sources, and the definitions of variables that we use in this study. Variables are listed in alphabetical order.

**Table 1**  
**Sample Composition**

***Panel A: Takeover bids by industry***

	No. of observations	% of sample
Consumer non-durables	126	4.2%
Consumer durables	54	1.8%
Manufacturing	273	9.1%
Oil, gas, and coal	135	4.5%
Chemicals and allied products	45	1.5%
Business equipment	791	26.4%
Telephone and television transmission	152	5.1%
Utilities	94	3.1%
Wholesale, retail, and some services	282	9.4%
Healthcare, medical equipment, and drugs	373	12.4%
Finance	280	9.3%
Other	395	13.2%
Total	3,000	100.0%

**Note:** This panel shows the industry breakdown of sample firms following the Fama and French (1993) 12 industry portfolios.

***Panel B: Takeover bids by year***

	No. of observations	% of sample
1987	127	4.2%
1988	101	3.4%
1989	74	2.5%
1990	71	2.4%
1991	57	1.9%
1992	82	2.7%
1993	153	5.1%
1994	202	6.7%
1995	215	7.2%
1996	282	9.4%
1997	285	9.5%
1998	288	9.6%
1999	236	7.9%
2000	175	5.8%
2001	101	3.4%
2002	104	3.5%
2003	106	3.5%
2004	109	3.6%
2005	121	4.0%
2006	111	3.7%
Total	3,000	100.0%

**Note:** This panel presents the fiscal year breakdown of the sample firms targeted in M&A (N=3,000). We extract our initial M&A sample from the Securities Data Corporation's (SDC) data over the 1987–2006 period by requiring that the bidder seeks to achieve at least a 50% stake in the target. We then merge this database with both the Center for Research in Security Prices (CRSP) data and Compustat data and require the following: (1) the target has auditor and annual financial statement information from Compustat and (2) the target is included in CRSP for calculation of firm age. This procedure leaves us 3,000 firms as take-over targets.

**Table 2**  
**Descriptive Statistics**

**Panel A: Descriptive statistics for the likelihood of being a take-over target sample**

Variable	Mean	Std. Dev.	Q1	Median	Q3	N
TARGET	0.031	0.173	0	0	0	96,902
BIGN	0.822	0.382	1	1	1	96,902
TOBINQ	2.190	2.485	1.047	1.413	2.285	96,902
PPE	0.272	0.240	0.078	0.199	0.405	96,902
CASH	-2.668	1.668	-3.805	-2.475	-1.317	96,902
BLOCK	0.459	0.498	0	0	1	96,902
SIZE	4.637	2.235	3.056	4.551	6.178	96,902
LEV	0.526	0.341	0.293	0.502	0.686	96,902
ROA	-0.056	0.292	-0.069	0.027	0.076	96,902
AGE	11.910	14.015	3	7	17	96,902
RATED	0.127	0.333	0	0	0	96,902
HIGHYIELD	0.061	0.240	0	0	0	96,902
INNATEAQ	0.058	0.035	0.034	0.051	0.074	44,227

**Panel B: Descriptive statistics for target and bidder returns and completion of takeover sample**

Variable	Mean	Std. Dev.	Q1	Median	Q3	N
COMPTAKE	0.851	0.356	1	1	1	2,130
ACAR	-0.014	0.084	-0.050	-0.009	0.024	2,130
BIGN	0.931	0.254	1	1	1	2,130
ABIGN	0.954	0.209	1	1	1	2,130
SAME	0.231	0.421	0	0	0	2,130
TOBINQ	1.998	1.835	1.079	1.436	2.202	2,130
BLOCK	0.666	0.472	0	1	1	2,130
SIZE	5.046	1.846	3.717	4.910	6.320	2,130
AGE	10.543	12.889	2	6	14	2,130
ATOBINQ	2.476	2.610	1.251	1.750	2.731	2,130
ABLOCK	0.501	0.500	0	1	1	2,130
ASIZE	7.060	2.054	5.531	7.145	8.571	2,130
AROA	0.025	0.17	0.012	0.052	0.097	2,130
INDR	0.737	0.441	0	1	1	2,130
NONNEGO	0.084	0.277	0	0	0	2,130
PILL	0.021	0.142	0	0	0	2,130
DEFENSE	0.141	0.348	0	0	0	2,130
CASHP	0.287	0.452	0	0	1	2,130
TENDER	0.213	0.410	0	0	0	2,130
POOL	0.200	0.400	0	0	0	2,130
PREMIUM	0.178	0.448	-0.076	0.118	0.359	2,130
INNATEAQ	0.055	0.032	0.034	0.050	0.070	1,038

**Note:** Panel A provides the descriptive statistics for firm characteristics used in the model of determinants of auditor quality and our H1 test (equation (1), Table 4). Panel B presents the descriptive statistics for the variables used in tests of H2 and H3 (equation (2), Table 5) and additional returns tests (equation (3), Table 6). Note that the deal completion test and additional acquirer returns test require both target premium as well as acquirer returns. In particular, we further require that target firms have daily stock returns data from CRSP and acquirer firms have total assets (an important control variable) from Compustat. This procedure leaves us 2,130 M&As in the deal completion and returns sample. See Appendix C for all variable definitions.

**Table 3**  
**Correlation among Takeover Target Determinants**

	TARGET	BIGN	TOBINQ	PPE	CASH	BLOCK	SIZE	LEV	ROA	AGE	RATED
BIGN	0.04										
TOBINQ	-0.01	-0.08									
PPE	-0.01	0.06	-0.16								
CASH	0.01	-0.01	0.28	-0.36							
BLOCK	0.06	0.21	-0.08	-0.01	-0.01						
SIZE	0.03	0.36	0.10	0.10	-0.03	0.32					
LEV	-0.02	-0.06	0.06	0.13	-0.32	-0.09	-0.10				
ROA	0.01	0.14	-0.35	0.09	-0.16	0.18	0.28	-0.26			
AGE	-0.02	0.06	-0.12	0.15	-0.17	0.14	0.31	0.09	0.17		
RATED	0.01	0.15	-0.09	0.12	-0.16	0.17	0.45	0.17	0.10	0.27	
HIGHYIELD	0.02	0.10	-0.07	0.08	-0.08	0.12	0.18	0.16	0.04	0.01	0.67

**Note:** Table 3 reports pair-wise Pearson correlations. All correlation coefficients are significant at the 1% level. See Appendix C for all variable definitions.

**Table 4**  
**Likelihood of M&A Target and Big N Target Auditor**

$$\text{Prob}(TARGET_i=1) = G(\beta_0 + \beta_1 BIGN_i + \beta_2 BIGN_i * INNATEAQ_i + \beta_3 INNATEAQ_i + \beta_4 TOBINQ_i + \beta_5 PPE_i + \beta_6 CASH_i + \beta_7 BLOCK_i + \beta_8 SIZE_i + \beta_9 LEV_i + \beta_{10} ROA_i + \beta_{11} AGE_i + \beta_{12} RATED_i + \beta_{13} HIGHYIELD_i + \text{Industry and year dummies} + \varepsilon_i) \quad (1)$$

	Column (I)			Column (II)		
	Coefficient	z-stat	Average Marginal Effect	Coefficient	z-stat	Average Marginal Effect
Constant	-4.373***	-28.63		-4.953***	-10.41	
BIGN	0.597***	8.03	1.45%	0.181	0.89	0.52%
BIGN*INNATEAQ				5.520**	2.29	17.06%
INNATEAQ				-0.876	-0.36	-2.67%
TOBINQ	-0.070***	-4.82	-0.21%	-0.102***	-4.26	-0.31%
PPE	-0.232**	-2.25	-0.68%	-0.185	-1.17	-0.56%
CASH	0.017	1.22	0.05%	0.001	0.07	0.00%
BLOCK	0.676***	15.30	1.98%	0.600***	8.94	1.73%
SIZE	0.022*	1.78	0.06%	0.074***	3.66	0.23%
LEV	-0.065	-0.94	-0.19%	-0.059	-0.56	-0.18%
ROA	-0.002	-0.03	-0.01%	-0.053	-0.35	-0.16%
AGE	-0.012***	-6.83	-0.04%	-0.008***	-3.22	-0.02%
RATED	-0.146	-1.60	-0.41%	-0.235**	-2.02	-0.68%
HIGHYIELD	0.197*	1.86	0.63%	0.290**	2.32	0.98%
Industry and year dummies		Included			Included	
Pseudo-R <sup>2</sup>	0.045			0.039		
Number of observations	96,902			44,227		

**Note:** Table 4 presents the regression results of estimating equation (1) using logistic regression. Column I reports the regression results using the full sample; column II reports the regression results using the sample with data on innate accrual quality (INNATEAQ). The dependent variable is the likelihood a firm will become an M&A target. The test variables are Big N auditor (BIGN) and its interaction with innate accrual quality (BIGN\*INNATEAQ). We control for known covariates of the determinants of M&A targets (reported signs from prior literature in parentheses): Tobin's Q (TOBINQ, -), property, plant, and equipment (PPE, insignificant), log of cash (CASH, insignificant), the existence of block shareholders (BLOCK, +), log of the market value of the target (SIZE, -), book-value of total debt to book-value of total assets (LEV, +), return-on-assets (ROA, -), firm age (AGE, insignificant), existence of debt rating in Compustat (RATED, -), and below investment grade firm (HIGHYIELD, +). The z-statistics are adjusted for firm clustering (Rogers 1993). \*\*\*, \*\*, \* represent 1%, 5%, 10% significance levels, respectively (two-tailed). See Appendix C for all variable definitions. Pseudo R squared is calculated following McFadden (1973).

**Table 5**  
**Likelihood of Completion of Takeover and Big N Target Auditor**

$$\text{Prob}(\text{COMPTAKE}_{i=1}) = G(\gamma_0 + \gamma_1 \text{BIGN}_i + \gamma_2 \text{BIGN} * \text{INNATEAQ}_i + \gamma_3 \text{INNATEAQ}_i + \gamma_4 \text{ABIGN}_i + \gamma_5 \text{SAME}_i + \gamma_6 \text{TOBINQ}_i + \gamma_7 \text{BLOCK}_i + \gamma_8 \text{SIZE}_i + \gamma_9 \text{AGE}_i + \gamma_{10} \text{ATOBINQ}_i + \gamma_{11} \text{ABLOCK}_i + \gamma_{12} \text{ASIZE}_i + \gamma_{13} \text{AROA}_i + \gamma_{14} \text{INDR}_i + \gamma_{15} \text{NONNEGO}_i + \gamma_{16} \text{PILL}_i + \gamma_{17} \text{DEFENSE}_i + \gamma_{18} \text{CASHP}_i + \gamma_{19} \text{TENDER}_{it} + \gamma_{20} \text{POOL}_{it} + \gamma_{21} \text{PREMIUM}_i + \gamma_{22} \text{ACAR}_i + \text{Industry and year dummies} + \varepsilon_i) \quad (2)$$

	Column (I)			Column (II)		
	Coefficient	z-stat	Average Marginal Effect	Coefficient	z-stat	Average Marginal Effect
Constant	-0.497	-0.82		0.869	0.50	
BIGN	0.580**	2.32	6.21%	-0.640	-0.85	-5.04%
BIGN*INNATEAQ				15.577*	1.69	149.99%
INNATEAQ				-13.507*	-1.70	-120.76%
ABIGN	0.512*	1.81	5.46%	0.240	0.50	2.26%
SAME	0.375**	2.08	3.36%	0.556*	1.93	4.60%
TOBINQ	0.033	0.59	0.31%	-0.008	-0.09	-0.07%
BLOCK	0.469***	2.98	4.59%	0.599**	2.41	5.66%
SIZE	-0.226***	-3.11	-2.14%	-0.283**	-2.33	-2.53%
AGE	-0.016***	-2.57	-0.15%	-0.017**	-2.13	-0.16%
ATOBINQ	-0.032	-1.23	-0.31%	-0.024	-0.53	-0.22%
ABLOCK	-0.207	-1.31	-1.96%	-0.269	-1.08	-2.39%
ASIZE	0.392	7.10	3.71%	0.477***	5.11	4.27%
AROA	-0.170	-0.41	-1.61%	0.097	0.10	0.87%
INDR	0.286	1.81	2.81%	0.516**	2.15	4.90%
NONNEGO	-2.829***	-11.94	-45.06%	-2.971***	-8.70	-44.99%
PILL	0.469	0.91	3.94%	0.102	0.13	0.89%
DEFENSE	-0.345	-1.43	-3.49%	-0.402	-1.18	-3.88%
CASHP	-0.583***	-2.91	-6.01%	-0.763***	-2.60	-7.52%
TENDER	1.783***	6.11	12.41%	1.582***	4.23	10.85%
POOL	0.532**	2.29	4.69%	0.422	1.20	3.55%
PREMIUM	0.056	0.25	0.53%	0.514	1.62	4.60%
ACAR	1.055	1.21	9.99%	1.792	1.17	16.02%
Industry and year dummies		Included			Included	
<i>Pseudo-R<sup>2</sup></i>	0.245			0.273		
<i>Number of observations</i>	2,130			1,038		

**Note:** Table 5 presents the regression results of estimating equation (2) using logistic regression. Column I reports the regression results using the full sample; column II reports the regression results using the sample with data on innate accrual quality (INNATEAQ). The dependent variable is the probability of the target firm becoming ultimately taken over (COMPTAKE) and is coded as 1 if the takeover is a success, 0 otherwise. The test variables are Big N auditor (BIGN) and its interaction with innate accrual quality (BIGN\*INNATEAQ). Note that we control for the acquirer's auditor quality (ABIGN) and an indicator variable SAME, which is 1 if the target and the acquirer employ the same audit firm, 0 otherwise. Control variables such as TOBINQ, BLOCK, SIZE, and AGE are identical to ones in equation (1). ATOBINQ, ABLOCK, ASIZE, and AROA are the acquirer's Tobin's Q, block holder existence, log of market value, and return on assets. Following Louis (2005), we additionally control for industry

membership (INDR), the existence of non-negotiated bid (NONNEGO), the existence of a poison pill (PILL), the existence of any anti-takeover tactics (DEFENSE), the use of cash only payment (CASHP), the existence of a tender offer (TENDER), and the use of the pooling of interest method (POOL). Following Baker et al. (2009), we control for the psychology of prior price as an anchor in M&A pricing by including PREMIUM. Finally, we control for acquirer returns around the announcement of the M&A (ACAR). The z-statistics are adjusted for firm clustering (Rogers 1993). \*\*\*, \*\*, \* represent 1%, 5%, 10% significance levels, respectively (two-tailed). See Appendix C for all variable definitions. Pseudo R squared is calculated following McFadden (1973).

**Table 6**  
**Acquirer Returns and Big N Target Auditor**

$$\begin{aligned}
 ACAR_i = & \delta_0 + \delta_1 BIGN_i + \delta_2 BIGN*INNATEAQ_i + \delta_3 INNATEAQ_i + \delta_4 ABIGN_i + \delta_5 SAME_i \\
 & + \delta_6 TOBINQ_i + \delta_7 BLOCK_i + \delta_8 SIZE_i + \delta_9 AGE_i + \delta_{10} ATOBINQ_i + \delta_{11} ABLOCK_i \\
 & + \delta_{12} ASIZE_i + \delta_{13} AROA_i + \delta_{14} INDR_i + \delta_{15} NONNEGO_i + \delta_{16} PILL_i \\
 & + \delta_{17} DEFENSE_i + \delta_{18} CASHP_i + \delta_{19} TENDER_i + \delta_{20} POOL_i + \delta_{21} PREMIUM_i \\
 & + \text{Industry and year dummies} + \varepsilon_i
 \end{aligned}
 \tag{3}$$

Variables	Column (I)		Column (II)	
	Coefficient	t-stat	Coefficient	t-stat
Constant	0.018	1.23	0.127	3.22
BIGN	0.013*	1.88	-0.013	-0.62
BIGN*INNATEAQ			0.269	1.05
INNATEAQ			-0.128	-0.55
ABIGN	-0.024**	-2.29	-0.028*	-1.86
SAME	-0.001	-0.19	0.002	0.33
TOBINQ	0.001	0.29	-0.003	-1.02
BLOCK	0.006	1.34	0.011*	1.81
SIZE	-0.011***	-6.46	-0.009***	-3.97
AGE	0.000**	2.13	0.000	1.60
ATOBINQ	-0.003***	-2.64	-0.004*	-1.83
ABLOCK	-0.006	-1.51	-0.011*	-1.89
ASIZE	0.005***	3.41	0.004*	1.79
AROA	-0.016	-0.82	0.026	0.72
INDR	0.005	1.05	-0.008	-1.20
NONNEGO	0.003	0.50	0.002	0.20
PILL	-0.009	-0.68	-0.030	-1.43
DEFENSE	0.000	-0.02	0.004	0.46
CASHP	0.019***	4.33	0.022***	3.79
TENDER	0.006	1.41	0.006	0.91
POOL	-0.014**	-2.52	-0.016*	-1.91
PREMIUM	-0.023***	-3.76	-0.021**	-2.53
Industry and year dummies		Included		Included
<i>Adjusted-R<sup>2</sup></i>	0.081		0.163	
<i>Number of observations</i>	2,130		1,038	

**Note:** Table 6 provides the regression results of the OLS estimation of equation (3). Column I reports the regression results using the full sample; column II reports the regression results using the sample with data on innate accrual quality (INNATEAQ). The dependent variable is ACAR. ACAR is the abnormal return for an acquirer cumulated over the period from day -1 to day 1 where day 0 is the acquisition announcement date. ACAR is calculated from the market model using EVENTUS at the Wharton Research Database System (WRDS), consistent with prior research. The test variables are Big N auditor (BIGN) and its interaction with innate accrual quality (BIGN\*INNATEAQ). Note that we also control for the acquirer's auditor quality (ABIGN) and an indicator variable SAME, which is 1 if the target and the acquirer employ the same audit firm, 0 otherwise. Other control variables in equation (2), Table 5, are also included in this model. The t-statistics are adjusted for firm clustering (Rogers 1993). \*\*\*, \*\*, \* represent 1%, 5%, 10% significance levels, respectively (two-tailed). See Appendix C for all variable definitions.