

Auditee Mergers, Audit Fees, and the Market Dominance of the Big Four Accounting Firms

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Abstract:

This study addresses the concerns of stakeholders regarding the audit market concentration. Auditors' growing market power presents a moral hazard problem for properly functioning capital markets. For more than a decade, stakeholders have paid considerable attention to this issue, as reflected in popular media, academic research, and new regulations such as the EU audit reform in 2014. Our study examines the impact of auditor's increased market power on audit fees by using novel data on auditee mergers rather than audit firm mergers. Prior studies report mixed results regarding audit fees when mergers allow them to achieve greater economies of scale and market share. We find no evidence suggesting that Big Four auditors reduce their audit fees to pass the benefits of economies of scale to their clients. In addition, we investigate a concern raised by prior studies about the role of shared auditors in auditee mergers and find no evidence that shared auditors play an information intermediary role in their clients' mergers.

I. Introduction

The audit market has become highly concentrated. In 2022, the top ten firms audit 68.8% of the entire Securities and Exchange Commission (SEC) registrant population. The Big 4 audit firms account for 88% of the large accelerated-filers market (companies with market float of \$700 million or more in market capitalization), which accounts for about one-third of total registrants with the SEC (Ryan, 2022). The Big Four (Big 4) audit firms' dominance and market power can impede competition and affect the audit fees, audit quality, and auditor independence. Popular press and mainstream media have recently paid considerable attention to this issue. For example, on June 3, 2023, The Guardian stated, "*The Big 4-PricewaterhouseCoopers, EY, Deloitte, KPMG-are the global behemoths of the professional services industry. With nearly 1.5 million staff and US \$190 bn in annual revenue, they dominate markets for accounting, auditing and tax advice.*" (Gow and Kells, 2023). More than a decade ago, on October 27, 2011, *New York Times* article discussed the Big 4 firm dominance over the accounting industry, reporting then that the Big 4 audited the financial reports of 98% of American companies with revenues over US \$1B (Crane, 2011). The span of time between the two articles exemplifies the continuous concern about the audit market concentration that has remained an important issue for stakeholders. .

Although some firms in the second tier have become substantially large or formed international networks, it remains difficult for smaller audit firms to compete with the Big 4 well enough to join their ranks. In fact, since 2002, when the Big 5 was reduced to the Big 4 due to the collapse of Arthur Andersen, not one firm grew its market share enough to take Arthur Andersen's place, and the revenues and market share of the Big 4 audit firms continued to increase. The high degree of concentration and market power of the Big Four instigated a call for an alternative industry structure to include additional firms or split existing ones (Miller and Jennen, 2020).

In response to public and regulatory concerns, the accounting literature has paid considerable attention to the impact of audit industry concentration resulting from the mergers of audit firms (Wootton et al., 1994; Pong, 1999; Wolk et al., 2001; Ding and Jia, 2012; Gong et al., 2016). These studies have attempted to distinguish between two hypotheses. The first hypothesis examines whether the benefits of cost savings arising from economies of scale are passed on to clients in the form of reduced audit fees (*the efficiency hypothesis*). Second, the market power

hypothesis examines whether audit firms with greater power choose to increase audit fees, lower the quality of their audits, or even exercise an unhealthy degree of influence over the standards and practices of the profession (*the market power hypothesis*). Both hypotheses are supported by several prior studies. For the former, audit firms can reduce their costs by combining their specialties and complementary locations via mergers (Sullivan, 2002), leading to higher operating efficiency and lower costs of providing auditing services, which might ultimately help improve audit quality. The literature suggests that a reduction in audit fees can be an indicator of efficiency improvement (Iyer and Iyer, 1996; Ivancevich and Zardkoohi, 2000; Firth and Lau, 2004; DeFond and Zhang, 2014). By contrast, Dopuch and Simunic (1980), DeAngelo (1982), and Francis (1984) suggest that merged audit firms with greater market power refrain from sharing cost savings with their clients. Therefore, whether mergers reduce audit fees remains an unresolved empirical question. This inconclusive evidence could be because of the limited number of audit firm mergers used in extant studies, the lack of cross-sectional variation among audit firms, and the absence of archival data on audit firms in comparison to publicly traded firms. These issues are avoided in this study of auditee mergers.

In this study, we suggest that auditee mergers enable audit firms to continue their market dominance, increase their market power, and maintain a high level of concentration in the Big 4, even in the absence of the mergers between auditors themselves. When auditee firms merge, bidding firm's auditors become auditors of the surviving company, increasing the size of their accounts. After the merger, the auditors of the acquirers, most likely the Big 4, can achieve synergistic benefits due to economies of scale and capture clients and associated future revenue from the auditors of the target. Consequently, acquirers' auditors enjoy significant cost savings, increased revenue, and increased market power. The auditor of the target firm will suffer the loss of a client and future revenue, weakening its ability to compete. The impact of economies of scale and increased market dominance is similar to that of audit firm mergers. Thus, we propose that an auditee merger is a mechanism for the acquirer's auditor to gain the market share without the acquisition of another accounting firm and without causing negative publicity.

We use a sample of auditee mergers to examine the impact of the market concentration of audit firms. We test whether a) auditors are willing to pass along, at least partially, the synergistic benefits of cost savings in the form of a reduction in audit fees or b) the auditors of the surviving

firm will boost profits by charging higher fees to their clients because they enjoy enhanced market power through the larger share and greater market concentration.

We find that, in the post-merger period, audit fees increase significantly, by US\$ 2.67 million, on average. Additionally, the Big 4 auditors and auditors with a higher degree of concentration or market power charge higher audit fees. Furthermore, audit fees are higher for firms that require complex audit processes, whereas they are a decreasing function for companies with good governance and superior financial performance. We also find higher post-merger audit fees for deals in which the auditor of the bidder is a Big 4 firm, the auditor of the target is a Big 4 firm, and both the bidder and target employ Big 4 auditors. We conclude that the merger of auditee firms enables the Big 4 auditors to extract a significant amount of excess fees because of their market power. These results are consistent with the market power hypothesis and do not suggest that auditors pass on the benefits of synergy and economies of scale to their clients in the form of reduced audit fees.

Furthermore, our setting allows us to examine another rising issue regarding shared auditors in auditee merger transactions: the auditor's role as an information intermediary. Auditors accumulate a considerable amount of information about their clients by conducting audit procedures and discussions with top management, allowing them access to private information from both clients. Dhaliwal et al. (2016) suggest that auditors have the potential to become information intermediaries between prospective targets and acquirers, with shared auditors incentivized to align with the interests of larger clients. Thus, there exists a potential bias in favor of one client over the other—the bidder over the target—because the auditor's long-term incentives are more closely aligned with those of the bidder.

By analyzing market reactions to auditee merger announcements, we find no evidence that auditors assume an intermediary role in merger and acquisition (M&A) transactions. This finding is consistent with the fact that auditors maintain the code of conduct, preserve their reputational capital, and minimize their legal liabilities.

Our results contribute to literature in three ways. First, we provide empirical evidence of auditors' conduct when they have greater economies of scale and market power. We can shed

light on this long-standing question using novel data from auditee mergers instead of audit firm mergers. Thus, we overcome the data limitations of prior literature. Second, we provide empirical evidence against the suggestion that shared auditors play an intermediary role in client mergers. This evidence is important to the profession because such conduct would raise serious concerns about both the ethics and legal liability of auditors. Finally, by examining a sample of auditee mergers, our data include firm characteristics for both the bidders and the targets before the mergers and after the merger. We can then analyze auditor choice regarding fees levied on firms based on the auditor characteristics (e.g., Big 4 or non-Big 4; location of auditors) and firm characteristics (e.g., auditee industry and financial statement quality). Previous studies examining audit firm mergers were unable to provide this insight.

The remainder of this paper is organized as follows: Section 2 reviews the prior literature. Section 3 presents our hypothesis. Section 4 describes the data collection and analytical methods. Section 5 presents the results, and Section 6 concludes the paper.

II. Review of Literature

Since 2000, more than 790,000 M&A transactions have been announced worldwide, with a known value of over US\$ 57 trillion.¹ One of the major drivers of M&A is the potential for operating synergy, improving efficiency, and value creation (Kim and Singal, 1993; Gong et al., 2016). M&A are strategic business decisions driven by potential synergies. However, in the context of the audit market, auditor mergers are significant because of the high degree of market concentration. Auditors are more likely to capture new clients because of mergers (Wolk et al., 2001). Dunn et al. (2008) investigate the impact of the consolidation of the Big 5 to the Big 4 and find an increase in market concentration and a higher market share for the Big 4 after the consolidation, suggesting that the increase in market share is driven by the merger of accounting firms.

Several prior studies have examined the mergers of audit firms and considered the impact of increasing audit market concentration on factors such as audit costs, fees, and quality (Wootton et al., 1994; Pong, 1999; Wolk et al., 2001; Iyer and Iyer, 2006; Ding and Jia, 2012; Gong et al.,

¹ <https://imaa-institute.org/mergers-and-acquisitions-statistics/>. Retrieved 5/14/2024.

2016). For example, Menon and Williams (2001) find that the 1989 merger of Ernst & Whinney and Arthur Young to form Ernst & Young, and the merger of Deloitte Haskins & Sells and Touché Ross to form Deloitte & Touché, which reduced the Big 8 to the Big 6, resulted in an increase in audit fees. On the contrary, Ivancevich and Zardkoohi (2000) assess the outcome of the 1989 accounting firms' "megamergers" and find that the megamergers resulted in an increase in operating efficiency within the audit market and a decline in overall audit fees. These mixed results suggest that uncertainty is related to changes in audit fees after mergers between auditing firms. Consequently, the Government Accountability Office (GAO, 2003, 2008) concluded that there is a lack of evidence to support a significant increase in audit fees after the 1980s.

DeAngelo (1981a, 1981b) in her two papers suggests a strong link between auditor's size and audit quality: the larger the auditor, the less incentive the auditor has to behave opportunistically, potentially increasing audit quality. Based on these two studies, researchers have investigated the impact of audit firm mergers on audit quality (Kallapur et al., 2010; Wang et al., 2011; Ding and Jia, 2012). For example, Boone et al. (2012) argue that consolidation of the auditing industry will increase the market dominance of audit firms and improve audit quality by lowering auditors' need to please clients and strengthening auditors' independence. Choi et al. (2013) examine the impact of the *Price Waterhouse* and *Coopers & Lybrand* merger on audit quality at both the firm and office levels during the pre- and post-merger periods, suggesting that the increase in audit quality after the merger is due to expanding firm size. Similarly, Chan and Wu (2011) investigate the empirical association between audit firms' aggregate quasi-rents at stake and auditor independence using a sample of mergers of local Chinese accounting firms. Their results show that mergers of local Chinese firms are associated with an improvement in audit quality. By contrast, Christensen et al. (2016) report a decrease in audit quality for a merged firm in the post-acquisition period for small audit firm mergers in the United States. Recently, Gong et al. (2016) examine the efficiency improvement associated with audit firm mergers in China. They report a reduction in the audit efforts of merged audit firms during the post-merger period, which they attribute to efficiency improvements arising from mergers of audit firms. Overall, the impact of mergers on audit quality remains inconclusive.

Similarly, studies examining audit fees after audit firm mergers provide inconclusive evidence. Audit firm mergers could lead to reduced audit fees, potentially because of increased efficiency.

By contrast, auditors may choose to take advantage of their increased market power by increasing audit fees and lowering audit quality. Several studies (Iyer and Iyer, 1996; Ivancevich and Zardkoohi, 2000; Firth and Lau 2004; DeFond and Zhang, 2014; Gong et al., 2016) provide evidence in support of efficiency gains and a reduction in audit fees, while others (Dopuch and Simunic, 1980; DeAngelo, 1982; Francis, 1984) provide evidence in support of an increase in market power and audit fees. Overall, the literature has extensively examined the impact of audit market consolidation on audit quality by focusing on audit firm mergers. Our study is inherently different from the previous literature in that we focus on the economic consequences of mergers between auditee firms and their impact on audit fees and auditor concentration. These transactions have not been examined in the extant literature.

Another branch of literature focuses on the effect of shared auditors in M&A transactions. Research suggests that shared auditors can facilitate information flows from one client to another and that this action is associated with outcomes such as lower takeover premiums and a higher likelihood of friendly acquisitions (Bedford et al., 2023). Similar results have been reported in cross-country M&A transactions (Chircop et al., 2018). Finally, Ai et al. (2022) find improvements in post-acquisition financial reporting quality and reduced audit fees because same-office common auditors show a decreased likelihood of misstatements, lower F-scores, and a lower likelihood of missed internal control material weaknesses.

Two recent studies have examined the potential role of shared auditors as information intermediaries. Dhaliwal et al. (2016) examined the impact of M&A on acquisition outcomes and the role of acquirers' auditors as information intermediaries in the acquisition process. They hypothesize that shared/common auditors facilitate the flow of information between bidders and targets, and that the benefits of such mitigated information asymmetry accrue primarily to acquiring firms. They find that shared auditors are observed in 26 percent of all public acquisitions and that targets are more likely to receive an offer from a bidder with the same auditor. Furthermore, shared auditor transactions are associated with lower deal premiums, lower target abnormal returns, higher abnormal bidder returns, fewer competing bids, and higher completion rates. Their results provide evidence consistent with the violation of conflict-of-interest rules by auditors that benefit one client at the expense of another, where auditors benefit acquisitive clients at the expense of target clients. Cai et al. (2016) suggest that a shared auditor

can help merging firms reduce uncertainty throughout the acquisition process, allowing them to allocate their capital more efficiently, resulting in higher-quality M&As. They find that transactions with shared auditors have higher acquisition announcement period abnormal returns, and that abnormal returns are more pronounced when common auditors share the same office. Furthermore, shared auditor deals are associated with higher deal completion rates. Their evidence suggests that common auditors act as information intermediaries for merging firms, resulting in higher-quality acquisitions. Neither of these studies has examined the impact of auditee mergers on audit fees or how M&A transactions may serve as a mechanism to increase auditors' market power, and audit fees.

III. Testable Hypothesis

In this study, we suggest that: 1) mergers of auditee firms allow acquirers' auditors to increase the size of their clients and achieve economies of scale, lower their marginal cost of auditing, increase revenues, and increase their market power. 2) Mergers of auditee firms allow acquirers' auditors to capture a significant number of clients from the targets' auditors, which will undermine their survival and their ability to compete. 3) Mergers of auditees allow acquirers' auditors to increase their market dominance without acquiring other audit firms. Acquirers' auditors achieve economies of scale, lower their marginal costs, enhance their dominance, and increase their audit fees from the following sources.

1. Synergistic benefits due to economies of scale: Economies of scale arise because of indivisibilities such as people, equipment, technologies, and overhead, which result in lower costs if spread over a larger number of units of output. Several studies (Mayhew and Wikins, 2002; Bills et al., 2014) have pointed to the presence of economies of scale in audit costs. Dopuch and Simunic (1980) suggested that the acquirer's auditor might achieve economies of scale and scope through labor productivity. An acquirer's auditor can support more specialized knowledge (e.g., in-depth knowledge of the client's industry and a better understanding of different tax laws and accounting standards) and redeploy strategic assets for more productive use, leading to a decrease in the marginal costs of auditing.

The marginal cost reduction due to economies of scale may depend on the size of the deal, size of the surviving entity, industry affiliation of the bidder and target, and level of complexity of the target operation relative to the bidder's operation. Gerrard et al. (1994) show that auditee size and complexity are the major determinants of auditing costs. The larger the size of the surviving entity, the larger the synergistic benefits and, consequently, the lower the audit cost, as the auditor will audit one instead of two firms. This suggests that an auditee merger is more likely to produce significant cost savings owing to economies of scale.

2. Auditor Concentration and Market Power: Acquirers, owing to their larger size, tend to be audited by more Big 4 auditors relative to their target firms. Target firms, on the other hand, are more likely to be audited by Non-Big 4 auditors. Because the target firm ceases to exist after the merger, its auditor loses a client and the associated future revenue in the form of audit fees to the acquirer's auditor. The client and future revenue will be captured by the auditor of the acquirer, most likely a Big 4. Therefore, a merger of auditees afford the auditor of the acquirer—most likely a Big 4—cost savings, increased revenues, and an increase in the market power. The auditor of the target will suffer the loss of a client, the loss of future revenues, and a decline in its ability to compete.

While synergy and economies of scale are expected to result in lower audit costs for the acquiring firms' auditors, whether and how auditors react to audit fees is an empirical question. Auditors may not be willing to pass on the cost savings to their clients in the form of lower audit fees because they are able to charge higher fees due to the increase in market power from the increased audit market concentration. Alternatively, the firm may consider retaining market share (by maintaining a competitive price) more important than maximizing its current profits. Auditors may find it more profitable in the long run to share synergetic benefits with clients to ensure that they retain their accounts. Our first hypothesis (H1) examines the audit fee strategy in response to two forces: lower audit costs (lower audit fees to retain accounts) and increased market power (higher fees to maximize profits). A significant decrease in audit fees in association with the merger of auditee firms is consistent with the efficiency hypothesis, while an increase is consistent with the market power hypothesis. We state H1 in null form as:

H1: There will be no change in audit fees associated with the merger of auditee firms.

To differentiate between the two alternatives, we use several proxies for market power, and we control for audit quality, audit complexity, deal and firm characteristics, and the auditor's role as an information intermediary using the following cross-sectional regression model where the standardized audit fees **STDAFEES** is the dependent variable, a full description of the independent variables is provided in Appendix 1 and the rationale for variable inclusions is given below:

$$\begin{aligned} \text{STDAFEES} = & B_0 + B_1 \text{ABIG4} + B_2 \text{ACONC1} + B_3 \text{ACONC2} + B_4 \text{LPRICE} + B_5 \text{RSIZE} + B_6 \\ & \text{TENURE} \\ & + B_7 \text{RESTAT} + B_8 \text{PNAFEES} \\ & + B_9 \text{BTSSIC} + B_{10} \text{NSUBS} + B_{11} \text{INTANTA} \\ & + B_{12} \text{ABTSAME} + B_{13} \text{BTSCITY} \\ & + B_{14} \text{LEV} + B_{15} \text{INSTHOLD} + B_{16} \text{SPREAD} + B_{17} \text{ROEB} + B_{18} \text{MTB} \\ & + B_{19} \text{MPAY} + B_{20} \text{TERMFEE} + B_{21} \text{TENDER} + B_{22} \text{THOLD} + B_{23} \text{MULTIBID} + E \end{aligned}$$

Market Power: The first proxy for market power is auditor concentration. The higher the auditor concentration, the greater the ability to extract higher audit fees. We used two definitions of auditor concentration. The first measure, **ACONC1**, is defined as the within-sample total audit fees earned by the auditor for the year before the merger announcement divided by the total audit fees earned by all auditors for that year from all transactions in our sample. The second measure, **ACONC2**, is the out-of-sample total audit fees earned by the auditor from all auditees for the year before the merger divided by the aggregate of all audit fees earned by all auditors for that year. The higher the degree of concentration, the higher are the audit fees; as such, we anticipate a positive association between auditor concentration and audit fees. As additional proxies, we use whether the audit firms are Big 4 and the auditor tenure. The Big 4 accounting firms, **ABIG4**, enjoy a high degree of market power relative to the non-Big 4 firms and, as such, can extract higher audit fees. The association between **ABIG4** and audit fees is expected to be positive and statistically significant. Auditors with a longer tenure, **TENURE**, with the acquirer are more likely to be entrenched, gain greater market power, and charge higher fees.

Economies of Scale: To proxy for economies of scale, we use the size of merger deals, **LPRICE**, defined as the log of the total market value of the combined entity. The benefits and

cost savings to the auditor resulting from economies of scale are positive functions of the size of the combined merging firms. Marginal cost reductions are more likely to be significant for larger mergers because auditor specialties will be more efficiently utilized if the auditor spends its efforts on one instead of two firms. We anticipate a positive association between **LPRICE** and audit fees. Further, the acquirers' auditors prefer larger deals and/or larger targets because this will translate into higher fees and market power. We proxy for such a preference using the size of the target relative to the size of the bidder in terms of total assets, **RSIZE**. We thus anticipate a positive association between **RSIZE** and audit fees.

Audit Quality: Lower restatement rates are widely used as a proxy for higher audit quality (Rowe and Sivadasan, 2021). **RESTAT** is an indicator variable that equals one if the company restated its financial statements in the two years prior to the merger announcement year, and zero otherwise. Previous restatements may cause the auditor to perceive higher audit risk and thus charge higher audit fees to compensate for the assumption of additional risk. We anticipate a positive association between **RESTAT** and audit fees. Another proxy for audit quality is the ratio of non-audit fees to total fees (**PNAFEES**). The Securities and Exchange Commission suggests that fees from non-audit services weaken auditor independence, reduce financial statement reliability, and increase firms' capital costs. A higher percentage of **PNAFEES** can be taken as an indication that the auditors' focus is on non-audit activities and thus indicates lower audit quality (Dhaliwal et al., 2008). We anticipate a negative association between **PNAFEES** and audit fees.

Audit Complexity: Audit complexity is one of the primary variables that determines audit fees (Simunic, 1980; Taylor and Baker, 1981; Francis, 1984; Gerrard et al., 1994) in that audit costs increase with audit complexity. An increase in complexity results in additional effort by the auditor. In response, auditors may need to increase their fees (Hallas and Keohane, 2022). We thus anticipate a positive association between complexity and audit fees. We argue that cost savings from a merger are also likely to be affected by complexity. If the audit is more complex, the cost savings from the merger are likely to be less than the savings from a simpler audit and the auditor will demand higher audit fees.

We proxy for complexity using the following variables: 1) **BTSSIC** which is an indicator variable equal to one if the bidder and target are in the same industry based on the first two digits of the SIC Code, and zero otherwise. The cost savings from the merger are likely to be larger if the bidder and target are in the same industry. Thus, a negative association is anticipated between **BTSSIC** and audit fees, reflecting the assumption that auditors demand higher audit fees for auditing companies in different industries. 2) **BTSCITY**, a proxy for geographical proximity, is an indicator variable equal to one if the offices of the bidders and target auditors are in the same city, and zero otherwise. Similarly, we include in our regression **ABTSAME**, an indicator variable equal to one if the bidder and target retain the same auditor, and zero otherwise. We anticipate negative associations between audit fees and both **BTSCITY** and **ABTSAME** to reflect the degree of synergistic benefits when the two offices are in the same city or when the merged firms retain the same auditor, because the acquirer's auditor is already familiar with the local regulations and environment of both firms. Additionally, there is a greater potential for synergy from combining the audits of two firms in a similar environment. 3) **NSUBS** is an indicator variable equal to one if the company has one or more subsidiaries and zero otherwise. Auditing companies with several subsidiaries are more complex and require greater effort; thus, a positive association is anticipated between **NSUBS** and audit fees. 4) **INTANTA** is the ratio of intangible to total assets; Auditors may find it relatively more challenging to audit firms with a higher proportion of intangible assets because of their complexity and valuation difficulties. Datta et al. (2019) find that firms with a higher proportion of intangible assets are associated with higher auditor effort and higher litigation risk for auditors, manifesting in higher audit fees. We anticipate a positive association between **the STDAFEES** and **INTANTA**.

Firm Characteristics: To control for firm characteristics, we use the following variables. (1) **LEV**, the degree of financial leverage, defined as the sum of long-term debt and debt in current liabilities divided by total assets. A high degree of financial leverage can increase the likelihood of financial distress, which in turn increases audit risk (Gul et al., 2007). Thus, the higher the degree of financial leverage, the higher the audit risk, which causes the auditor to demand higher audit fees (Bedard and Johnstone, 2004; Alves, 2021). We thus anticipate a positive association between **LEV** and audit fees. (2) We use the percentage of shares held by institutional investors, **INSTHOLD**, as a proxy for corporate governance. An audit can be viewed as a form of external

governance for which effective internal governance may substitute to some degree (Wu, 2012). The more effective the corporate governance structure of a firm, and hence the lower the agency cost, the lower the risks the auditor will encounter and the lower the audit fees that will be charged. We anticipate a negative association between **INSTHOLD** and audit fees. (3) Bid-ask spread (**SPREAD**) is a proxy for information asymmetry. Less transparent companies convey higher audit risk; therefore, auditors demand higher audit fees. We anticipate a positive association between **SPREAD** and standardized audit fees. (4) Auditees' financial performance can indicate audit risk and is an important determinant of audit fees (Czerney, 2020). We utilize a firm's **ROEB** and market-to-book ratio, **MTB**, as proxies for firm performance. Companies with superior financial performance and high market-to-book ratios are associated with lower business and audit risk, causing auditors to demand lower audit fees. We anticipate negative relations between standardized audit fees and **ROEB** and **MTB**.

Merger Deal Characteristics: method of payment (**MPAY**); whether the deal is settled in cash, securities, or a combination; whether the deal includes termination fees (**TERMFEE**); whether the deal is a tender offer or merger (**TENDER**); whether the bidder has a toehold in the target (**THOLD**); and whether the target receives multiple bids (**MULTIBID**) are standard variables in the merger literature to control for deal characteristics (Skaife and Wangerin, 2013; Chow et al., 2016).

IV. Data and Method of Analysis

The data for this study consist of all the M&A transactions of US bidders acquiring US targets, US bidders acquiring foreign targets listed on US stock exchanges, and US targets acquired by foreign bidders listed on US stock exchanges. The study period extended from January 1, 2000, to December 31, 2015, and data were obtained from the MergerStat Review database. There were 10,105 merger transactions during the study period. In the final sample, merger deals are restricted to successful mergers—those in which the bidders obtain the controlling interests of the targets. Return data are obtained from the Center for Security Prices (CRSP) and companies' financial information is obtained from COMPUSTAT. Audit fees and information are available in the Audit Analytics database. Furthermore, for each transaction, we searched the company website and other search engines for any confounding major events over a three-day window from day t-1 through

day t1 relative to event day t0. These restrictions produced a final sample of 983 merger transactions with complete information on the bidders and targets. Table 1 provides the summary statistics for the final sample, categorized by firm, auditor, and merger deal characteristics.

To estimate abnormal stock returns around M&A announcements, we use the Fama and French (1993) three-factor model supplemented with a momentum factor as the return-generating process. The average abnormal return (**AAR**), the cumulative average abnormal return (**CAR**), and corresponding test statistics are estimated as described by Cowan (1992). The Fama and French (1993) three-factor model simultaneously controls for risk factors representing high versus low, firm size, and market-to-book equity ratios. **AAR** is calculated using ordinary least squares regression (OLS) with 150 daily returns from trading day t-210 through trading day t-61 relative to announcement date t0. The **AAR** for event date t is calculated as the simple cross-sectional average of N firms in the sample. The 3-day **CAR** (**CAR3**) is expected to capture the market reactions to M&A announcements. Both the rank z-test developed by Corrado (1989) and the jackknife z-test developed by Giaccotto and Sfridis (1996) are utilized to test the level of significance of the **AAR** and **CAR**. In addition, we examine the effect of M&A announcements on the daily log-transformed trading volume, measured as in Campbell and Wasley (1996).

V. RESULTS

Summary Statistics

Table 1 provides summary statistics for the final sample of 983 merger transactions categorized by firm (Panel A), auditor (Panel B), and merger deal (Panel C) characteristics for both bidder and target firms. Panel A shows that the bidders tend to acquire smaller targets. The average total assets of the bidders is 13.10 times that of the targets, and the average market value of equity is 20.24 times that of the targets. Targets tend to have a lower percentage of intangible assets to total assets (**INTANTA**) of 13.80% relative to 20.80% for bidders, a higher degree of financial leverage (**LEV**) 29.70% relative to 21.80% for bidders, and a higher degree of information asymmetry, with **SPREAD** of 0.771 relative to 0.540 for bidders. Target firms appear to be less effectively governed, with **INSTITHOLD** of 49.30% relative to bidders' 62.20%, reporting inferior financial performance, ROEB of -1.50% relative to bidders' ROEB of 15.30%. Most of

the transactions (67.70%) tend to be between firms within the same industry group (two-digit SIC codes).

Panel B reports the auditor characteristics of the bidders and the targets. Transactions with shared auditors (**ABTSAME**) represent 23.20% of all transactions. The Big 4 firms audit 91.10% of the bidders and 72.60% of the targets. The implication is that 18.50% of the non-Big 4 auditors' clients will be taken over by firms with Big 4 auditors upon completion of the deals. This may undermine the survival and competing ability of the non-Big 4 auditors. Specifically, the non-Big 4 auditors will lose 18.50% of their clients to the Big 4 auditors of the acquiring firms.

Regarding auditor tenure (**TENURE**), 74.90% of acquiring firms' auditors have been retained by their clients for a period exceeding 5-years, relative to 38.80% of target firms' auditors. Only 5.30% of transactions have the auditors' offices of both bidders and targets located in the same city (**BTSCITY**). This may undermine the argument that the proximity of an auditor's office promotes information exchange between auditors, which benefits the bidders at the expense of the targets.

The auditors of bidding firms enjoy market power and a higher degree of concentration (21.50%) relative to the targets' auditors (18.10%). The acquirers' auditors generate a higher ratio of non-audit fees to total fees (**PNAFEES**) at 0.665, relative to 0.218 for the targets' auditors.

Panel C reports the summary statistics of merger transaction characteristics. The average premium (**PPREM**) paid by the bidders is 40.55 percent. Cash is the method of payment in 57.30% of the transactions, whereas the rest are either stock or a combination of cash and stock. Furthermore, 22.90% of the transactions were executed through tender offers, whereas the remainder was done through mergers. Only 3.70% of the deals involved multiple bidders, and in 4.90% of the deals the bidder had a toehold on the target. The average number of days to complete a transaction (**DIFFDATE**) is 103 days.

Univariate Analysis of Audit Fees Relative to Merger Year

Table 2 provides a mean comparison of audit fees, non-audit fees, total fees, audit-related fees, miscellaneous fees, and tax-related fees for the two-year period before the merger announcement and the two-year after. Further, the table reports the mean difference between the two-year averages after the announcement year (**YPOST**) and two-year averages before the announcement year (**YPRE**) for the various fees paid to auditors. The results are reported in millions of US dollars (Panel A) and in standardized form (Panel B), where each variable is scaled by the log of the total assets of the relevant year. Our emphasis is on audit fees, although the table provides a comparison with other fees. It is important to point out that audit fees do not include any fees related to M&A deals because these fees are included in “audit related fees” which is not part of the audit fees. Furthermore, to ensure that any change in audit fees is not related to the merger transaction, we dropped the year of the merger “Y0” from our analysis.

In the post-merger period, audit fees increased by US\$ 2.67 million on average. This increase is statistically significant at the one percent level. The increase in standardized audit fees is also significant at the one percent level. These preliminary results are consistent with the market power hypothesis and do not suggest that auditors pass on the benefits of synergy and economies of scale to their clients in the form of reduced audit fees.

Univariate Analysis by Auditor’s and Merger Deal Characteristics

Table 3 reports the results of a univariate analysis of the mean of the standardized audit fees and the dollar value in millions of US dollars categorized by auditor characteristics (Panels A), Big 4 versus Non-Big 4 (Panel B), and merger deal characteristics (Panel C) for the year of the merger (**AF0**), the pre-merger period (**AFPRE**), the post-merger period (**AFPOST**), and for the difference (**AFDIFF**). The results show that audit fees increase for the sample firms with a mean difference (**AFDIFF**) of \$2.67 million. Again, this increase in audit fees supports the market power hypothesis. There is no evidence that the auditor passes the synergistic benefits from the merger to their clients in the form of a reduction in audit fees.

Panel A shows that bidders and targets with the Big 4 auditors have higher audit fees than those with the Non-Big 4 auditors. The mean difference is statistically significant at the one percent

level. Furthermore, if the bidder's auditor is a Big 4, the target's auditor is a Big 4, or if the bidder's and target's auditors are Big 4, there is a significant increase in audit fees post-merger. These results provide more support for the market power hypothesis.

Auditor tenure reflects an auditor's engagement with a company. We expect that the longer the **TENURE** the more entrenched would the auditor be with the client and also the greater the auditor's market power. The results show that transactions in which the auditor's tenure with the bidder exceeds five years are associated with significantly higher audit fees than those in which the auditor has a shorter tenure with the bidder. However, the difference in audit fees is not significant.

Deals in which the bidder restated their financial statements in the previous two years relative to the announcement year (**RESTAT**) are associated with higher audit fees. Furthermore, the difference in audit fees before and after the merger year is statistically significant. Because the **RESTAT** variable is used as a proxy for audit quality and financial reporting quality, auditors may perceive higher audit risk for this group, thus increasing audit fees.

Deals in which the bidder controls multiple subsidiaries (**NSUBS**) and those in which the bidder and target belong to different industry groups (**BTSSIC**), a proxy for audit complexity, are associated with higher and statistically significant audit fees. The mean difference in the standardized audit fees is statistically significant at the one percent level.

To proxy for the auditor's role as an information intermediary and whether auditors capitalize on this role in terms of higher audit fees, we use 1) **ABTSAME**, an indicator variable equal to one if the bidder and target retain the same auditor, and zero otherwise, and 2) **BTSCITY**, an indicator variable equal to one if the auditors of the bidder and target offices are located in the same city, and zero otherwise. The results show no significant difference in the increase in audit fees based on whether the auditors' offices of the bidders and targets are in the same city. One reason for this finding may be that most of the auditors for bidders and targets have offices in different cities (95%). Furthermore, there is no significant difference in the increase in audit fees after the merger when the bidder and target share the same auditor compared with when they have different auditors. These results do not support the argument that, in the case of shared auditors,

there exists a potential bias in favor of bidders at the expense of the target, which may manifest itself in terms of higher audit fees.

As predicted, we find that audit fees are higher if the bidder employs a Big 4 auditor, but not a non-Big 4 auditor. Audit fees are significantly higher when the target auditor is a Big 4 than when it is a non-Big 4 auditor. Furthermore, audit fees increase the most when the bidder's auditor is a Big 4 and the target's auditor is another Big 4. However, we did not find an increase in audit fees when the bidder's auditor was a non-Big 4 auditor and the target's auditor was another non-Big 4 auditor. This could be because the market power of the non-Big 4 firms is not strong enough to affect fees, even with a greater market share in the non-Big 4 market.

Panel C reports the results, categorized based on merger deal characteristics. Cash deals (as opposed to stock exchanges and combinations as methods of payment), deals with termination fee provisions, tender offers (as opposed to mergers), deals with multiple bidders, and deals in which the bidder has a toehold are all associated with higher and statistically significant audit fees.

In sum, deals where the auditors of the bidders are Big 4, the auditor of the target is a Big 4, and both bidders and targets employ Big 4 auditors are associated with statistically significantly higher audit fees relative to deals with the non-Big 4 auditors. Furthermore, the mean difference in audit fees between the pre- and post-merger year is statistically significant in each case. This is consistent with the market power argument in that it is the Big 4 audit firms that benefit from higher fees post-merger.

Results of Auditors Concentration

Table 4 reports the results of how auditee mergers correlate with auditor concentration. The results are as follows. Each of the Big 4 auditors experienced a significant increase in audit fees in the post-merger period. The Big 4 accounting firms control 91% of merger transactions and increased audit fees by US\$ 2.137 billion in the post-merger period. The Non-Big 4 shared 9% of the transactions and experienced insignificant increases in audit fees amounting to US\$ 8.19 million. The market shares of individual Big 4 auditors' revenue (audit fees) from the pre-merger to the post-merger period are mostly stable. The average percentage of market share in the pre-

merger period is 24.79% relative to 24.90% in the post-merger period, which highlights the oligopolistic nature of the audit market. KPMG LLP controls 31.83% of audit fees, which is the highest of any audit firm, while Ernst & Young LLP controls 17.32 percent of the audit fee market.

In summary, these results are consistent with the market power hypothesis, which states that the merger of auditee firms affords the auditor the ability to extract a significant amount of excess fees due to their market power. This opportunity is not available to the non-Big 4 due to their lack of market power. We find no evidence to suggest that the auditor passes on the benefits of economies of scale to their clients in the form of a reduction in audit fees.

Table 5 reports Pearson correlation coefficients between the dependent and independent variables utilized in the cross-sectional analysis in Table 6 below. **ACONC1** and **ACONC2** are highly correlated with **ABIG4**, with correlation coefficients of 0.802 and 0.764 significant at the one percent level. This suggests that the Big 4 firms tend to have higher degrees of concentration, a proxy for market power, regardless of the method used to define the degree of auditor concentration. The correlation coefficient between **ACONC1** and **ACONC2** is 0.941, which suggests that the within-sample measure of auditor concentration almost fully captures the out-of-sample measure and that either proxy is a reasonable measure of the degree of auditor concentration.

Large merger deals, **LPRICE**, tend to be associated with higher audit fees (**STDAFEES**) and are audited by Big Four auditors (**ABIG4**) with a high degree of auditor concentration (**ACONC1**) and (**ACONC2**). The correlation coefficient between **ROEB** (a proxy for firm performance) and **MTB** (a proxy for firm valuation) is 0.514, suggesting that companies with superior performance tend to have higher valuations. To address the issue of multicollinearity among highly correlated independent variables, we estimated cross-sectional models with and without these variables.

Cross-Sectional Analysis of the Standardized Audit Fees

Table 6 provides a cross-sectional analysis explaining the determinants of audit fees and differentiating our hypotheses. The dependent variable is standardized audit fees. The results indicate that **ABIG4** is positive and statistically significant, suggesting that the Big 4 auditors

charge higher audit fees than the non-Big 4 auditors. Further, auditor concentration, using within-sample or out-of-sample measures (**ACONC1** and **ACOC2**), is positive and statistically significant, suggesting that the higher the degree of concentration/market power, the higher the auditor's ability to extract higher audit fees. These results are consistent with the market power hypothesis.

Auditor tenure (**TENURE**) is positive and statistically significant at the one percent level, suggesting that the longer the auditor's tenure, the more entrenched the auditor and the higher its ability to extract higher audit fees. The deal size (**LPRICE**), measured as the market price paid by the bidder to the target, is positive and statistically significant. Furthermore, the size of the target relative to the bidder (**RSIZE**) is positive and statistically significant. This supports the existing evidence (e.g., Abbott et al., 2003), of a positive association between firm size and audit fees and the preference of bidding firms' auditors for larger transactions, which translates into lower audit costs due to economies of scale.

RESTAT, a proxy for audit quality, is positive and marginally significant at the five percent level. A higher restatement rate suggests a lower audit and financial reporting quality, which may translate into higher audit risk, causing the auditor to demand higher audit fees. As predicted, financial leverage (**LEV**) is positive and statistically significant at the one percent level. A higher degree of financial leverage may lead to a higher probability of default and, thus, higher audit risk, which causes auditors to demand higher audit fees.

Bidder and target industry affiliation (**BTSSIC**), a proxy for audit complexity, is negative and statistically significant at the one percent level. This suggests that companies with the same industry group are less complex to audit, causing auditors to demand lower audit fees. The number of subsidiaries (**NSUBS**), another proxy for audit complexity, is positive and statistically significant at the one percent level. This suggests that firms with a larger number of subsidiaries are more complex to audit, resulting in higher audit fees.

As predicted, the coefficient of institutional holdings (**INSTHOLD**) is negative and statistically significant, suggesting that the higher the percentage of shares held by institutional investors, the

more effective the governance structure of the firm, resulting in lower audit risk and lower audit fees.

The bid/ask spread (**SPREAD**), a proxy for information asymmetry, is positive and statistically significant, suggesting that less-transparent companies are perceived to be associated with higher audit risk, causing the auditor to demand higher fees. Financial performance can be taken as an indicator of audit risk. **ROEB** and **MTB** carry the predicted signs; however, they are marginally significant. To control for the merger deal characteristics, we include **MPAY**, **TERMFEE**, **TENDER**, **THOLD**, and **MULTIBID**. Method of payment (**MPAY**) is the only statistically significant variable. **ABTSAME** and **BTSCITY**, which are proxies for the auditor's role as an information intermediary, are not significant. These results do not indicate that shared auditors exhibit a bias in favor of the bidders at the expense of the targets, which may manifest itself in the form of higher audit fees. Multiple models are used to negate the effects of correlated independent variables (see Table 5, which reports the correlation coefficients among the independent variables). All models had a significant F-value, and the adjusted R-squares ranged from 0.259 to 0.339, representing reasonable explanatory power.

In summary, the results of cross-sectional analysis, after controlling for auditor, firm, and deal characteristics, convey that Big 4 auditors and auditors with a higher degree of concentration (market power) charge higher audit fees. Further, audit fees are higher for firms with complex audit processes, previous restatements, a higher degree of financial leverage, less transparency, and large deals, while it is a decreasing function for companies with good governance and superior financial performance. These results provide additional support for the market power hypothesis.

Supplemental Analysis: The Role of Auditor as Information Intermediary

Dhaliwal et al. (2016) suggest that auditors have the potential to become information intermediaries between prospective targets and acquirers and that shared auditors are incentivized to align with the interests of larger clients. As such, there exists a potential bias in favor of the acquirer over target clients. Bidders with shared auditors may have informational advantages relative to others in the bidding process, and the benefit of such information

asymmetry accrues primarily to the bidders. This informational advantage will manifest itself in the form of a less competitive bid which will translate into a lower deal premium and higher abnormal returns. However, if the target anticipates that their auditor will provide the acquirer with information that disadvantages the targets' position in the deal, the target may protect itself by demanding higher premiums as compensation or pursue legal action against their auditor. We examine the market reaction to merger announcements to determine whether such an informational advantage manifests itself in the form of higher announcement period **CAR** for transactions with shared auditors relative to those with different auditors. If the capital market perceives such an informational advantage, then we anticipate a higher **CAR** for acquirers with common auditors. Furthermore, in the cross-sectional analysis, we anticipate a positive and statistically significant association between **CAR** as the dependent variable, and **ABTSAME** as the independent variables.

Table 7 provides an additional analysis to examine the auditor's role as an information intermediary and assesses whether acquirers with common auditors enjoy an informational advantage at the expense of their targets (Dhaliwal et al., 2016). We estimate the Fama and French three-factor model as the abnormal returns generating process for the entire sample of 983 merger announcements, for a subsample of 231 (23%) transactions in which the bidders and the targets have the same (common) auditors, and for a subsample of 752 (77%) transactions with different (non-common) auditors. If the capital market anticipates such an informational advantage, we should observe that the announcement of transactions between firms with common auditors is associated with a significantly higher **CAR3** relative to transactions in which the bidders and targets retain different auditors. Further, to examine the determinants of the abnormal returns, we estimate a cross-sectional model where the dependent variable is the **CAR3**.

The untabulated results of the event study using the total sample show that the **CAR3** is negative (-0.430) but not significant. These results are similar to those of previous M&A studies in mergers and acquisition (Asquith et al., 1983; Hackbarth et al., 2008; Dessaint et al., 2024) For the non-common auditor subsample, the **CAR3** is -0.360%, relative to -0.650 percent for the

subsample with common auditors. The difference is marginally significant at the ten percent level. However, these results do not support the auditors' role as intermediaries.

The cross-sectional results show that the standardized audit fees (**STDAFEES**) are not significant, which can be attributed to a non-significant **CAR** with little variation to be explained, and to the fact that audit fees represent a small percentage of the total value of the merger transaction. Our proxies **ABTSAME** and **BTSCITY**, which aim to capture auditors' bias in their role as information intermediaries, are not significant. Again, these findings do not support the notion that auditors act as information intermediaries.

The value of the deal (**LPRICE**) is negative and statistically significant, which is consistent with prior studies suggesting that excessively confident management tends to overestimate its ability to extract benefits from the deal and thus overpay (Roll, 1986; Loderer and Martin, 1990; Malmendier and Tate, 2008). The size of the target relative to the bidder **RSIZE** is negative and statistically significant at the five percent level. A high degree of complexity in integrating a large target may cause the expected synergy from the deal to be uncertain and cause acquirers to make lower offers to mitigate such uncertainty (Fuller et al., 2002). Furthermore, the fact that large targets tend to be followed by a small number of bidders (Gorton et al., 2009), can reduce competition and result in a lower premium (Alexandridis et al., 2010).

Method of Payment (**MPAY**) is positive and statistically significant. This is consistent with the signaling argument that acquiring firms are willing to render their shares as the basis of payment when they feel that their shares are overvalued, which will cause a dilution effect on acquirers' outstanding shares (Myers and Majluf, 1984; Berkovitch and Narayanan, 1990). By contrast, cash payments provide a positive signal to the acquirer's shareholders. A cash payment indicates that the acquisition will be financed through long-term debt, which requires commitment to the payment of the principal and interest to banks. This implies that the acquirer is confident that they will generate sufficiently high returns for debt repayment. This result is consistent with earlier studies by Franks et al. (1988), Franks et al. (1991), and Loughran and Vijh (1997).

Spread (**SPREAD**) is negative and statistically significant, suggesting that a lack of transparency is associated with lower abnormal returns/performance. Acquiring firm's transparency is a

critical determinant of the perceived M&A benefits, especially in environments with severe agency problems (Yip et al., 2022). Return on equity (**ROEB**) is positive and statistically significant, which is consistent with the argument that the capital market perceives that a merger increases operating and financial synergy. We anticipate a positive association between **CAR** and **ROEB**. The market-to-book value (**MTB**) is positive and significant. Acquirers with high market-to-book ratios (high asset valuations) are more likely to purchase targets with low asset valuations, which increases the efficiency and valuation of the combined company (Rhodes-Kropf and Robinson, 2008). The other variables are not statistically significant.

The results do not support the suggestion that the auditors provide their bidders with information that is not available to other competing bidders (Dhaliwal et al., 2016). This finding is reasonable because auditors engage with clients for several years and must maintain reputational integrity to reduce the risk of legal liability and reputational loss. Additionally, as a general business practice, bidders and target firms might also employ the services of a third-party auditor to avoid the appearance of a conflict of interest. For example, in RBC's acquisition of HSBC in 2024, the Toronto Star stated, "As part of an agreement with Freeland and the Commissioner of the Financial Consumer Agency of Canada (FCAC), which helped clear the way for approval of the merger, RBC also agreed to appoint a third-party auditor to make sure they were living up to their obligations" (Rubin, 2024).

VI. Summary and Conclusions

This study provides empirical evidence regarding auditors' conduct when they experience better economies of scale in terms of audit costs and greater market power. In this situation, auditors can pass cost savings on to clients and maintain audit quality. However, they can also take advantage of their market power by increasing audit fees and potentially lowering audit quality. This is an issue of interest for which prior studies have found mixed results using data from merged audit firms transactions. We contribute to the literature by using data from auditee mergers instead of audit firm mergers, thus overcoming some data limitations such as the limited number of merger transactions, the lack of cross-sectional variation among audit firms, and the lack of publicly available data of audit firms. We find that the Big 4 firms can successfully increase their market share and influence through auditee mergers. Regarding whether auditors

pass on the cost savings from mergers to their clients, our results are consistent with the market power hypothesis, indicating that the Big 4 auditors extract a significant amount of excess fees after their auditees' mergers, while the non-Big 4 audit firms do not appear to do so. We conclude that the different effects of fees are due to the market power of the Big Four. We find no evidence suggesting that the Big 4 auditors reduce their audit fees to pass the benefits of economies of scale to their clients.

In addition, we examine whether common auditors in M&A transactions act as information intermediaries between bidding and target firms. Dhaliwal et al. (2016) suggest that common auditors' interests are more closely aligned with the bidders' interests and manifest as an informational advantage to bidders at the expense of the targets. Using our data on auditee mergers, the results of the market reaction and cross-sectional analysis suggest that auditors do not assume an information intermediary role in M&A transactions. Responding to this serious question of auditor conduct, our findings provide important insights affirming the notion that auditors act in an ethical manner, perhaps because of the risk of legal liability.

This study addresses the concerns that the market power of the Big 4 audit firms present a moral hazard dilemma for securities markets to function properly. Since the collapse of Arthur Andersen in 2002, which resulted in the creation of the Big 4, no other firm has gained the market share to join their rank. Instead, the revenue of the Big 4 continues to increase to a level at which they are currently deemed too big to fail. The results of this study explain this phenomenon by highlighting one mechanism that allows the Big 4 to increase their power via mergers of their clients. That is, the Big 4 auditors of bidders increase revenues at the expense of the non-Big 4 auditors of targets, who subsequently lose market share and the ability to compete. These results are of interest to regulators and other stakeholders in financial reporting.

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Appendix A: Data Definition

Variable	Description	Source
AAR	The average abnormal returns using the Fama & French (1993) three factor model as the abnormal returns generating process.	CRSP
ABIG4	An indicator variable equal to one if the auditor of the company is a Big 4 auditor, and zero otherwise.	Audit Analytics
ABTBIG4	An indicator variable equal to 1 if the bidder and target firms employ a Big 4 auditor, and 0 otherwise.	Audit Analytics
ABTSAME	A proxy for shared auditors, it is an indicator variable equal to one if the bidder and target are audited by the same audit firm in the year preceding the announcement year.	Audit Analytics
ACONC1	The within-sample total audit fees earned by the auditor for the year before the merger announcement year divided by the total audit fees earned by all auditors for that year from all transactions.	Audit Analytics
ACONC2	The out-of-sample total audit fees earned by the auditor from all auditees for the year before merger year divided by the aggregate of all audit fees earned by all auditors for that year.	Audit Analytics/Compustat
AF0	The bidders' audit fees in millions of US dollars in the year of the merger.	Audit Analytics
AFDIFF	The difference between AFPOST and AFPRE.	Audit Analytics
AFEES	Consists of all fees necessary to perform the audit or review in accordance with GAAS. This category also may include services that generally only the independent accountant reasonably can provide, such as comfort letters, statutory audits, attest services, consents and assistance with and review of documents filed with the SEC for the period of two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0.	Audit Analytics
AFPERC	The percentage of audit fees to a specific auditor, defined as the AFSUM divided by the Grand Total for a specific auditor.	Audit Analytics
AFPERCD	The change in audit fees percent defined as the AFPERC post merger minus AFPERC pre-merger.	Audit Analytics
AFPOST	The average audit fees two years after the merger announcement year in millions of US dollar.	Audit Analytics
AFPRE	The average audit fees two years preceding the merger announcement year.	Audit Analytics
AFSUM	The auditor's total audit fees from all deals of the auditee firms audited by that auditor during the sample period, in millions of US dollars.	Audit Analytics
ARFEES	Audit Related Fees are assurance and related services (e.g., due diligence services) that traditionally are performed by the independent accountant. More specifically, these services would include, among others: employee benefit plan audits, due diligence related to mergers and acquisitions, accounting consultations and audits in connection with acquisitions, internal control reviews, attest services that are not required by statute or regulation and consultation concerning financial accounting and reporting standards for the period of two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0.	Audit Analytics
AUBBIG4	An indicator variable equal to one if the auditor of the acquirer is a Big 4 auditor, and zero otherwise.	MergerStat Review/SDC Platinum/Audit Analytics
AUTBIG4	An indicator variable equal to one if the auditor of the target firm is a Big 4, and zero otherwise.	MergerStat Review/SDC

		Platinum/Audit Analytics
AUCONC	The auditor degree of concentration, defined as the auditor total audit fees from all transactions during the sample period divided by total audit fees of all auditors from all transactions during the sample period.	Audit Analytics
BIG 4	Refers to the Big 4 accounting firms 1) Deloitte and Touche LLP., 2) Ernst & Young LLP, KPMG LLP., 4) PricewaterhouseCoopers LLP.	Audit Analytics
BTBIG4	An indicator variable equal to one if the bidder and target auditors are Big 4 auditors, and zero otherwise.	Audit Analytics
TENURE	An indicator variable equal to one if the auditor of the bidder audits the bidder for a period of five years before the merger announcement year, and zero otherwise.	MergerStat Review/SDC Platinum/ Compustat/Audit Analytics
BTSCITY	An indicator variable equal to one if the auditors' offices of the bidder and target are in the same city.	MergerStat Review/SDC Platinum/ Compustat/Audit Analytics
BTSSIC	An indicator variable equal to one if the bidder and target share the same two-digit SIC code, and zero otherwise.	MergerStat Review/SDC Platinum/ Compustat
BTSSTATE	An indicator variable equal to 1 if the offices of the bidder and target auditors are in the same state, and 0 otherwise.	MergerStat Review/SDC Platinum/ Audit Analytics
CAR	The cumulative average abnormal returns from the Fama & French (1993) three factor model for the three days CAR3, day t-1 through day t+1 relative to the announcement day t0. CAR5 is for five days around the merger announcement day, and CAR11 is for 11 days around merger announcement day t0.	CRSP
DIFFDATE	Number of days to complete the M&A transaction, defined as the difference between the completion date minus the announcement date in number of days.	MergerStat Review/SDC Platinum
DPERC	The percentage of DSUM to a particular auditor divided by the total of DSUM.	Audit Analytics
DSUM	The difference in the sum of the audit fees defined as AFSUM post-merger minus AFSUM pre-merger.	Audit Analytics
Grand Total	The total audit fees for all auditors during the sample period.	Audit Analytics
INTANTA	The ratio of intangible assets to total assets defined as total intangible assets divided by total assets.	Compustat
INSTHOLD	The percentage of shares held by institutional investors.	Thomson - Institutional (13F) Holdings
LEV	The degree of financial leverage defined as the sum of long-term debt plus debt in current liabilities divided by total assets.	Compustat
LOGTA	The log of total assets.	
LPRICE	The log of the total market value of the combined entity after merger.	MergerStat Review/SDC Platinum
MISFEES	Other/Miscellaneous fees include all other auditor fees. (Note that prior to the implementation of SEC Rule 33-8183, with an effective date of May 6, 2003, and corrected on March 31, 2003, this category included	Audit Analytics

	tax related fees and audit related fees.) for the period of two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0.	
MPAY	An indicator variable that equals one if the method of payment is Cash, and 0 for stock and stock-cash combination payments.	MergerStat Review/SDC Platinum
MTB	The market value of equity divided by the book value of equity.	
MULTIBID	An indicator variable equal to 1 if the deal involves multiple bidders, and 0 otherwise.	MergerStat Review/SDC Platinum
MVEQ	The market value of equity.	Compustat
NAFEES	Total non-audit fees is the sum of Audit Related Fees, Benefit Plan Related Fees, FISDI Fees, Tax Related Fees and Other/Misc Fees (www.Auditanalytics.com) for the period of two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0.	Audit Analytics
NAFFESP	Percentage of non-audit fees defined as non-audit fees divided by total fees from two-years before through two-years after relative to merger announcement year, a total of 5-years of data.	Audit Analytics
Non-Big 4	Refers to Non-Big 4 accounting firms.	Audit Analytics
NSUBS	An indicator variable equal to one if the auditee has subsidiaries, and zero otherwise.	
PNAFEES	The percentage of non-audit fees defined as non-audit fees divided by total fees.	Audit Analytics
PPREM	The percentage of deal premium, defined as the market price per share paid to the target by the bidder at the time of the announcement day divided by the market price five-days before the merger announcement day.	MergerStat Review/SDC Platinum
PRICE	The total deal value, or the price paid by the bidder.	MergerStat Review/SDC Platinum
ROEB	The book value return on equity defined as net income divided by the book value of equity.	
RSIZE	The relative size of the target firm relative to size of the bidder defined as the total assets of the target firm divided by the total assets of the bidder for the year preceding merger announcement year.	Compustat
RESTAT	An indicator variable equal to 1 if the bidder restated its financial statements in the two years preceding the announcement year, and 0 otherwise.	Audit Analytics
SAF0	The bidders' standardized audit fees in the year of the merger defined as the audit fees divided by the log of total assets.	Audit Analytics/Compustat
SAFDIFF	The difference between SAFPOST and SAFPRE.	Audit Analytics/Compustat
SAFPOST	The average of the standardized audit fees two years after the merger year.	Audit Analytics/Compustat
SAFPRE	The average of the standardized audit fees two years preceding the merger year.	Audit Analytics/Compustat
SARFEES	The standardized audit related fees for the period two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0. The standardized variables are the dollar amounts of fees, in millions of US dollars, divided by the log of total assets.	Audit Analytics/Compustat
SMISFEES	The standardized miscellaneous fees for the period two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0. The standardized variables are the dollar amounts of fees, in millions of US dollars, divided by the log of total assets.	Audit Analytics/Compustat

SNAFEES	The standardized non-audit fees for the period two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0. The standardized variables are the dollar amounts of fees, in millions of US dollars, divided by the log of total assets.	Audit Analytics/Compustat
SPREAD	The bid-ask spread as a proxy for information asymmetry, defined as (bid price-ask price)/ (bid price + ask price)/2.	Compustat/CRSP
STAXRFEES	The standardized tax related fees for the period of two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0. The standardized variables are the dollar amounts of fees, in millions of US dollars, divided by the log of total assets.	Audit Analytics/Compustat
STDAFEES	The standardized audit fees. for the period of two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0. The standardized variables are the dollar amount of fees, in millions of US dollars, divided by the log of total assets.	Audit Analytics/Compustat
STFEES	The standardized total fees for the period two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0. The standardized variables are the dollar amount of fees, in millions of US dollars, divided by the log of total assets.	Audit Analytics/Compustat
TASSETS	The average of total assets.	Compustat
TAXRFEES	Tax related fees include fees for tax compliance, tax planning, and tax advice. Tax compliance generally involves preparation of original and amended tax returns, claims for refund and tax payment planning services. Tax planning and tax advice encompass a diverse range of services, including assistance with tax audits and appeals, tax advice related to mergers and acquisitions, employee benefit plans and requests for rulings or technical advice from taxing authorities. This category would not capture those services related to the audit. for the period of two years before and two years after the merger announcement year. Y-2, Y-1, Y0, Y+1, Y+2 are the years relative to the announcement year Y0.	Audit Analytics
TENDER	Indicator variable equal to one if the transaction is structured as a tender offer and zero if it is a merger.	MergerStat Review/SDC Platinum
TENURE	An indicator variable equal to one if the bidder's auditor audited the bidder for more than five years, and zero otherwise.	Audit Analytics/Compustat
TERMFEE	An indicator variable equal to 1 if the deal includes termination fees, and 0 otherwise.	MergerStat Review/SDC Platinum
TFEES	Total fees is the sum of Audit Fees and Total Non-Audit Fees. Rows in which the total fees are zero for a particular year were due to the registrant disclosing an auditor as having been engaged as their independent accountants for the year, yet not disclosing the corresponding auditor fees.	Audit Analytics
THOLD	An indicator variable equal to 1 if the bidder has a previous toehold in the target, and 0 otherwise.	MergerStat Review/SDC Platinum

Table 1: Summary Statistics Categorized by Firm, Auditor, and Merger Deal Characteristics

This table presents the summary statistics of the firm, auditor, and deal characteristics of the bidder and target firms in the sample. The following continuous variables represent the average for the two years before the merger announcement year. TASSETS is the average total assets. LOGTA is the log of total assets. where MVEQ is the market value of equity. INTANTA is the ratio of intangibles to total assets; LEV is the degree of financial leverage defined as the sum of long-term debt and debt in current liabilities divided by total assets. SPREAD is the bid-ask spread, defined as (bid price–ask price)/ (bid price + ask price)/2). INSTHOLD represents the percentage of shares held by institutional investors. ROEB is the book value of return on equity, defined as net income divided by the book value of equity. MTB is the market value of equity divided by the book value. BTSSIC is an indicator variable equal to 1 if the bidder and target firms belong to the same 2-digit SIC code and 0 otherwise. ABTSAME is an indicator variable equal to 1 if the bidder and target firms employ the same auditor and 0 otherwise. ABIG4 is an indicator variable equal to 1 if the company’s auditor is a Big 4 auditor and 0 otherwise. ABTBIG4 is an indicator variable equal to 1 if the bidder and target firms employ a Big 4 auditor and 0 otherwise. TENURE is an indicator variable equal to 1 if the company employs an auditor for a period of five years or more, and 0 otherwise. BTSCITY is an indicator variable equal to 1 if the offices of the bidder and target auditors are in the same city and 0 otherwise. BTSSTATE is an indicator variable equal to one if the offices of the bidder and target auditors are in the same state and zero otherwise. AUCONC is an auditor’s degree of concentration, defined as the auditor’s total audit fees from all transactions during the sample period divided by the total audit fees of all auditors from all transactions during the sample period. PNAFEES is the percentage of non-audit fees, defined as non-audit fees divided by total fees. RESTAT is an indicator variable equal to 1 if the bidder restated its financial statements in the two years preceding the announcement year and 0 otherwise. PPERM is the merger premium, defined as the market price per share on the merger announcement day minus the market price five days before the announcement day. MPAY is an indicator variable equal to 1 if the method of payment in the merger deal is cash, and 0 for stock and stock-cash combination payments. TENDER is an indicator variable equal to one if the transaction is a tender offer, and 0 for mergers. MULTIBID is an indicator variable equal to 1 if the deal involves multiple bidders and 0 otherwise. THOLD is an indicator variable equal to 1 if the bidder has a previous toehold in the target and 0 otherwise. DIFFDATE is the number of days to close the transaction, defined as the number of days between the announcement date and completion date of the transaction. TERMFEE is an indicator variable equal to 1 if the deal includes termination fees and 0 otherwise. PRICE is the total deal value or the price paid by the bidder.

Bidders Firms						Target Firms					
Variable	N	Mean	Median	Q1	Q3	Variable	N	Mean	Median	Q1	Q3
Panel A: Firms Characteristics											
TASSETS	983	72983.020	6287.260	1504.970	29810.670	TASSETS	930	5566.210	344.290	103.020	1058.49
LOGTA	981	3.769	3.740	3.086	4.432	LOGTA	930	2.565	2.537	2.013	3.025
MVEQ	913	32434.100	4069.780	899.269	21630.070	MVEQ	903	1602.440	275.639	79.428	949.155
INTANTA	983	0.208	0.136	0.029	0.348	INTANTA	930	0.138	0.041	0.000	0.226
LEV	980	0.218	0.182	0.083	0.302	LEV	922	0.297	0.114	0.007	0.297
SPREAD	979	0.540	0.453	0.313	0.662	SPREAD	918	0.771	0.680	0.465	1.002
INSTHOLD	938	0.622	0.664	0.486	0.804	INSTHOLD	89	0.493	0.531	0.177	0.745
ROEB	983	0.153	0.126	0.064	0.195	ROEB	924	-0.015	0.057	-0.104	0.134
MTB	913	3.814	2.522	1.703	3.999	MTB	899	3.000	2.093	1.224	3.365
BTSSIC	983	0.677	1.000	0.000	1.000	BTSSIC	983	0.677	1.000	0.000	1.000
Panel B: Auditor Characteristics											
ABTSAME	983	0.232	0.000	0.000	0.000	ABTSAME	983	0.232	0.000	0.000	0.000
ABIG4	983	0.911	1.000	1.000	0.000	ABIG4	983	0.726	1.000	0.000	1.000

ABTBIG4	983	0.702	1.000	0.000	1.000	ABTBIG4	983	0.702	1.000	0.000	1.000
TENURE	983	0.749	1.000	0.000	1.000	TENURE	983	0.388	0.000	0.000	1.000
BTSCITY	983	0.053	0.000	0.000	0.000	BTSCITY	983	0.053	0.000	0.000	0.000
BTSSTATE	983	0.188	0.000	0.000	0.000	BTSSTATE	983	0.188	0.000	0.000	0.000
AUCONC	982	0.215	0.223	0.191	0.267	AUCONC	853	0.181	0.214	0.147	0.245
PNAFEES	983	0.665	0.376	0.203	0.719	PNAFEES	849	0.218	0.170	0.084	0.313
RESTAT	983	0.185	0.000	0.000	0.000	RESTAT	983	0.000	0.000	0.000	0.000
C: Merger Deal Characteristics											
PPREM	912	40.554	32.960	18.915	50.020						
MPAY	983	0.573	1.000	0.000	1.000						
TENDER	983	0.229	0.000	0.000	0.000						
MULTIBID	983	0.037	0.000	0.000	0.000						
THOLD	983	0.049	0.000	0.000	0.000						
DIFFDATE	983	102.977	89.000	55.000	135.000						
TERMFEE	983	0.805	1.000	1.000	1.000						
PRICE	983	2013.790	396.600	107.500	1472.300						

Table 2: Audit Fees, Non-Audit Fees, and Total Fees Structure relative to the Merger Announcement Year

This table presents the mean audit fees (AFEES), non-audit fees (NAFEES), total fees (TFEES), audit-related fees (ARFEES), miscellaneous fees (MISFEES), and tax-related fees (TAXRFEES) for the two years before and after the merger announcement year. Y-2, Y-1, Y0, Y+1, and Y+2 are the years relative to announcement year Y0. YPRE is the mean of the two years before the announcement (average of Y-2 and Y-1). YPOST is the mean of Y+1 and Y+2 relative to announcement year Y0. DIFF is the mean difference between YPOST and YPRE. *, **, *** designate a level of significance at the ten, five, and one percent level respectively. **Audit Fees** consists of all fees necessary to perform the audit or review in accordance with Generally Accepted Auditing Standard) GAAS. This category may also include services that only the independent accountant can reasonably provide, such as comfort letters, statutory audits, attest services, consent, and assistance with and review of documents filed with the SEC. **Audit Related Fees:** include assurance and related services (e.g., due diligence services) that are traditionally performed by independent accountants. These services include employee benefit plan audits, due diligence related to mergers and acquisitions, accounting consultations and audits in connection with acquisitions, internal control reviews, attest services not required by statutes or regulations, and consultations concerning financial accounting and reporting standards. **Tax Related Fees:** include tax compliance, planning, and advice. Tax compliance generally involves the preparation of original and amended tax returns, claims for refunds, and tax payment planning services. Tax planning and tax advice encompass a diverse range of services, including assistance with tax audits and appeals, tax advice related to mergers and acquisitions, employee benefit plans, and requests for rules or technical advice from taxing authorities. This category does not include services related to audits. **Other/Miscellaneous:** All other auditor fees. (Note that prior to the implementation of SEC Rule 33-8183, with an effective date of May 6, 2003, and corrected on March 31, 2003, this category included tax-related and audit-related fees.) **Total Non-Audit Fees:** The sum of audit-related fees, benefit plan-related fees, FISDI fees, tax-related fees, and other/misc. Fees. (*Audit Analytics* 2020, www.Auditanalytics.com). **STDAFEES** is a standardized audit fee. **SNAFEES** is the standardized non-audit fees. **STFEES** is the standardized total fee. **SARFEES** is a standardized audit-related fee. **SMISFEES** is a standardized miscellaneous fee. **STAXRFEES** is a standardized tax-related fee. The standardized variables are the dollar amount of each type of fee in millions of US dollars divided by the log of total assets.

Year/Variable	N	Y-2	Y-1	Y0	Y+1	Y+2	YPRE	YPOST	DIFF
Panel A: Variables in millions of US dollars									
AFEES	983	8.076	8.255	8.458	9.806	10.730	7.817	9.974	2.666***
NAFEES	983	4.275	4.218	4.164	4.319	4.283	4.306	4.175	-0.261*
TFEES	983	12.351	12.473	12.622	14.125	15.013	12.123	14.149	2.404***
ARFEES	841	2.096	1.994	2.079	2.191	2.543	1.888	2.199	0.198**
MISFEES	489	1.009	1.592	1.257	1.094	0.528	1.494	0.781	-0.956**
TAXRFEES	983	1.984	1.759	1.705	1.883	1.867	1.829	1.813	-0.099
Panel B: Variables Standardized by the log of total assets									
STDAFEES	983	1.706	1.732	1.769	2.026	2.193	1.654	2.081	0.516***
SNAFEES	983	0.878	0.865	0.860	0.882	0.866	0.885	0.868	-0.087
STFEES	983	2.583	2.597	2.629	2.908	3.059	2.539	2.949	0.429***
SARFEES	841	0.418	0.397	0.415	0.429	0.495	0.379	0.440	0.040
SMISFEES	489	0.210	0.340	0.278	0.246	0.120	0.311	0.169	-0.251*
STAXRFEES	983	0.421	0.375	0.364	0.399	0.394	0.389	0.391	-0.035

Table 3: Summary Statistics of the Bidders Standardized Audit Fees and US\$ Audit Fees Categorized by Auditors Characteristics, Auditor's Name, and Merger Deal Characteristics

SAF0 is the bidders' standardized audit fees in the year of the merger, defined as the audit fees divided by the log of total assets. **SAFPRE** is the average of the standardized audit fees two years before the merger year. **SAFPOST** is the average standardized audit fee two years after the merger year. **SAFDIFF** is the difference between **SAFPOST** and **SAFPRE**. **AF0** is the bidder's audit fee in millions of US dollars in the year of the merger. **AFPRE** is the average audit fees two years before the merger. **AFPOST** is the average audit fee two years after a merger. **AFDIFF** is the difference between **AFPOST** and **AFPRE**. **T-TEST** is the test statistic for the difference between means. **BTSCITY** is an indicator variable equal to one if the auditors of the bidder and target are in the same city and zero otherwise. **ABTSAME** is an indicator variable equal to one if the bidder and target share the same auditor, and zero otherwise. **AUBBIG4** is an indicator variable equal to one if the acquirer's auditor is a Big 4 auditor, and zero otherwise. **AUTBIG4** is an indicator variable equal to one if the auditor of the target firm is a Big 4, and zero otherwise. **BTBIG4** is an indicator variable equal to one if the bidder and target auditors are Big Four auditors, and zero otherwise. **TENURE** is an indicator variable that equals one if the auditor audits the bidder for five years before the merger announcement year and zero otherwise. **RESTAT** is an indicator variable equal to 1 if the company restated its financial statements in the previous two years relative to the announcement year, and zero otherwise. **MPAY** is an indicator variable that equals one if the method of payment is cash and zero if the method of payment is securities or a combination of cash and securities. **TERMFEE** is an indicator variable equal to one if the deal includes termination fees and zero otherwise. **TENDER** is an indicator variable equal to one for tender-offer deals, and zero for merger deals. **MULTIBID** is an indicator variable equal to one if the deal involves multiple bidders, and zero otherwise. **THOLD** is an indicator variable equal to one if the bidder has a previous toehold in the target, and zero otherwise. **BTSSIC** is an indicator variable equal to one if both the bidding and target firms belong to the same industry group based on the two-digit SIC Code, and zero otherwise. **NSUBS** is an indicator variable equal to one if the auditee has subsidiaries and zero otherwise. \$, *, **, and *** denote significance at the ten, five, one, and 0.10 percent levels, respectively.

Category	N (%)	Standardized Audit Fees				Dollar Value of Audit Fees (M\$)			
		SAF0	SAFPRE	SAFPOST	SAFDIFF	AF0	AFPRE	AFPOST	AFDIFF
ALL Transactions	983 (100)	1.769	1.654	2.081	0.516***	8.458	7.817	9.974	2.666***
Panel A: Auditors Characteristics									
1a. AUBBIG4=0	87 (9)	0.239	0.181	0.301	0.018	0.803	0.532	1.026	0.137*
1b. AUBBIG4=1	896 (91)	1.918	1.784	2.242	0.556***	9.201	8.461	10.788	2.870***
Difference (4a-4b)		-1.679	-1.603	-1.941	-0.538***	-8.398	-7.929	-9.762	-2.733***
2a. AUTBIG4=0	269 (27)	1.003	0.969	1.191	0.264*	4.492	4.320	5.517	1.424
2b. AUTBIG4=1	714 (73)	2.057	1.907	2.404	0.605***	9.952	9.108	11.239	3.113
Difference (5a-5b)		-1.054	-0.938	-1.213	-0.341**	-5.460	-4.788	-5.722	-1.689***
3a. BTBIG4=0	293 (30)	0.942	0.914	1.116	0.246*	4.197	4.052	5.156	1.345
3b. BTBIG4=1	690 (70)	2.121	1.952	2.479	0.621***	10.267	9.335	11.997	3.188
Difference (6a-6b)		-1.179	-1.038	-1.363	-0.375***	-6.070	-5.283	-6.841	-1.843***
4a. TENURE=0	246 (25)	0.993	0.876	1.231	0.468**	4.457	3.863	5.675	2.191
4b. TENURE=1	737 (75)	2.028	1.892	2.364	0.531***	9.794	9.027	11.393	2.810
Difference (7a-7b)		-1.035	-1.016	-1.133	-0.063	-5.337	-5.164	-5.718	-0.619**
5a. RESTAT=0	801 (81)	1.625	1.552	1.879	0.432**	7.557	7.140	8.914	2.261
5b. RESTAT=1	182 (19)	2.406	2.064	3.039	0.880***	12.427	10.560	14.775	4.351
Difference (8a-8b)		-0.781	-0.512	-1.160	-0.448**	-4.870	-3.420	-5.861	-2.081***
6a. BTSSIC=0	318	2.721	2.468	3.256	0.867***	13.819	12.423	16.382	4.598***
6b. BTSSIC=1	665	1.314	1.246	1.491	0.331**	5.894	5.513	6.812	1.672***

Difference (6a-6b)		1.407	1.222	1.765	0.536***	7.925	6.910	9.570	2.926***
7a. NSUBS=0	829	1.920	1.792	2.265	0.579	9.304	8.594	11.017	2.981***
7b. NSUBS=1	154	0.957	0.917	1.054	0.158	3.904	3.671	4.468	1.006
Difference (7a-7b)		0.963	0.875	1.211	0.421**	5.400	4.923	6.549	1.975***
7a. ABTSAME=0	752 (77)	1.762	1.649	2.056	0.511***	8.469	7.854	9.911	2.672
7b. ABTSAME=1	231 (23)	1.794	1.667	2.162	0.533***	8.604	7.698	10.178	2.644
Difference (3a-3b)		-0.032	-0.018	-0.106	-0.022	-0.135	0.156	-0.267	0.028
6a. BTSCITY=0	931 (95)	1.793	1.680	2.101	0.513***	8.594	7.962	10.082	2.649***
6b. BTSCITY=1	52 (5)	1.337	1.145	1.701	0.584***	6.021	5.021	7.962	2.978***
Difference (1a-1b)		0.456	0.535	0.400	-0.071	2.573	2.941	2.120	-0.329*
Panel B: Merger Deal Characteristics									
1a. MPAY=CASH	563	2.339	2.155	2.637	0.581***	11.256	10.285	12.808	3.012***
1b. MPAY=STOCK	171	1.026	0.908	1.421	0.536***	4.957	4.243	6.759	2.837***
1c. MPAY=COMB	249	0.990	0.891	1.164	0.328**	5.537	4.022	5.442	1.694***
Difference (1a-1b)		1.313	1.247	1.216	0.045	6.299	6.042	6.049	0.175
2a. TERMFEE=0	192	1.775	1.744	2.339	0.815***	8.797	8.648	11.402	4.104***
2b. TERMFEE=1	791	1.768	1.635	2.025	0.459**	8.376	7.641	9.639	2.377***
Difference (2a-2b)		0.007	0.109	0.315	0.356*	0.421	1.007	1.763	1.727***
3a. TENDER=0	757	1.700	1.561	2.024	0.575***	8.255	7.501	9.860	2.951***
3b. TENDER=1	226	2.000	1.960	2.278	0.313**	9.137	8.862	10.348	1.735***
Difference (3a-3b)		-0.300	-0.399	-0.254	0.262*	-0.882	-1.361	-0.488	1.216***
4a. MULTIBID=0	947	1.771	1.664	2.071	0.497**	8.479	7.881	9.942	2.588***
4b. MULTIBID=1	36	1.716	1.359	2.333	1.003***	7.891	6.061	10.828	4.823***
Difference (4a-4b)		0.055	0.305	-0.262	-0.506**	0.588	1.820	-0.885	-2.235***
5a. THOLD=0	934	1.7629	1.598	2.045	0.527***	8.243	7.516	9.732	2.182***
5b. THOLD=1	49	2.536	2.747	2.729	0.305**	12.557	13.736	14.586	2.182***
Difference (5a-5b)		-0.774	-1.149	-0.684	0.222*	-4.314	-6.220	-4.854	0.508**

Table 4: Aggregate Audit Fees per Auditor as a Percentage of Total Audit Fees for All Auditors

AF0 is the audit fee in the merger announcement year. **AFPRE** is the average audit fee for the two years preceding a merger announcement. **AFPOST** is the average audit fee two years after the merger announcement year in millions of US dollars. **AFSUM** is the auditor's total audit fees from all deals of the auditee firms audited by that auditor during the sample period in millions of US dollars. **AFPERC** is the percentage of audit fees for a specific auditor, defined as the **AFSUM** divided by the Grand Total for the specific auditor. **AFDIFF** is the difference between **AFPOST** and **AFPRE**. **T-TEST** is the test statistic for the difference between means. **DSUM** is the difference in the sum of audit fees, defined as **AFSUM** post merger minus **AFSUM** pre-merger. **DPERC** is the percentage of **DSUM** for a particular auditor divided by the total **DSUM**. **AFPERCD** is the change in audit fee percentage, defined as the **AFPERC** post merger minus **AFPERC** pre-merger. **Grand Total** is the total audit fee of all auditors during the sample period.

Category	N (%)	AF0		AFPRE		AFPOST		AFDIFF		AFPERCD
		AFSUM	AFPERC	AFSUM	AFPERC	AFSUM	AFPERC	DSUM	DPERC	
Ernst & Young LLP	246 (25)	1536.51	18.48	1170.02	17.63	1594.78	17.32	330.18***	15.46***	-0.310
Deloitte & Touche LLP	177 (18)	1714.93	20.63	1394.41	21.01	1803.20	19.59	392.34***	18.38***	-1.420
KPMG LLP	213 (22)	2524.96	30.36	1990.08	29.99	2930.21	31.83	753.56***	35.29***	1.840
PricewaterhouseCoopers LLP	260 (26)	2467.90	29.68	2045.12	30.82	2798.84	30.40	650.90***	30.95***	-0.420
All Others	87 (09)	69.85	0.84	36.69	0.55	79.04	0.86	8.19*	0.38*	0.310
Grand Total	983 (100)	8314.14	100	6636.32	100	9206.07	100	2135.17	100	0.000

Table 5: Person Correlation Coefficients among the Dependent Variable and Independent Variables

STDAFEES is a standardized audit fee. **ABIG4** is an indicator variable equal to one if the company's auditor is a Big 4 auditor and zero otherwise. **ACONC1** (**ACONC2**) is the auditor's degree of concentration, defined as the auditor's total audit fees from all transactions (all clients) during the sample period divided by the total audit fees of all auditors from all transactions (all clients in the market) during the sample period. **LPRICE** is the log of total deal value. **LEV** is the two-year average financial leverage, defined as the sum of long-term debt and debt in current liabilities divided by total assets. **SPREAD** is the bid-ask spread, defined as (bid price–ask price)/ (bid price + ask price)/2). **RSIZE** is the total assets of the target firm divided by the total assets of the bidder for the year preceding the merger announcement. **BTSSIC** is an indicator variable equal to 1 if the bidder and target firms belong to the same 2-digit SIC code and 0 otherwise. **INSTHOLD** represents the percentage of shares held by institutional investors. **ROEB** is the net income divided by the book value of equity. **MTB** is the market value of equity divided by the book value. **ABTSAME** is an indicator variable equal to 1 if the bidder and target firms employ the same auditor and 0 otherwise. **TENURE** is an indicator variable equal to 1 if the company employs an auditor for a period of five years or more, and 0 otherwise. **BTSCITY** is an indicator variable equal to 1 if the auditor's office of the bidder and target firms is in the same city, and 0 otherwise. **INTANTA** is the two-year average ratio of intangible assets to total assets. **PNAFEES** is non-audit fees divided by total fees. **RESTAT** is an indicator variable equal to 1 if the company restated its financial statements in the two years preceding the announcement year and 0 otherwise. **MPAY** is an indicator variable equal to 1 if the method of payment is cash, and 0 otherwise. **TENDER** is an indicator variable equal to 1 if the transaction is a tender offer and 0 otherwise. **MULTIBID** is an indicator variable equal to 1 if the deal involves multiple bidders and 0 otherwise. **TFEES** is an indicator variable equal to 1 if the deal includes termination fees and 0 otherwise. **NSUBS** is an indicator variable equal to one if the company has subsidiaries and zero otherwise. **THOLD** is an indicator variable equal to 1 if the bidder has a toehold in the target prior to the merger announcement and 0 otherwise.

VARIABLE	ABIG4	ACONC1	ACONC2	LPRICE	RSIZE	RESTAT	PNAFEES	BTSSIC	INTANTA	LEV	NSUBS	ABTSAME	BTSCITY	TENURE	MPAY	TERM FEE	TENDER	THOLD	MULTIBID	INSTHOLD	SPREAD	ROEB	MTB
STDAFEES	0.194	0.223	0.158	0.318	-0.217	0.108	-0.069	-0.266	0.034	0.195	-0.139	0.012	-0.044	0.196	0.275	0.003	0.072	0.087	-0.013	-0.123	-0.216	0.037	-0.003
ABIG4	1.000	0.802	0.764	0.294	-0.116	0.056	0.019	-0.062	0.125	0.049	-0.122	0.002	-0.023	0.109	0.209	0.009	0.127	0.038	0.004	0.244	-0.055	-0.075	-0.033
ACONC1		1.000	0.941	0.327	-0.112	0.070	0.005	-0.057	0.135	0.078	-0.070	0.057	-0.001	0.165	0.231	0.014	0.134	0.014	-0.026	0.233	-0.092	-0.039	-0.038
ACONC2			1.000	0.303	-0.098	0.041	-0.011	-0.034	0.133	0.066	-0.078	0.063	-0.000	0.166	0.203	0.008	0.111	0.005	-0.038	0.187	-0.086	-0.050	-0.044
LPRICE				1.000	0.008	-0.022	-0.076	-0.039	0.111	0.157	-0.071	0.091	0.117	0.175	-0.001	0.233	0.065	-0.052	0.041	0.148	-0.276	0.037	0.022
RSIZE					1.000	-0.041	-0.025	-0.047	-0.109	-0.057	0.117	0.039	0.065	-0.082	-0.268	0.074	-0.156	-0.065	-0.013	-0.056	0.129	0.009	-0.038
RESTAT						1.000	-0.059	-0.090	-0.021	0.114	0.025	-0.019	-0.007	-0.008	0.015	-0.016	-0.049	0.012	-0.037	0.025	-0.015	-0.032	-0.010
PNAFEES							1.000	0.003	-0.116	0.015	-0.093	0.001	-0.062	-0.146	-0.033	-0.097	-0.021	-0.041	-0.002	-0.097	0.150	-0.031	0.098
BTSSIC								1.000	-0.005	0.112	0.047	-0.053	-0.011	-0.103	-0.158	0.087	-0.035	-0.091	0.030	-0.016	0.050	0.001	-0.027
INTANTA									1.000	0.078	0.100	-0.008	-0.027	0.100	0.259	0.053	0.168	0.027	0.051	0.279	-0.027	-0.048	0.010
LEV										1.000	0.041	0.043	0.126	0.077	0.000	-0.029	-0.038	0.034	0.016	-0.014	-0.071	0.019	0.052
NSUBS											1.000	0.055	0.048	0.087	-0.058	0.015	-0.043	-0.034	-0.024	0.046	0.101	-0.058	0.039
ABTSAME												1.000	0.064	0.067	-0.007	-0.039	0.026	0.018	-0.017	0.050	0.017	-0.017	0.028
BTSCITY													1.000	0.074	-0.072	0.071	-0.086	-0.012	-0.022	0.064	-0.006	0.101	0.083

TENURE																1.000	0.194	0.029	0.081	0.067	0.000	0.148	-0.104	-	0.038	0.043
MPAY																	1.000	-	0.355	0.037	0.037	0.149	-0.154	0.035	0.036	
TERMFE																		1.000	-0.011	-0.040	0.041	0.144	-0.086	0.036	0.002	
TENDER																			1.000	0.130	0.099	0.100	0.006	0.013	0.063	
THOLD																				1.000	0.005	-	0.020	-	0.029	0.002
MULTIBID																					1.000	0.014	-0.001	0.040	0.166	
INSTHOLD																						1.000	0.025	-	0.057	-
SPREAD																							1.000	-	0.008	0.098
ROEB																								1.000	0.514	

Table 6: Cross-Sectional Analysis of the Standardized Audit Fees

This table presents the cross-sectional analysis of the determinants of audit fees. **PS** is the predicted sign of the variable. **PEST** is the parameter estimates. **TSTAT** is a t-statistic. **ABIG4** is an indicator variable equal to 1 if the company's auditor is a Big 4 auditor and 0 otherwise. **ACONC1** (**ACONC2**) is the auditor's degree of concentration, defined as the auditor's total audit fees from all transactions (all clients) during the sample period divided by the total audit fees of all auditors from all transactions (all clients in the market) during the sample period. **LPRICE** is the log of total deal value. **RSIZE** is the total assets of the target firm divided by the total assets of the bidder for the year preceding the merger announcement. **RESTAT** is an indicator variable equal to 1 if the company restated its financial statements in the two years preceding the announcement year and 0 otherwise. **PNAFEES** is the percentage of non-audit fees, which is defined as non-audit fees divided by total fees. **BTSSIC** is an indicator variable equal to 1 if the bidder and target firms belong to the same 2-digit SIC code and 0 otherwise. **INTANTA** is the two-year average ratio of intangible assets to total assets. **LEV** is the two-year average degree of financial leverage, defined as the sum of long-term debt and debt in current liabilities divided by total assets. **NSUBS** is an indicator variable equal to one if the company has subsidiaries, and zero otherwise. **ABTSAME** is an indicator variable equal to one if the bidder and target firm employ the same auditor and zero otherwise. **BTSCITY** is an indicator variable equal to 1 if the auditor's office of the bidder and target firms are in the same city and zero otherwise. **TENURE** is an indicator variable equal to one if the company employs an auditor for a period of five years or more, and zero otherwise. **MPAY** is an indicator variable that equals one if the method of payment is cash and zero for stock or combination payments. **TERMFEE** is an indicator variable equal to one if the deal includes termination fees and zero otherwise. **TENDER** is an indicator variable equal to one if the transaction is a tender offer and zero otherwise. **THOLD** is an indicator variable equal to one if the bidder has a non-controlling interest in the target prior to the merger announcement, and zero otherwise. **MULTIBID** is an indicator variable that equals one if the deal involves multiple bidders (more than one offer) and zero if it involves only one bid. **INSTHOLD** represents the percentage of shares held by institutional investors. **SPREAD** is the bid-ask spread, defined as (bid price–ask price)/ (bid price + ask price)/2. **ROEB** is the return on equity, defined as net income divided by the book value of equity. **MTB** is the market value of equity divided by the book value. **RSQR** is the adjusted R value. *, **, and *** denote levels of significance at the ten, five and one percent levels, respectively.

VAR	PS	Model 1		Model 2		Model 3		Model 4	
		PEST	TSTAT	PEST	TSTAT	PEST	TSTAT	PEST	TSTAT
ABIG4	+	0.937	6.540***	na	na	0.440	3.030***	na	na
ACONC1	+	na	na	na	na	na	na	2.206	2.810***
ACONC2	+	na	na	2.010	2.470**	na	na	na	na
LPRICE	+	na	na	na	na	0.796	9.160***	0.779	8.990***
RSIZE	+	0.643	3.030***	0.633	3.840***	0.777	2.920***	0.769	2.990***
RESTAT	+	0.346	2.000**	0.358	1.600	0.405	2.450**	0.388	2.340**
PNAFEES	-	-0.034	-0.820	-0.043	-0.970	-0.027	-0.710	-0.034	-0.890
NSUBS	+	0.600	4.090***	0.647	3.160***	0.418	3.030***	0.436	3.160***
BTSSIC	-	-0.812	-5.460***	-0.801	-5.270***	-0.775	-5.450***	-0.773	-5.450***
INTANTA	+	-0.127	-0.420	-0.120	-0.390	-0.276	-0.940	-0.276	-0.930
LEVB	+	2.431	4.610***	2.453	4.360***	1.958	3.910***	1.947	3.910***
ABTSAME	+	0.188	1.190	0.172	1.060	0.042	0.270	0.025	0.160
BTSCITY	+/-	-0.478	-1.790*	-0.469	-1.510	-0.664	-2.430**	-0.660	-2.390**
TENURE	+	0.660	5.370***	0.633	4.830***	0.524	4.550***	0.499	4.340***
MPAY	+/-	0.713	5.030***	0.766	5.220***	0.888	6.530***	0.870	6.370***
TERMFEE	+/-	0.021	0.100	0.025	0.120	-0.216	-1.070	-0.198	-0.990
TENDER	+/-	-0.062	-0.360	-0.084	-0.490	-0.181	-1.100	-0.191	-1.160
THOLD	+/-	-0.087	-0.210	-0.008	-0.030	0.167	0.410	0.179	0.450
MULTIBID	+/-	-0.006	-0.020	0.008	0.030	-0.001	-0.000	0.025	0.100
INSTHOLD	-	-1.521	-5.240***	-1.392	-4.960***	-1.856	-6.660***	-1.877	-6.780***
SPREAD	+	0.749	3.470***	0.745	3.330***	0.257	1.250	0.239	1.170
ROEB	-	-0.354	-1.890*	-0.387	-1.850*	-0.241	-1.550	-0.226	-1.450
MTB	-	-0.012	-1.780*	-0.021	-1.910*	-0.022	-2.710**	-0.021	-2.550**
INTERCEPT	+/-	1.384	3.540***	1.696	5.170***	0.129	0.460	0.132	0.450
F-VALUE		14.890		13.670		19.090		19.210	
RSQR		0.273		0.259		0.339		0.341	
N		983		983		983		983	

Table 7: Cross-Sectional Analysis of Three-Day Cumulative Average Abnormal Return around Merger Announcements

This table presents the cross-sectional analysis of the three-day cumulative average abnormal returns around merger announcements. PS is the predicted sign/direction of the variable. PEST is the parameter estimate. TSTAT is a t-statistic. STDAFEEES is a standardized audit fee. ABIG4 is an indicator variable equal to 1 if the company's auditor is a Big 4 auditor and 0 otherwise. ACONC1 (ACONC2) is the auditor's degree of concentration, defined as the auditor's total audit fees from all transactions (all clients) during the sample period divided by the total audit fees of all auditors from all transactions (all clients in the market) during the sample period. LPRICE is the log of total deal value. RSIZE is the total assets of the target firm divided by the total assets of the bidder for the year preceding the merger announcement. RESTAT is an indicator variable equal to 1 if the company restated its financial statements in the two years preceding the announcement year and 0 otherwise. PNAFEEES is the percentage of non-audit fees divided by total fees. BTSSIC is an indicator variable equal to 1 if the bidder and target firms belong to the same 2-digit SIC code and 0 otherwise. INTANTA is the two-year average ratio of intangible assets to total assets. LEV is the two-year average degree of financial leverage, defined as the sum of long-term debt and debt in current liabilities divided by total assets. NSUBS is an indicator variable equal to one if the company has subsidiaries, and zero otherwise. ABTSAME is an indicator variable equal to one if the bidder and target firm employ the same auditor and zero otherwise. BTSCITY is an indicator variable equal to 1 if the auditor's office of the bidder and target firms are in the same city and zero otherwise. TENURE is an indicator variable equal to one if the company employs an auditor for a period of five years or more, and zero otherwise. MPAY is an indicator variable that equals one if the method of payment is cash and zero for stock or combination payments. TERMFEE is an indicator variable equal to one if the deal includes termination fees and zero otherwise. TENDER is an indicator variable equal to one if the transaction is a tender offer and zero otherwise. THOLD is an indicator variable equal to one if the bidder has a non-controlling interest in the target prior to the merger announcement, and zero otherwise. MULTIBID is an indicator variable that equals one if the deal involves multiple bidders (more than one offer) and zero if it involves only one bid. INSTHOLD represents the percentage of shares held by institutional investors. SPREAD is the bid-ask spread, defined as (bid price–ask price)/ (bid price + ask price)/2. ROEB is the return on equity, defined as net income divided by the book value of equity. MTB is the market value of equity divided by the book value. RSQR is the adjusted R square. *, **, and *** denote levels of significance at the ten, five and one percent levels, respectively.

Variable	PS	Model 1		Model 2		Model 3	
		PEST	TSTAT	PEST	TSTAT	PEST	TSTAT
STDAFEEES	-	-0.001	-0.610	-0.001	-0.760	-0.001	-0.770
ABIG4	+	-0.004	-0.390	-0.009	-0.710	-0.010	-0.740
ACONC1	+	0.004	0.100	na	na	na	na
ACONC2	+	na	na	0.022	0.560	na	na
LPRICE	-	-0.008	-2.270**	-0.001	-2.360**	-0.008	-2.410**
RSIZE	-	-0.016	-2.550**	-0.016	-2.630**	-0.016	-2.650**
RESTAT	-	0.008	1.410	0.010	1.810*	0.010	1.820*
PNAFEEES	-	-0.001	-0.360	-0.000	-0.090	-0.000	-0.200
BTSSIC	+	-0.001	-0.180	0.000	0.090	0.001	0.110
INTANTA	+	0.009	0.780	0.015	1.380	0.015	1.390
LEVB	-	0.015	0.910	0.027	1.840*	0.027	1.850*
NSUBS	-	-0.002	-0.330	-0.000	-0.010	-0.000	-0.030
ABTSAME	+	0.002	0.430	0.002	0.410	0.002	0.390
BTSCITY	+	0.023	1.600	0.021	1.460	0.021	1.470
TENURE	+/-	0.002	0.300	0.002	0.360	0.002	0.360
MPAY	+	0.024	4.280***	0.023	3.960***	0.023	4.000***
TERMFEE	-	-0.005	-0.990	-0.005	-0.920	-0.005	-0.930
TENDER	+	0.001	0.120	0.000	0.090	0.000	0.070
THOLD	+	-0.011	-1.350	-0.011	-1.230	-0.010	-1.310
MULTIBID	-	0.011	1.200	0.011	1.190	0.011	1.210
INSTHOLD	+	-0.011	-0.990	-0.008	-0.680	-0.008	-0.700
SPREAD	-	-0.018	-2.090**	-0.016	-1.990**	-0.016	-1.990**
ROEB	+	0.028	4.850***	0.032	6.120***	0.032	6.110***
MTB	+	-0.002	-3.110***	-0.002	-3.970***	-0.002	-3.980***
INTERCEPT	+/-	0.016	0.960	0.009	0.610	0.010	0.640
F-VALUE		3.840		4.060		4.070	
RSQR		0.0814		0.0888		0.089	
N		983		983		983	