Non-Audit Services and the Timeliness and Reliability of Earnings Announcements

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Abstract: This paper examines the association between the joint provision of audit and non-audit services (NAS) and the timeliness and reliability of earnings announcements. While most companies release earnings before the audit is complete to provide timely information to the market, earnings announcements issued before audit completion are less reliable. If NAS generate knowledge sharing that improves audit timeliness, firms that purchase NAS will be able to satisfy the market's demand for timely information without sacrificing the information's reliability. Using data from 2003-2015, we find tax NAS are associated with shorter earnings announcement lags, more complete audits at the earnings announcement, and lower likelihood of an earnings revision. We do not find evidence of such benefits for audit-related and other NAS. In subsequent analyses, we do not observe significant associations between tax NAS and discretionary accruals or misstatements, indicating our main findings are not due to impaired independence. However, we find these benefits are concentrated among companies with relatively large tax NAS purchases, and we no longer observe the knowledge sharing benefits in recent years when companies have reduced their tax NAS purchases. Our results provide evidence of the potential for a positive externality with important capital market implications arising from tax NAS; however, reductions in tax NAS over time due to independence concerns appear to have had unintended consequences with respect to the positive externalities that tax NAS have the potential to generate.

Keywords: Non-audit services; earnings announcements; reliability; timeliness

I. INTRODUCTION

This paper examines the association between the joint provision of audit and non-audit services (NAS) and the timeliness and reliability of firms' earnings announcements. Most companies issue their preliminary earnings announcement before the audit is complete in order to provide timely information to the market, but earnings announcements issued before audit completion are less reliable (Bronson, Hogan, Johnson, and Ramesh 2011). While prior research has focused on whether NAS impair auditors' independence or improve audit quality (e.g., Frankel, Johnson, and Nelson 2002; Ashbaugh, LaFond, and Mayhew 2003; Kinney, Palmrose, and Scholz 2004), we consider whether NAS enable companies to satisfy the market's demand for timely earnings information without compromising the information's reliability.

Earnings announcements are important voluntary disclosures that provide timely, decision-useful information to investors. Earnings announcements, generally issued several weeks before more comprehensive filings required by the Securities and Exchange Commission (SEC), provide timely and salient information, and as a result, investors react more strongly to earnings announcements than to the subsequent SEC filings (e.g., Stice 1991; Kothari 2001; Li and Ramesh 2009). Companies are generally able to provide more timely information to market participants by issuing the preliminary earnings announcement before the financial statement audit is complete. However, prior research has documented that earnings announcements are less reliable when the announcement is issued before audit completion (Bronson et al. 2011).[1] Because reliability is important to the decision usefulness of the earnings announcement, it is

[1] Bronson et al. (2011) find adjustments to financial statement balances prior to the 10-K filing are more likely when earnings are announced before audit completion, and investors react negatively to these earnings announcement revisions. Consistent with investor perceptions of lower reliability, Marshall, Schroeder, and Yohn (2018) find the market has a higher (less negative) response to good (bad) unexpected earnings for earnings announcements with a completed relative to an incomplete audit.

important to understand factors that enable firms to make earnings announcements that satisfy the market's demand for timely information without sacrificing the information's reliability.

The joint provision of audit and non-audit services potentially enables companies to provide earnings announcement information that is both timely and reliable. NAS have the potential to facilitate knowledge sharing that improves audit timeliness without sacrificing audit quality. Economies of scale can arise when the joint production of goods or services requires common inputs (e.g., Carlton and Perloff 2005). Audit and non-audit services require common inputs such as knowledge about the client's organizational structure, operating environment, business processes, and industry. Such knowledge can reduce audit start-up time and transaction costs (Knechel and Sharma 2012). NAS can also provide the audit firm with additional insights into the client's systems, business risks, and material transactions undertaken during the year. This can contribute to earlier identification of audit risks and resolution of potential accounting issues (Knechel and Sharma 2012; De Simone, Ege, and Stomberg 2015). Tax advisory services in particular can make auditors aware of significant transactions earlier in the year (De Simone et al. 2015) and help auditors gain a better understanding of complex issues in accounting for income taxes, which is often the last phase of the audit engagement, thereby allowing auditors to complete the audit on a more timely basis.

If NAS improve audit timeliness by facilitating earlier identification of audit risks and resolution of important accounting issues, managers of firms that purchase NAS will gain confidence in the financial statement information to be disclosed in the earnings announcement sooner. This will enable managers to make more timely earnings announcements, and at the same time, announce earnings when the audit is more complete. In addition, if NAS are associated with releasing earnings more timely and when the audit is more complete because of

knowledge sharing, we expect these earnings announcements will be reliable. Therefore, we will not observe a significantly higher likelihood of an earnings revision between the earnings announcement and the 10-K filing for firms that purchase NAS. Thus, we hypothesize: (1) NAS are associated with shorter earnings announcement lags, (2) NAS are associated with releasing earnings when the audit is more complete, and (3) NAS are not associated with an increased likelihood of an earnings revision.

To test our hypotheses, we use the ratio of non-audit fees to total fees as our variable of interest in order to reflect the materiality of NAS to each individual audit/client engagement. We begin by examining the effect of total non-audit fees. We then partition non-audit fees into tax and audit-related and other fee ratios to examine if there is a differential effect of NAS type on our outcome measures. Given that accounting for income taxes is often the final area of the audit, and given the differences in results across NAS fee types in prior studies (e.g., Kinney et al. 2004; Paterson and Valencia 2011; Knechel and Sharma 2012), we expect to observe the strongest effects for tax NAS. We measure the timeliness of the earnings announcement (EA) using the number of days between the fiscal year end and the earnings release and measure audit completeness using the difference between the EA date and the audit report date (e.g., Schroeder 2016). We measure EA reliability using the presence or absence of an earnings announcement revision consistent with the approach used in Bronson et al. (2011). Our primary tests of timeliness, completeness, and EA reliability are based on cross-sectional analyses with common controls from prior literature. To mitigate self-selection concerns, we also estimate our tests including firm fixed effects to examine within-firm variation across our sample period.

Using a sample of 30,610 firm-years from 2003 to 2015, we find a consistent effect of tax related NAS resulting in more timely and reliable earnings announcements. Specifically, we find

that tax fees are associated with shorter earnings announcement lags, more complete audits at the earnings announcement, and lower likelihood of earnings announcement revisions. We also find results generally consistent with our hypotheses when we examine overall non-audit fees, but we do not observe an association between audit-related and other fees and EA lags, audit completeness, or revision likelihoods. Results are generally consistent across the cross-sectional and within-firm analyses.

In additional analyses, we consider the possibility that we do not observe a positive association between NAS and earnings revisions occurring between the earnings announcement and the final audited 10-K because auditors who provide NAS succumb to client pressure to avoid earnings adjustments. To test this alternative explanation, we examine the association between the three NAS ratios and (1) misstatements and (2) discretionary accruals. In both cross-sectional and within-firm analyses, we find that tax and overall NAS fees are not associated with misstatement likelihoods or discretionary accruals. The results support our inferences that overall and tax related NAS are associated with more timely and reliable earnings announcements.[2]

Finally, we explore possible non-linearity in the association between tax NAS and earnings announcement timeliness and reliability. We find the significant effects of tax NAS on earnings announcement lags, audit completeness, and earnings revisions are concentrated among companies with relatively large tax NAS purchases, which indicates relatively high tax NAS are necessary to generate these knowledge sharing benefits. We also find the significant effects are generally observed in the early years of our sample period, when the levels of tax NAS purchases were higher.

[2] Our main results do not indicate audit and other related fees are associated with more timely or more reliable earnings announcements. In our additional analyses, we observe a positive association between audit-related and other fees and misstatement likelihoods, which is consistent with Paterson and Valencia (2011).

Our study contributes to two streams of literature. First, we contribute to the literature on the joint provision of audit and non-audit services. While prior research has focused on whether NAS impair auditor independence or lead to knowledge spillovers that enhance audit quality, we provide evidence NAS help firms satisfy the market's demand for timely and reliable earnings announcement information. Thus, we document the potential for a positive externality with important capital market implications arising from the provision of tax NAS, but we also document that the positive externality is no longer observed in recent years when companies have reduced their tax NAS purchases.

There is a continuing debate surrounding the joint provision of audit and NAS, even after the Sarbanes-Oxley Act and other regulations globally placed additional restrictions on auditors of publicly-traded client firms. For example, the European Union issued a Directive on Statutory Audits in 2014 which further restricts NAS both in terms of the services that are prohibited, and also in terms of a cap on the NAS that are allowed (Deloitte 2015). In the U.S., there is growing concern about the rapid increase in advisory services in recent years compared to the relatively stagnant audit market (e.g., Tysiac 2013; Rapoport 2018). However, audit firms continue to argue there are benefits derived from advisory services (e.g., Tysiac 2013; Rapoport 2018). Given the scrutiny surrounding this topic, it is important to fully understand the potential benefits of the joint provision of audit and non-audit services that would be forfeited if these services were prohibited.

We also contribute to the literature on earnings announcement disclosures. Understanding the determinants of the quality of these disclosures is important. Prior research indicates firms face a trade-off between satisfying the market's demand for timely earnings information and the reliability of that information (e.g., Bronson et al. 2011). Consistent with reliability concerns,

Arif, Marshall, Schroeder, and Yohn (2018) document an increase in concurrent earnings announcements (i.e., firms announcing earnings and filing the 10-K on the same day). Our evidence sheds light on the role auditors play in the timeliness and reliability of earnings releases and indicates tax NAS enable firms to provide earnings announcements that are both timely and reliable.

II. PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

Prior research has examined potential costs and benefits of the joint provision of audit and non-audit services. In terms of potential costs, regulators and others are concerned that NAS provided by a firm's auditor can impair the auditor's independence by creating an economic bond between the auditor and client or by putting the auditor in a management role (Beck, Frecka, and Solomon 1988). However, NAS also have the potential to create knowledge spillovers that improve the auditor's ability to deliver a high-quality audit and to conduct the audit efficiently (Simunic 1984). While research related to the benefits of NAS has primarily focused on audit quality and audit efficiency, we focus on the potential benefits of NAS to an additional aspect of the financial reporting process: the timeliness and reliability of earnings announcements. Below we discuss prior literature related to the costs and benefits of NAS, the role NAS may play in timely and reliable earnings announcements, and then present our hypotheses.

Potential Costs of Joint Provision of Audit and Non-Audit Services

Prior research has extensively examined the question of whether NAS impair auditor independence. Although some studies find NAS are associated with higher discretionary accruals (Frankel et al. 2002), lower accrual quality (Srinidhi and Gul 2007), more restatements

(Ferguson, Seow, and Young 2004; Paterson and Valencia 2011), and fewer going concern opinions in some settings (Ye, Carson, and Simnett 2011), the majority of studies do not find evidence that the joint provision of audit and NAS impair audit quality. Studies have failed to find an association between NAS and discretionary accruals (Ashbaugh et al. 2003; Reynolds, Deis, and Francis 2004; Koh, Rajgopal, and Srinivasan 2013; Knechel and Sharma 2012), meeting or beating earnings benchmarks (Ashbaugh et al. 2003; Huang, Mishra, and Raghunandan 2007), conservatism (Ruddock, Taylor, and Taylor 2006), the frequency of going concern opinions (DeFond, Raghunandan, and Subramanyam 2002; Geiger and Rama 2003; Callaghan, Parkash, and Singhal 2009; Hope and Langli 2010), restatements (Kinney et al. 2004; Knechel and Sharma 2012), or audit firm internal assessments of audit quality (Bell, Causholli, and Knechel 2015). In fact, prior research provides evidence that certain NAS improve audit quality. Tax NAS are associated with more adequate tax reserves (Gleason and Mills 2011), less earnings management (Krishnan and Visvanathan 2011; Christensen, Olson, and Omer 2015), fewer internal control weaknesses (De Simone et al. 2015), fewer restatements (Kinney et al. 2004; Paterson and Valencia 2011; Seetharamn, Sun, and Wang 2011), and more accurate going concern opinions (Robinson 2008). Collectively, the evidence does not support the notion that NAS impair auditor independence and provides some evidence that certain NAS, especially tax NAS, improve the audit process.

Potential Benefits of Joint Provision of Audit and Non-Audit Services

Prior research argues the joint provision of audit and NAS can generate knowledge spillovers that improve audit efficiency as well as quality (e.g., Knechel and Sharma 2012). As discussed above, there is some research documenting a positive association with audit quality, particularly for tax NAS; however, existing research provides limited evidence that the joint

provision of audit and NAS improves audit efficiency. Bamber, Bamber, and Schoderbek (1993) define efficiency as "the use of fewer inputs to obtain a given output" (pg. 2). Davis, Ricchiute, and Trompeter (1993) and O'Keefe, Simunic, and Stein (1994) examine audit hours but fail to find evidence of an inverse association between NAS and audit hours. Abel-khalik (1990) argues efficiencies stemming from the joint provision of audit and NAS should result in lower costs. However, prior research has either not found an association between audit fees and NAS (Adel-khalik 1990; Whisenant, Sankaraguruswamy, Raghunandan 2003; Hay, Knechel, and Li 2006) or has found a positive association (Simunic 1984; Antle, Gordon, Narayanamoorthy, and Zhou 2006).[3] Donohoe and Knechel (2014) find tax NAS are negatively associated with audit fees, consistent with audit efficiencies, but find a positive association for non-tax NAS. Thus, research examining audit hours and audit fees has not provided consistent evidence of audit efficiencies stemming from NAS.

Other studies have examined the association between NAS and audit report lags (i.e., the length of time between the fiscal year end and the audit report date). Using survey data from an international public accounting firm from the year 1991, Knechel and Payne (2001) find management advisory (tax) services are associated with shorter (longer) audit report lags. Knechel and Sharma (2012) examine the years 2000 to 2003 and find NAS are associated with shorter audit report lags prior to the passage of SOX. Thus, prior research provides some evidence consistent with NAS reducing audit report lags but has not considered whether there are positive externalities of NAS for earnings announcement disclosures, which are key disclosures that are highly valued by many stakeholders but are not subject to formal audit requirements.

[3] Simunic (1984) and Antle et al. (2006) suggest the positive association may be due to clients purchasing additional audit services when the auditor passes along the cost savings that arise from the joint provision of audit and NAS.

The Impact of NAS on Earnings Announcement Timeliness and Reliability

We are interested in the impact of the joint provision of audit and NAS on the ability of companies to provide timely and reliable earnings announcements. Earnings announcements are important voluntary disclosures. Traditionally, firms issue a preliminary earnings announcement several weeks before filing more comprehensive, mandated periodic reports with the SEC (e.g., 10-K). The annual earnings announcement is a key source of information for investors. It provides important information about firm performance that can be benchmarked against prior analyst forecasts, management guidance, and other sources of information (Beyer, Cohen, Lys, and Walther 2010). Investors react more strongly to the earnings announcement than to the 10-K filing because of its timeliness and salience (Stice 1991; Kothari 2001; Li and Ramesh 2009).

The information included in the earnings announcement is not required to be audited, but practitioner organizations strongly encourage companies to wait until the audit is complete or substantially complete before releasing the earnings announcement (Diamond and Yevmenenko 2011). Prior to 2004, most companies waited until the audit was complete to announce earnings; however, in more recent years the majority of companies issue their preliminary earnings announcement before the audit is complete (Bronson et al. 2011; Schroeder 2016).[4] Earnings announcements that are issued before audit completion could be less reliable because auditors could detect and require adjustments to the financial statement balances prior to the 10-K filing. Bronson et al. (2011) find that earnings announcement revisions are in fact more likely when the earnings announcement is issued before audit completion, and investors react negatively to the revisions. As a result, managers face risks of litigation and reputation loss if there is a revision (Schroeder 2016). In addition, Marshall et al. (2018) find the market has a higher (less negative)

[4] This shift was largely a result of PCAOB Auditing Standard Nos. 2 and 3 that significantly lengthened the time it takes to complete an audit (Krishnan and Yang 2009; Bronson et al. 2011; Schroeder 2016).

response to good (bad) unexpected earnings for earnings announcements with a completed relative to an incomplete audit. This is consistent with a perception of lower reliability when earnings announcements are released prior to audit completion.

Thus, in determining when to make the earnings announcement, firms face a trade-off between satisfying the market's demand for timely information and the potential reliability of the information. Consistent with concerns about the reliability of the information included in the earnings announcement, Arif et al. (2018) document an increase in concurrent earnings announcements in which firms announce earnings and file the 10-K on the same day. However, these concurrent earnings announcements are less timely and less decision useful (Arif et al. 2018). Therefore, it is important to understand factors that enable firms to make earnings announcements that are both timely and reliable.

Purchasing NAS potentially enables firms to make timely and reliable earnings announcements if the joint provision of audit and non-audit services leads to knowledge sharing that allows the auditor to complete the audit earlier while providing the same level of assurance. The joint production of two or more goods or services that require a common input can generate economies of scope (e.g., Carlton and Perloff 2005). Performing audit and non-audit services requires common inputs. Both require knowledge about the client's organizational structure, operating environment, business processes, and industry. Providing NAS can enrich auditors' knowledge about the client, its systems, and its personnel, which can reduce audit start-up time and transaction costs (Knechel and Sharma 2012). For example, allowable advisory services related to performance improvement, information technology, or compliance with laws and regulations all have the potential to increase the auditor's knowledge of the client's systems,

processes, and business risks, which can help the auditor complete the audit sooner without sacrificing the quality of the audit.

NAS can also provide the audit firm with additional insight into material transactions undertaken by the client during the year. This creates opportunities for earlier audit firm involvement in these transactions, helping the auditor identify audit risks and resolve potential accounting issues sooner (Knechel and Sharma 2012; De Simone et al. 2015). For example, performing due diligence related to a potential acquisition makes the audit firm aware of the transaction and provides insights into the accounting issues and risks earlier in the year, which can help the client and audit firm address the issues sooner.

As another example directly related to the financial close process, tax accounts are some of the last accounts closed prior to the earnings announcements (Dhaliwal, Gleason, and Mills 2004). Providing tax NAS can increase the audit firm's familiarity with the client's tax positions (Gleason and Mills 2011), which can help the audit firm complete its examination of the tax accounts at year end in a more timely manner. It can also alert the audit firm before year end to tax-related transactions that have implications for the client organization as a whole (De Simone et al. 2015). De Simone et al. (2015) observe, "Practitioners indicate that having the audit firm involved in tax NAS helps companies avoid surprises at the year-end by increasing the audit firm's awareness of transaction details and audit risks early in the year" (pg. 1470). Thus, tax NAS in particular have the potential to improve audit timeliness.

Hypothesis Development

NAS have the potential to facilitate knowledge sharing that leads to more timely audits by providing auditors with insights into clients' systems, processes, and business risks and allowing them to gain an understanding of material transactions at an earlier stage. If this

knowledge sharing contributes to earlier identification and resolution of material audit issues, managers of firms that purchase NAS will gain confidence in the financial statement information to be disclosed in the earnings announcement sooner. As a result, firms that purchase NAS will be able to release earnings sooner, and at the same time, release earnings when the audit is more complete. Further, if NAS are associated with releasing earnings more timely and when the audit is more complete because of knowledge sharing, we expect these earnings announcements will be reliable. Thus, NAS will not be associated with an increased likelihood of an earnings revision (i.e., an adjustment occurring subsequent to the earnings announcement but prior to the 10-K filing). Our hypotheses, stated in the alternative, are:

H1: Non-audit services are associated with shorter earnings announcement lags.

H2: Non-audit services are associated with releasing earnings when the audit is more complete.

H3: Non-audit services are not associated with an increase in the likelihood of an earnings revision.

However, if the joint provision of audit and NAS does not generate knowledge sharing that improves audit timeliness, we will not find evidence consistent with our hypotheses. For example, knowledge sharing could by inhibited by the separation of audit and non-audit personnel within large accounting firms (Knechel and Sharma 2012) or efficiencies may not be significant enough to be observed on average (Adel-khalik 1990; Whisenant et al. 2003; Hay et al. 2006: Davis et al. 1993; O'Keefe et al. 1994; Knechel and Payne 2001; Knechel and Sharma 2012).

We consider our hypotheses with respect to the ratio of total NAS to total fees as well as different categories of NAS (i.e., tax NAS and audit-related and other NAS). Prior research has observed different effects of different types of NAS fees. For example, Kinney et al. (2004) do not find a significant association between audit-related NAS and restatements but find a significant negative association between tax NAS and restatements. Paterson and Valencia (2011) find audit-related and other NAS are significantly, positively associated with restatements, but recurring tax NAS are significantly, negatively associated with restatements. Further, Knechel and Sharma (2012) find the significant negative association they observe between NAS and audit report lags is driven by tax NAS. Given the differences in results across NAS fee types in prior studies, as well as the fact that accounting for income taxes is one of the final areas of the audit, we expect to observe the strongest effects for tax NAS.

III. SAMPLE AND RESEARCH DESIGN

Sample

Table 1 provides a summary of the sample selection. Our sample period is from 2003 to 2015 to ensure consistent regulatory requirements for NAS. We begin with 55,290 U.S. observations representing the intersection between Audit Analytics and Compustat. We eliminate 16,757 financial institutions (SIC codes between 6000 to 6999). We then eliminate 6,922 observations with missing/incorrect earnings announcement dates in Compustat and/or where the 10-K filing occurred more than 15 days after the SEC regulatory deadline. We then eliminate 16,152 observations with missing data items necessary to create the variables in our multivariate analyses. Finally, our earnings revision analysis requires earnings announcements to occur in advance of the 10-K filing. Thus, we eliminate 8,528 observations where the earnings

announcement was filed concurrently with the 10-K. This results in a final sample of 30,610 observations available for all empirical analyses.

Research Design

Dependent Variables

To test H1, we measure earnings announcement timing using the number of days between the fiscal year end and the release date of the earnings announcement (*EA_LAG*) (Sengupta 2004). Larger (smaller) values of this measure are indicative of less (more) timely earnings announcements. To test H2, we use the audit completeness measure from Schroeder (2016). This measure (*AUDCOMP*) is computed in two parts based on whether the audit is complete at the earnings announcement date. When the earnings announcement is released on or after the audit report date, *AUDCOMP* is assigned a value of zero. When the earnings announcement is released before the audit report date, *AUDCOMP* equals the number of days between the EA date and the audit report date, resulting in negative values. *AUDCOMP* captures the degree of audit completeness at the EA date and assumes each day closer to the audit report date is incrementally more complete. Finally, to test H3, we use an indicator variable of whether or not net income reported in the earnings announcement is subsequently revised in the 10-K filing.[5] Consistent with Bronson et al. (2011), a revision is an indication of a less reliable earnings announcement.

[5] To identify earnings announcement revisions for years 2003 to 2012, we compare the differences between the net income (NI) and earnings before extraordinary items (IB) values reported in Compustat Preliminary History (populated from the earnings announcement) and Unrestated Quarterly (populated from the initial SEC periodic filing). As Compustat consolidated these prior databases into Compustat Snapshot starting in 2013, we use the differences between the net income (NI) and earnings before extraordinary items (IB) values populated from earnings announcements and the initial SEC periodic filing using data code srcqcd. To further ensure that these differences are due to actual earnings announcement revisions rather than potential rounding differences, we further hand verify all noted differences by examining the actual disclosures per SEC Edgar.

Non-Audit Fee Ratios (Test Variables)

Our test variable is the ratio of non-audit fees to total fees paid to the audit firm. We use the ratio for two reasons. First, we want to measure the relative importance of these services for each client firm. Second, the use of the ratio is less susceptible to concerns that we are not fully controlling for the effect of client size on both the level of non-audit fees and the various outcome measures. For each analysis we examine three non-audit fee ratios. The first is total non-audit fees. The second is tax-related non-audit fees. Finally, we examine audit-related and other non-audit fees. This allows us to determine if there is an overall effect of non-audit fees or if the effect is specific to the type of NAS.

Earnings Announcement Lag Model (H1)

Our first test uses the following OLS model to examine the impact of non-audit services on earnings announcement timing. Variable definitions are found in the Appendix:

$$\begin{aligned} EA\_LAG_{i,t} = \; & \beta_0 + \beta_1 NAF\_RATIO_{i,t} + \beta_2 LNMVE_{i,t} + \beta_3 ANLYST\_F_{i,t} + \\ & \beta_4 ANLYST\_C_{i,t} + \beta_5 SHDLR_{i,t} + \beta_6 INSTPCT_{i,t} + \beta_7 ROA_{i,t} + \\ & \beta_8 OCF_{i,t} + \beta_9 UE\_NEG_{i,t} + \beta_{10} LOSS_{i,t} + \beta_{11} SPITEM_{i,t} + \\ & \beta_{12} VOLUME_{i,t} + \beta_{13} STDRET_{i,t} + \beta_{14} LNBSEG_{i,t} + \beta_{15} MBR_{i,t} + \\ & \beta_{16} MKTCONC_{i,t} + \beta_{17} M\&A_{i,t} + \beta_{18} GROWTH_{i,t} + \beta_{19} ZSCORE_{i,t} + \\ & \beta_{20} BIGN_{i,t} + \beta_{21} OP\_404b_{i,t} + \beta_{22} MW_{i,t} + Filer\ Status\ Fixed\ Effects \\ & + Year\ Fixed\ Effects + Industry\ Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (1)$$

If non-audit services enable firms to make more timely earnings announcements, then we expect a negative coefficient on *NAF_RATIO*. However, if non-audit services do not improve audit timeliness, then the coefficient on *NAF_RATIO* will be insignificant or positive.

We include several control measures that have been shown to affect earnings announcement timing and disclosure decisions (Sengupta 2004; D'Souza, Ramesh, and Shen 2010; Schroeder 2016). Companies with greater demands from stakeholders and information intermediaries typically provide more timely earnings announcement disclosures. Accordingly,

we include the natural log of market value of equity (*LNMVE*), measures of the number of analysts and analyst coverage (*ANLYST_F* and *ANLYST_C*), number of shareholders (*SHDLR*), and the percentage of shares owned by institutional investors (*INSTPCT*).

Companies that experience bad news for the reporting period and/or increased litigation risk have been shown to either provide timelier or delayed financial disclosure (Kross 1981; Skinner 1994; Skinner 1997; Begley and Fischer 1998). We measure bad news using return on assets (*ROA*), annual cash flows from operations (*OCF*), an indicator variable if the company reports lower earnings than the previous year (*UE_NEG*), and whether or not the company experiences a loss for the year (*LOSS*). To measure litigation risk we include the trading volume during the year (*VOLUME*) and stock return volatility during the year (*STDRET*) as prior research suggests greater trading volume and price volatility tend to result in higher likelihood of class action lawsuits.

Companies with greater complexity may experience less timely financial statement close processes resulting in less timely earnings announcement releases. Thus, we include the natural log of business segments (*LNBSEG*), whether the company reports special items (*SPITEM*), and the market-to-book ratio (*MBR*). Prior research also suggests that firms with proprietary costs may make less timely disclosures (Sengupta 2004). We measure proprietary costs using the Herfindahl Index (*MKTCONC*). We also include additional measures that have been demonstrated to be associated with non-audit fees and could also affect the timing of the earnings announcement. We include an indicator variable if the company is involved in merger and acquisition activity during the year (*M&A*), the year over year growth in total sales (*GROWTH*), and the Zmijewski bankruptcy measure using the Shumway (2001) coefficients (*ZSCORE*). We also include an indicator of whether or not the company was audited by a Big N

audit firm (*BIGN*) as this has the potential to impact the likelihood of purchasing non-audit services, as well as the timing of the earnings release. We also include indicators for whether the client is subject to a Section 404(b) internal control audit (*OP_404b*) and if they receive/disclose a material weakness in internal controls (*MW*).

During our sample period there were differential 10-K filing deadlines for large accelerated, accelerated, and non-accelerated filers, which has the potential to impact the timing of the earnings announcement. Thus, we include filer status fixed effects to control for unobservable factors that impact the timing of the earnings release during our sample period. Finally, we include year and industry fixed effects to control for unobservable macroeconomic and industry-specific factors.

While our primary model examines cross-sectional variation across firms, we are also interested in within-firm effects to address potential self-selection issues that exist regarding EA timing and the decision to purchase NAS. Thus, we also re-estimate equation (1) replacing industry fixed effects with firm fixed effects in order to examine the effect of NAS on EA timing within the firm over our sample period.

Audit Completeness Model (H2)

Our second analysis examines the effect of NAS on the degree of audit completeness as of the time of the earnings announcement release date. We test this using the Schroeder (2016) continuous measure in an OLS model.[6,7] Variable definitions are found in the Appendix:

$$\begin{aligned} AUDCOMP_{i,t} = \; & \beta_0 + \beta_1 NAF\_RATIO_{i,t} + \beta_2 LNMVE_{i,t} + \beta_3 ANLYST\_F_{i,t} + \\ & \beta_4 ANLYST\_C_{i,t} + \beta_5 SHDLR_{i,t} + \beta_6 INSTPCT_{i,t} + \beta_7 ROA_{i,t} + \end{aligned}$$

[6] As *AUDCOMP* is right censored with values of zero, we also re-estimate the analysis using a Tobit specification. The results are consistent with the OLS results reported in Table 5. We use the OLS specification for ease of interpretation of the economic effects. Furthermore, it is noted that use of OLS will only slightly bias the coefficient magnitudes downward (Wooldridge 2002).

[7] We also use a probit specification in which the dependent variable is an indicator with the value of one if the earnings announcement is released on or after the audit report date, and zero otherwise (*AUDEA*). The results (untabulated) are consistent with the *AUDCOMP* results reported in Table 5.

$$\beta_8 OCF_{i,t} + \beta_9 UE\_NEG_{i,t} + \beta_{10} LOSS_{i,t} + \beta_{11} SPITEM_{i,t} + \beta_{12} VOLUME_{i,t} + \beta_{13} STDRET_{i,t} + \beta_{14} LNBSEG_{i,t} + \beta_{15} MBR_{i,t} + \beta_{16} MKTCONC_{i,t} + \beta_{17} M\&A_{i,t} + \beta_{18} GROWTH_{i,t} + \beta_{19} ZSCORE_{i,t} + \beta_{20} BIGN_{i,t} + \beta_{21} EA\_LAG_{i,t} + \beta_{22} OP\_404b_{i,t} + \beta_{23} MW_{i,t} + Filer\ Status\ Fixed\ Effects + Year\ Fixed\ Effects + Industry\ Fixed\ Effects + \varepsilon_{i,t} \quad (2)$$

The variables in this model are consistent with the EA lag model with one notable difference; we include the EA lag as a control measure. Given that audit completeness is highly contingent on the timing of the earnings release, it is important to hold EA release timing constant in order to fully examine the effect of NAS on the degree of audit completeness at the earnings announcement release date. While our first test examines the impact of NAS on the timing of the EA release, we now examine whether the earnings announcement benefits from a more complete audit, holding constant the earnings release date.

To the extent NAS result in greater audit timeliness that enables firms to release earnings when the audit is more complete, we expect a positive coefficient on *NAF_RATIO*. However, to the extent NAS are associated with other factors that prolong the audit process, we may find a negative coefficient on *NAF_RATIO*.

Consistent with the EA lag analysis, we estimate the model with both industry fixed effects (cross-sectional test) and firm fixed effects (within-firm analysis).

Earnings Announcement Reliability Analysis (H3)

Our third analysis examines the effect of NAS on earnings announcement reliability using the presence of an earnings revision. We adapt the following earnings revision model from Bronson et al. (2011). Variable definitions are found in the Appendix:

$$EARVZ_{i,t} = \beta_0 + \beta_1 NAF\_RATIO_{i,t} + \beta_2 LNMVE_{i,t} + \beta_3 LOSS_{i,t} + \beta_4 ROA_{i,t} + \beta_5 LEVERAGE_{i,t} + \beta_6 MBR_{i,t} + \beta_7 ARINV_{i,t} + \beta_8 SPITEM_{i,t} + \beta_9 M\&A_{i,t} + \beta_{10} GC_{i,t} + \beta_{11} BIGN_{i,t} + \beta_{12} YE_{i,t} + \beta_{13} STDRET_{i,t} + \beta_{14} AUDCHG_{i,t} + \beta_{15} ZSCORE_{i,t} + \beta_{16} GROWTH_{i,t} + \beta_{17} EA\_LAG_{i,t} + \beta_{18} OP\_404b_{i,t}$$

$$+ \beta_{19} MW_{i,t} + \textit{Filer Status Fixed Effects} + \textit{Year Fixed Effects} + \textit{Industry Fixed Effects} + \varepsilon_{i,t} \quad (3)$$

If NAS increase audit timeliness without compromising audit quality, they will not increase the likelihood of an earnings revision. Thus, we expect an insignificant or negative coefficient on *NAF_RATIO*. However, if NAS are associated with completing the audit more quickly but sacrificing quality, they will result in less reliable earnings announcements. Consequently, we would observe a positive coefficient on *NAF_RATIO*.

We include the same control variables from Bronson et al. (2011) that are associated with increased likelihood of earnings announcement revisions. We also include the Zmijewski bankruptcy measure using the Shumway (2001) coefficients as this has been associated with the likelihood of purchasing non-audit services, as well as potentially the increased likelihood of earnings revisions. In addition, we include the EA lag measure to hold constant the timing of the earnings announcement to determine if, all else equal, NAS result in more reliable earnings announcements. Filer status fixed effects are included to control for differential unobserved factors that might affect the reliability of earnings announcements for the different filer status groups. We also include industry and year fixed effects to control for macroeconomic and industry unobservable factors. Finally, consistent with the previous two analyses, we perform cross-sectional (industry fixed effects) and within-firm (firm fixed effects) analyses.

IV. RESULTS

Descriptive Statistics

Table 2 provides descriptive statistics for the variables used in the multivariate analyses. The average earnings announcement lag is 47 days, which is consistent with recent trends

showing earnings announcement release dates have been progressively later over the past decade (Arif et al. 2018). Consistent with Schroeder (2016), sample companies on average release earnings 16 days (median of 14 days) before the audit report date with 15.0 percent waiting until on or after the audit report date to release earnings. Earnings announcement revision rates are 3.8 percent on average for the sample period, consistent with prior research (i.e., Bronson et al. 2011; Schroeder 2016). The average non-audit fees, tax fees, and audit-related and other fees were $582.4k, 321.8k, and 260.6k, respectively, which are slightly lower than in prior studies (e.g., Knechel and Sharma 2012; De Simone et al. 2015).[8] The average non-audit fee, tax fee, and audit-related and other fee ratios are 0.176, 0.099, and 0.076, respectively, with considerable variation across the sample distribution. The remaining control variables have means and median values and distributions that are consistent with prior research.

Table 3 provides the Pearson correlations for the dependent and test variables. We find that EA lag (*EA_LAG*) is significantly negatively correlated with all three fee ratios, consistent with NAS resulting in more timely earnings announcement release dates. Regarding H2, we find a positive and significant correlation of audit completeness (*AUDCOMP*) with the non-audit and audit-related and other fee ratios. The tax fee ratio is positively correlated, but not significant. This is consistent with NAS resulting in more complete audits at the time of the earnings release. Regarding H3, we find a negative and significant correlation between EA revisions (*EARVZ*) and tax fee ratios, but no significance for the other two ratios. This is consistent with tax services being associated with lower likelihood of earnings announcement revisions.

[8] We use all available company-year observations, whereas prior non-audit fee studies have incorporated sample restrictions for their research designs. For example, Knechel and Sharma (2012) uses a sample of Big N audited companies from 2000 to 2003, and De Simone et al.'s (2015) sample is restricted to firms that comply with SOX Section 404(b) (i.e., large accelerated and accelerated filers), excluding non-accelerated filers.

Multivariate Results

Earnings Announcement Timing Results (H1)

Table 4 presents the results of the earnings announcement timing analyses for the overall non-audit fee ratio, tax fee ratio, and the audit-related and other fee ratio. Columns (1), (3), and (5) present the cross-sectional results, whereas Columns (2), (4), and (6) present the within-firm results (i.e., firm fixed effects). H1 predicts a negative coefficient on the non-audit service ratios, indicating more timely earnings releases. For the overall non-audit fee ratio analysis, we find a marginally significant negative coefficient for the model that includes industry fixed effects. However, the results are not significant with the inclusion of firm fixed effects. When we separately examine the tax fee and audit-related and other components, we find a negative and significant coefficient ($p<0.01$) for the tax fee ratio and an insignificant coefficient for the audit-related and other fee ratio. This suggests companies that purchase a higher proportion of tax fees relative to total fees have more timely earnings releases. We also find consistent results when including firm fixed effects to capture within-firm variation in order to mitigate self-selection concerns. The effect of tax fees on more timely earnings releases is possibly due to knowledge sharing that improves audit timeliness. To better understand this effect, we next turn to the audit completeness analyses.

Audit Completeness Results (H2)

Table 5 presents the results of the audit completeness analyses for the overall non-audit fee ratio, tax fee ratio, and the audit-related and other fee ratio. Columns (1), (3), and (5) present the cross-sectional results, whereas Columns (2), (4), and (6) present the within-firm results (i.e., firm fixed effects). H2 predicts a positive coefficient on the non-audit service ratios, indicating more complete audits at the earnings announcement date. For overall non-audit fees, we find a

positive and significant coefficient for the non-audit fee ratio in both the cross-sectional ($p<0.10$) and within-firm analyses ($p<0.05$). When separating non-audit fees into the tax and audit-related and other classifications, we find a positive and significant coefficient for the tax fee ratio in both the cross-sectional ($p<0.05$) and within-firm analyses ($p<0.01$). However, there is no association between audit-related and other services and the degree of audit completeness at the earnings announcement release date.

The results, in conjunction with the earnings announcement timing results, indicate that companies that purchase a higher proportion of tax services have timelier earnings announcement releases and more complete audits at the release date. This is consistent with tax NAS having knowledge sharing effects that improve audit timeliness; however, these benefits are not present for audit-related and other NAS. We next examine the implications of NAS for earnings announcement reliability.

Earnings Announcement Reliability Results (H3)

Table 6 presents the results of the earnings announcement revision analyses for the overall non-audit fee ratio, tax fee ratio, and the audit-related and other fee ratio. Columns (1), (3), and (5) present the cross-sectional probit regression results. Columns (2), (4), and (6) present the within-firm results (i.e., firm fixed effects). While *EARVZ* is an indicator variable, we estimate these specifications using OLS to prevent the loss of observations due to firm fixed effects being included in the model. However, as an untabulated robustness test, we also estimate the firm fixed effects specification using a probit model and find consistent results. H3 predicts an insignificant or negative coefficient on the non-audit service ratios, indicating NAS are not associated with an increased likelihood that the earnings announcement numbers will be revised in the subsequent 10-K filing. We find insignificant coefficients on the overall non-audit fee

ratio, suggesting no effect of NAS on the earnings announcement revision rate in either the cross-sectional or within-firm analyses. When separating into the two fee sub-categories, we find a negative and significant coefficient on the tax fee ratio in both the cross-sectional ($p<0.05$) and within-firm ($p<0.01$) analyses. The significant negative coefficient is consistent with tax NAS generating knowledge sharing that improves audit timeliness and financial statement quality. We do not find a significant association for the audit-related and other fee ratio analyses.

In summary, clients that purchase tax services from their audit firm experience greater audit timeliness that affords them the ability to release timely earnings announcements with more complete audits and have more reliable earnings announcements. We do not find evidence of such benefits for audit-related and other NAS.

Additional Specifications

While we believe the firm fixed effects specification provides a powerful tool to mitigate endogeneity concerns, and we include year fixed effects to address concerns about EA trends over time, we acknowledge there could still be concerns that endogeneity and/or NAS and EA trends over our sample period could affect our results. Therefore, we estimate additional specifications to reduce concerns that our results are due to endogeneity and/or time trends.

First, we replace year fixed effects with a time trend variable. Results (untabulated) are consistent with our primary results reported in Tables 4 to 6. Second, we further address concerns regarding endogeneity and potential time trend effects by estimating a specification with industry-year fixed effects. This specification is beneficial because it allows us to examine within industry-year variation. Once again, results (untabulated) are consistent with our primary results reported in Tables 4 to 6.

Finally, we consider a first-difference specification where all variables are transformed into their respective year-over-year change values. This approach is similar in spirit to the firm fixed effects specification as it controls for unobservable factors. However, it has the added benefit of allowing us to examine if changes in the respective variables covary in a manner consistent with our expectations. Results (untabulated) are consistent with the inferences from Tables 4 to 6.

V. ADDITIONAL ANALYSES

Potential Financial Reporting Quality Effects

Our primary results are consistent with tax fees being associated with greater audit timeliness resulting in more timely earnings announcements, more complete audits at the time of the release, and increased reliability of earnings reported in the earnings announcement. However, it is possible that these effects come at the expense of reduced audit and financial reporting quality. To address this concern, we examine the implications of the non-audit, tax, and audit-related and other fee ratios for audit and financial reporting quality outcome measures. We examine audit and financial reporting quality using the misstatement and discretionary accrual models from Bhaskar, Schroeder, and Shepardson (2018), supplemented by including the earnings announcement lag. We note that the sample period ends in 2015 so that there are at least two years in order to properly classify the misstatement variable. Additionally, the sample size is reduced due to data limitations necessary to construct the variables included in the following models listed below. Variable definitions can be found in the Appendix.

$$\begin{aligned} MISSTATE_{i,t} = \; & \beta_0 + \beta_1 NAF\_RATIO_{i,t} + \beta_2 LNASSETS_{i,t} + \beta_3 LOSS_{i,t} + \beta_4 ROA_{i,t} + \\ & \beta_5 FNDSRSED_{i,t} + \beta_6 M\&A_{i,t} + \beta_7 MBR_{i,t} + \beta_8 QRATIO_{i,t} + \\ & \beta_9 IINTCOV_{i,t} + \beta_{10} LEVERAGE_{i,t} + \beta_{11} LNBSEG_{i,t} + \\ & \beta_{12} STD\_SALES_{i,t} + \beta_{13} GROWTH_{i,t} + \beta_{14} ZSCORE_{i,t} + \beta_{15} LNFEE_{i,t} + \end{aligned}$$

$$\beta_{16}OP\_404b_{i,t} + \beta_{17}MW_{i,t} + \beta_{18}ANC\_RST_{i,t} + \beta_{19}BIGN_{i,t} + \beta_{20}EA\_LAG_{i,t} + \textit{Filer Status Fixed Effects} + \textit{Year Fixed Effects} + \textit{Industry Fixed Effects} + \varepsilon_{i,t} \quad (4)$$

$$ABSDCACC_{i,t} = \beta_0 + \beta_1 NAF\_RATIO_{i,t} + \beta_2 LNASSETS_{i,t} + \beta_3 PYTACC_{i,t} + \beta_4 OCF_{i,t} + \beta_5 LOSS_{i,t} + \beta_6 STD\_SALES_{i,t} + \beta_7 STD\_OCF_{i,t} + \beta_8 GROWTH_{i,t} + \beta_9 PPEGROWTH_{i,t} + \beta_{10} MBR_{i,t} + \beta_{11} LEVERAGE_{i,t} + \beta_{12} ZSCORE_{i,t} + \beta_{13} LNBSEG_{i,t} + \beta_{14} FOREIGN_{i,t} + \beta_{15} STKRET_{i,t} + \beta_{16} BIGN_{i,t} + \beta_{17} OP\_404b_{i,t} + \beta_{18} MW_{i,t} + \beta_{19} EA\_LAG_{i,t} + \textit{Filer Status Fixed Effects} + \textit{Year Fixed Effects} + \textit{Industry Fixed Effects} + \varepsilon_{i,t} \quad (5)$$

For the misstatement model, the dependent variable (*MISSTATE*) is coded 1 if the current period financial statements contain a misstatement that is restated during future periods and 0 otherwise. For the discretionary accruals model, the dependent variable is the absolute value of the residual obtained from the Kothari, Leone, and Wasley (2005) accruals model calculated cross-sectionally by year and industries that have at least 20 observations. Positive (negative) coefficients on the three ratios would be consistent with lower (higher) audit/financial reporting quality.

Table 7, Panels A and B present the misstatement and discretionary accruals results, respectively. Columns (1), (3), and (5) present the cross-sectional results, whereas Columns (2), (4), and (6) present the within-firm results (i.e., firm fixed effects). For brevity, we present results for our variables of interest but not for control variables. In Panel A, we do not find an effect of overall non-audit fee ratios or tax fee ratios on misstatement likelihood. We do find a positive and significant coefficient in the audit-related and other fee ratio analyses. This result is consistent with Paterson and Valencia (2011), who also observe a positive association between restatements and audit-related and other NAS fees. In Panel B, none of the fee ratios are

significantly associated with discretionary accruals in either the cross-sectional or within-firm specifications.

In summary, the misstatement and discretionary accruals results indicate our main results that tax NAS are associated with shorter earnings announcement lags, more complete audits at the earnings announcement, and lower likelihood of an earnings revision are not the result of independence impairment that adversely affects audit and financial reporting quality. Rather, the main results are consist with tax NAS leading to knowledge sharing that yields important positive externalities for clients' earnings announcement timing and reliability without sacrificing overall financial reporting and audit quality.

Exploratory Analyses Regarding Tax Fee Ratio Levels and Changes over Time

Our analyses focus on the ratio of non-audit fees to total fees paid to the audit firm in order to capture the relative importance of these services for each client firm. We expect that in order for NAS to facilitate knowledge sharing that impacts the timeliness and reliability of earnings announcements, companies must purchase a material amount of NAS. Thus, we examine whether the association between tax NAS and earnings announcement lags, audit completeness, and earnings revisions is non-linear and expect the effects of tax NAS to be strongest and/or concentrated among companies with relatively high tax fee ratios. (We focus on tax NAS in this section because we do not observe effects for non-tax NAS in our main analysis.)

To explore this possible non-linearity, we construct separate tax fee ratio variables based on the quartile of the tax fee ratio distribution (*TXF_RATIO_Q2*, *TXF_RATIO_Q3*, and *TXF_RATIO_Q4*). For example *TXF_RATIO_Q2* is equal to the tax fee ratio for observations

that fall between the 25th and 50th percentile of the tax fee ratio distribution, and zero otherwise.[9] Including these separate variables in the regression allows the association between the tax fee ratio and our dependent variables to vary for the different quartiles of the tax fee ratio. The results are presented in Table 8, Panel A. We find the significant associations between tax NAS and earnings announcement lags, audit completeness, and earnings revisions are concentrated among observations in the top quartile of the tax fee ratio, which is consistent with a relatively high level of tax fees relative to total fees being necessary in order for tax NAS to facilitate knowledge sharing that impacts earnings announcement timeliness and reliability.

Given the non-linearity in the association between tax NAS and earnings announcement timeliness and reliability, we next explore changes in the level of tax fee ratios over our sample period. Table 8, Panel B presents the percentage of firms that purchase tax NAS and distributional properties of the tax fee ratio for each year of our sample period. In addition, Figure 1 provides a graphical illustration of the mean, 25th percentile, median, 75th percentile, and 90th percentile of the tax fee ratio over our sample period. From Figure 1 and Table 8, Panel B, it is evident that companies' tax fee ratios have declined over time, particularly during the early years of our sample period.

In light of these changes over time in companies' purchases of tax NAS, it is possible the tax NAS being provided may no longer be sufficient on average to facilitate knowledge sharing that leads to more timely and reliable earnings announcements. Therefore, we explore whether the association between tax NAS and earnings announcement lags, audit completeness, and earnings revisions has changed during our sample period. To do so, we construct separate tax fee ratio variables for each year of our sample period (e.g., *TXF_RATIO_YR2003*,

[9] We do not construct a separate variable for the first quartile because the 25th percentile of the tax fee ratio distribution is zero.

TXF_RATIO_YR2004, etc.). For example *TXF_RATIO_YR2003* is equal to the tax fee ratio for observations from year 2003, and zero otherwise. Including these separate variables in the regression allows the association between the tax fee ratio and our dependent variables to vary over time. The results are presented in Table 8, Panel C. In general, we observe the significant associations between the tax fee ratio and earnings announcement lags, audit completeness, and earnings revisions during the early years of our sample period.

In summary, these exploratory analyses indicate that relatively high levels of tax fees to total fees are necessary in order to facilitate knowledge sharing that improves earnings announcement timeliness and reliability and suggest that as a result of decreases in tax fee ratios over time, we do not generally observe significant associations between tax NAS and earnings announcement timeliness and reliability in recent years. These findings illustrate the importance of considering potential non-linearity in the associations of interest and the potential for associations of interest to change over time.

VI. CONCLUSION

This paper examines the association between non-audit services and the timeliness and reliability of firms' earnings announcements. Prior research finds firms face a trade-off between earnings announcement timeliness and reliability (Bronson et al. 2011). If NAS lead to knowledge sharing that improves audit timeliness, companies that purchase NAS may be able to provide earnings announcements that are both timely and reliable.

We find tax NAS are associated with shorter earnings announcement lags, more complete audits at the earnings announcement, and lower likelihood of earnings being revised by the subsequent 10-K filing. These results hold in both cross-sectional and within-firm (i.e., firm

fixed effects) specifications. Together, these findings are consistent with tax NAS facilitating knowledge sharing that improves audit timeliness. This improved audit timeliness has the important capital market implication of enabling firms that purchase tax NAS to satisfy the markets' demand for timely earnings announcement information without sacrificing the reliability of that information. We do not find evidence consistent with audit-related and other NAS providing such benefits. Importantly, we also document relatively large tax NAS are necessary in order to generate these benefits, and as a result of reductions in purchases of auditor-provided tax NAS over time, the knowledge sharing benefits are no longer significant on average in recent years.

Our study contributes to the literature on the joint provision of audit and non-audit services. While most prior studies focus on the effects of NAS on audit quality, we provide evidence consistent with tax NAS facilitating knowledge sharing that improves audit timeliness. Thus, we document a positive externality with important capital market implications arising from the provision of tax NAS. These results are important as regulators continue to debate whether and to what extent the joint provision of audit and non-audit services should be permitted. They also inform managers and boards of directors who are considering purchasing non-audit services from their audit firm.

We also contribute to the literature on earnings announcement disclosures. Timeliness and reliability are both important to the decision usefulness of earnings announcement disclosures. Most companies issue their preliminary earnings announcement before the audit is complete in order to provide timely information to the market (Bronson et al. 2011; Schroeder 2016). However, Marshall et al. (2018) observe smaller market response to unexpected earnings in earnings announcements with incomplete audits, suggesting investors perceive these earnings

announcements to be less reliable. Consistent with reliability concerns, Arif et al. (2018) document an increase in concurrent earnings announcements (i.e., firms announcing earnings and filing the 10-K on the same day), but these concurrent earnings announcements are also associated with smaller market reactions. Our results indicate firms that purchase tax NAS are able to provide capital market participants with earnings announcement information that is both timely and reliable.

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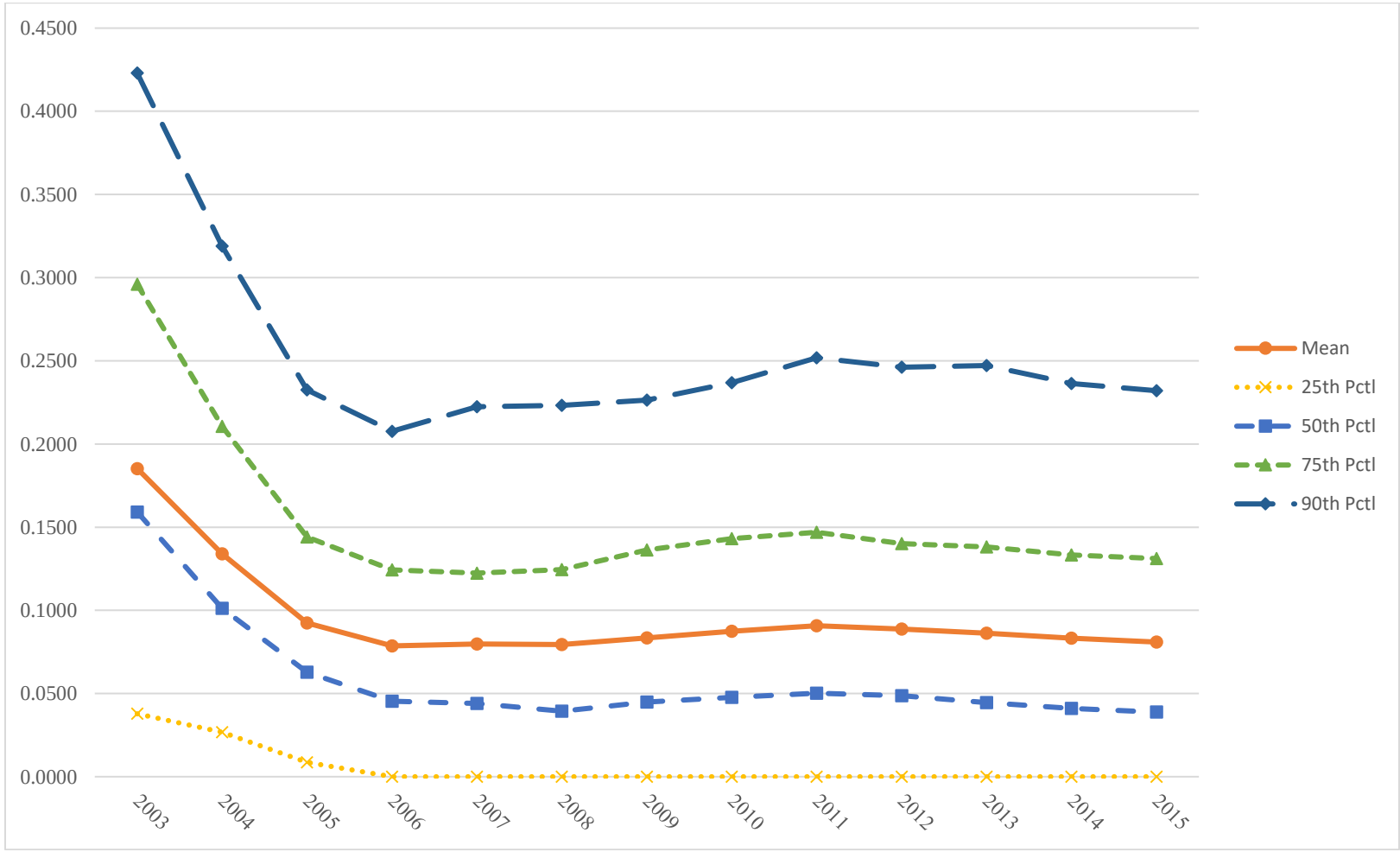
APPENDIX

Variable	Definition
Dependent Variables	
EA_LAG	Number of days between the fiscal year end and the earnings announcement date (RDQ – DATADATE).
AUDEA	An indicator variable equal to 1 if the earnings announcement is issued on or after the audit-opinion sign-off date, and 0 otherwise.
AUDCOMP	The number of days between the earnings announcement date and the audit report sign-off date. If the earnings announcement is on or after the audit-opinion sign-off date, variable is coded as 0.
EARVZ	An indicator variable equal to 1 if the net income balance reported in the current period earnings announcement is different than the net income balance reported in the 10-K filing, 0 otherwise. For 2003 to 2012, revisions were identified by comparing Compustat Preliminary History and Unrestated Quarterly. Due to the switch in 2013, revisions were identified using Compustat Snapshot for 2013 to 2015. All identified differences were hand verified by examining actual disclosures per SEC Edgar.
MISSTATE	An indicator variable equal to 1 if the current year financial statements contain a misstatement that is restated in the future periods, and 0 otherwise. Classification is based on restatement data available in Audit Analytics. Misstatements that are not due to accounting issues or are related to option backdating and leases are classified as non-misstatements for purposes of variable construction.
ABSDCACC	Absolute value of the residual obtained from the performance-adjusted modified Jones model following the recommendations of Kothari et al. (2005).
Independent Variables	
NAF_RATIO	Total non-audit fees divided by total fees as reported in Audit Analytics.
TXF_RATIO	Total tax fees divided by total fees as reported in Audit Analytics.
AUDOTH_RATIO	Total audit-related, other, IT, and benefit fees divided by total fees as reported in Audit Analytics.
Control Variables	
LNMVE	Natural log of market value of equity (CSHO * PRCC_F).
ANLYST_F	Number of analysts following the company on the I/B/E/S database during the current year, and 0 if not on the I/B/E/S database.
ANLYST_C	An indicator variable equal to 1 if the firm is followed by analysts on the I/B/E/S database during the current year, and 0 otherwise.
SHLDR	Natural log of the total number of common shareholders (in millions) (CSHR).
INSTPCT	Percentage of shares held by institutions obtained from the Thomson Reuters 13-F database.
ROA	Income before extraordinary items (IB) divided by total assets (AT).

OCF	Total operating cash flows (OANCF) divided by total assets (AT).
UE_NEG	An indicator variable equal to 1 if income before extraordinary items (IB) for the current year is less than income before extraordinary items during the previous year (IB at time t-1), and 0 otherwise.
LOSS	An indicator variable equal to 1 if income before extraordinary items (IB) is less than 0 for the current year, and 0 otherwise.
SPITEM	An indicator variable equal to 1 if there is a special item disclosure in Compustat with a value (SPI), and 0 otherwise.
VOLUME	Total number of shares traded over the year (from CRSP) divided by outstanding shares at the end of the year (CSHO).
STDRET	Standard deviation of stock returns (from CRSP) measured over the previous 250 days (a minimum of 100 days of stock returns is required).
LNBSEG	Natural log of the number of business segments reported in Compustat's Segment File.
MBR	Market value / net book value [(CSHO*PRCC_F)/(AT-LT)].
MKTCONC	Herfindahl Index calculated for each 2-digit SIC code using Compustat observations.
M&A	An indicator variable equal to 1 if the client disclosures merger or acquisition activity, and 0 otherwise. Obtained from the Compustat footnote file.
GROWTH	Current year total revenue less prior year total revenue divided by prior year total revenue (REVT).
ZSCORE	The Zmijweski measure of financial distress using the coefficients from Shumway (2001).
BIGN	Indicator variable set to 1 if the firm is audited by a Big-N audit firm, and 0 otherwise.
OP_404b	An indicator variable equal to 1 if the client receives a Section 404(b) internal control audit, and 0 otherwise. Obtained from Audit Analytics 404 File.
MW	An indicator variable equal to 1 if the client receives a Section 302, 404(a), and/or 404(b) material weakness, and 0 otherwise. Obtained from Audit Analytics 404 File.
LEVERAGE	Total liabilities (LT) divided by total assets (AT).
ARINV	Inventory (INVT) plus receivables (RECT) divided by end of year assets (AT).
GC	An indicator variable equal to 1 if the audit opinion contains a going concern paragraph, and 0 otherwise. Obtained from Audit Analytics Opinion File.
YE	An indicator variable equal to 1 if the client has a calendar year end, and 0 otherwise (FYR).

AUDCHG	An indicator variable equal to 1 if the company changes audit firms from the previous year to the current year, and 0 otherwise.
Filer Status Fixed Effects	Classifications based on market value of equity thresholds. $75 to $700 Million coded as Accelerated Filer. Greater than $700 Million coded as Large Accelerated Filer. Below $75 million is classified as non-accelerated filer.
Industry Fixed Effects	Indicator variables for the 2-digit SIC codes.
Year Fixed Effects	Indicator variables for each year in the sample.
Additional Variables not defined above	
LNASSETS	Natural log of total assets (AT).
FNDSRSED	An indicator variable equal to 1 if the sum of new long-term debt (DLTIS) plus new equity (SSTK) exceeds 20 percent of total assets (AT), and 0 otherwise.
QRATIO	Current assets (ACT) less inventory (INVT) divided by total liabilities (LT).
IINTCOV	Interest expense (XINT) divided by operating income before depreciation (OIBDP) with the ratio capped at a value of 2.0.
LNFEE	Natural log of total audit fees obtained from Audit Analytics.
ANC_RST	An indicator variable equal to 1 if the firm announces a restatement during year t, and 0 otherwise (obtained from Audit Analytics).
PYTACC	Prior year total accruals. Total accruals calculated as income before extraordinary items (IBC) – operating cash flow (OANCF) divided by total assets (AT).
STD_SALES	Standard deviation of total sales (REVT) from the previous 3 years.
STD_OCF	Standard deviation of operating cash flows (OANCF) from the previous 3 years.
PPEGROWTH	End-of-year net property, plant, and equipment less beginning-of-year net property, plant, and equipment divided by beginning of year net property, plant, and equipment (PPENT).
FOREIGN	An indicator variable equal to 1 if the firm discloses foreign sales, and 0 otherwise (obtained from the Compustat footnote file).
STKRET	Buy and hold stock return for the firm's fiscal year.
TXF_RATIO_QX	A continuous variable equal to *TXF_RATIO* if *TXF_RATIO* is in the Xth quartile of the *TXF_RATIO* distribution for the full sample, and 0 otherwise.
TXF_RATIO_YR20XX	A continuous variable equal to *TXF_RATIO* if it is year 20XX, and zero otherwise.
Compustat data items are in parentheses.	

FIGURE 1
Tax Fee Ratios over Time (2003-2015)



The above figure presents the mean, 25th percentile, median, 75th percentile, and 90th percentile of the tax fee ratio for each year of our sample period.

TABLE 1
Sample Selection

Available U.S. observations from the intersection of Compustat and Audit Analytics	55,290
Less: Financial institutions (i.e., SIC codes between 6000 to 6999)	(16,757)
Less: Observations with EA date issues in Compustat (i.e., occurs before year end, after the 10-K filing) and/or where the SEC filing occurred more than 15 days after the SEC regulatory deadline.	(6,922)
Less: Data items necessary to create the variables for our multivariate analyses	(16,152)
Less: Observations where the EA was filed concurrently with the 10-K	(8,528)
Final Sample to Test H1, H2 and H3	30,610

TABLE 2
Descriptive Statistics (n=30,610)

Variables	Mean	25%	Median	75%	SD
EA_LAG	46.813	34.000	45.000	57.000	16.175
AUDCOMP	-15.851	-26.000	-14.000	-3.000	13.467
AUDEA	0.150	0.000	0.000	0.000	0.357
EARVZ	0.038	0.000	0.000	0.000	0.192
Non-Audit Fee Total ($)	582,446	34,051	138,620	460,001	1,825,001
Tax Fee Total ($)	321,818	0	56,908	242,116	986,653
Audit Related & Other Total ($)	260,633	1,999	35,004	167,047	1,145,351
Total Fees ($)	2,636,527	545,178	1,189,035	2,609,000	5,007,136
Non-Audit Fee Ratio	0.176	0.049	0.138	0.262	0.158
Tax Fee Ratio	0.099	0.000	0.058	0.156	0.115
Audit Related & Other Ratio	0.076	0.002	0.036	0.101	0.110
LNMVE	6.492	5.166	6.457	7.788	1.941
ANLYST_F	6.545	1.000	4.000	10.000	7.278
ANLYST_C	0.779	1.000	1.000	10.000	0.415
SHLDR	0.095	-1.556	-0.045	1.641	2.188
INSTPCT	0.549	0.254	0.636	0.839	0.338
ROA	-0.006	-0.018	0.039	0.082	0.213
OCF	0.066	0.036	0.092	0.151	0.231
UE_NEG	0.483	0.000	0.000	1.000	0.500
LOSS	0.295	0.000	0.000	1.000	0.456
SPITEM	0.691	0.000	1.000	1.000	0.462
VOLUME	70571.3	16331.4	36579.3	73908.7	220776.2
STDRET	0.031	0.019	0.027	0.038	0.016
LNBSEG	0.989	0.693	0.693	1.386	0.522
MBR	3.003	1.333	2.148	3.635	6.461
MKTCONC	0.088	0.045	0.058	0.098	0.083
M&A	0.192	0.000	0.000	0.000	0.394
GROWTH	0.157	-0.013	0.079	0.205	0.517
ZSCORE	-2.937	-3.797	-3.047	-2.347	1.887
BIGN	0.809	1.000	1.000	1.000	0.393
OP_404b	0.725	0.000	0.000	1.000	0.446
MW	0.151	0.000	0.000	0.000	0.358
LEVERAGE	0.493	0.299	0.478	0.643	0.277
ARINV	0.244	0.102	0.214	0.346	0.176
GC	0.015	0.000	0.000	0.000	0.120
YE	0.691	0.000	1.000	1.000	0.462
AUDCHG	0.056	0.000	0.000	0.000	0.231

The above table provides descriptive statistics for the dependent, independent, and control variables used in the analyses. All variables are defined in the Appendix. Continuous variables are winsorized at the 1st and 99th percentiles.

TABLE 3
Pearson Correlation Matrix (n=30,610)

	EA_LAG	*AUDCOMP*	*EARVZ*	*NAF_RATIO*	*TXF_RATIO*
AUDCOMP	0.578*				
EARVZ	-0.062*	-0.141*			
NAF_RATIO	-0.110*	0.021*	-0.008		
TXF_RATIO	-0.128*	0.001	-0.013*	0.719*	
AUDOTH_RATIO	-0.023*	0.027*	0.003	0.0672*	-0.029*

The above table provides the Pearson correlations between our dependent variables and the corresponding non-audit service fee ratios that are our test variables. All variables are defined in the Appendix. Continuous variables are winsorized at the 1st and 99th percentiles. * represents significance at the $p<0.05$ level using two-tailed tests.

TABLE 4
Non-Audit Services and Earnings Announcement Timing (DV = *EA_LAG*)

		Non-Audit Fee Ratio				Tax Fee Ratio				Audit Related & Other Fee Ratio			
	Pred. Sign	(1) Coef. (t-stat)		(2) Coef. (t-stat)		(3) Coef. (t-stat)		(4) Coef. (t-stat)		(5) Coef. (t-stat)		(6) Coef. (t-stat)	
Test Variable	-	**-1.5746**	*	**-0.9008**		**-3.6406**	***	**-2.7223**	***	**0.9818**		**0.6706**	
		-1.86		**-1.60**		**-3.06**		**-3.36**		**1.01**		**1.01**	
LNMVE	-	-3.2431	***	-1.7864	***	-3.2477	***	-1.7811	***	-3.2722	***	-1.8060	***
		-18.84		-10.13		-18.91		-10.15		-19.05		-10.24	
ANLYST_F	-	-0.1412	***	-0.0699	***	-0.1411	***	-0.0678	***	-0.1411	***	-0.0704	***
		-5.37		-3.43		-5.36		-3.33		-5.36		-3.45	
ANLYST_C	-	0.6285		0.9499	**	0.6232		0.9368	**	0.6428		0.9420	**
		1.23		2.31		1.22		2.28		1.25		2.29	
SHLDR	-	-0.4698	***	-0.1754		-0.4687	***	-0.1751		-0.4763	***	-0.1762	
		-5.82		-1.61		-5.80		-1.60		-5.91		-1.62	
INSTPCT	-	-1.2760	*	-0.2083		-1.2592	*	-0.1941		-1.2786	*	-0.2020	
		-1.96		-0.37		-1.93		-0.34		-1.96		-0.36	
ROA	-	2.8546	**	-0.6411		2.8890	**	-0.6164		2.8095	**	-0.6462	
		2.34		-0.58		2.38		-0.56		2.31		-0.58	
OCF	-	-4.1305	***	-1.1756	**	-4.0811	***	-1.1529	**	-4.1373	***	-1.1633	**
		-7.11		-2.28		-7.05		-2.23		-7.13		-2.26	
UE_NEG	+	1.4998	***	0.3045	***	1.4908	***	0.2981	**	1.4962	***	0.3016	**
		8.17		2.60		8.13		2.55		8.15		2.58	
LOSS	+/-	-0.0226		0.9806	***	-0.0365		0.9770	***	-0.0009		0.9849	***
		-0.07		4.75		-0.12		4.74		-0.00		4.77	
SPITEM	+/-	0.0850		0.5525	***	0.0830		0.5500	***	0.0659		0.5449	***
		0.38		4.06		0.37		4.04		0.30		4.00	
VOLUME	+/-	-0.0000		-0.0000		-0.0000		-0.0000		-0.0000		-0.0000	
		-1.45		-1.56		-1.43		-1.53		-1.47		-1.58	
STDRET	+/-	15.4266		-5.4637		14.6331		-0.0000		15.6928		-0.0000	
		1.58		-0.83		1.51		-0.85		1.64		-0.84	

*, **, ***: p<0.10, p<0.05, p<0.01, respectively, two-tailed tests. Standard errors are clustered by firm to compute t-statistics. Variable definitions can be found in the Appendix. Continuous variables are winsorized at the 1st and 99th percentiles. The sample period includes years 2003 to 2015.

TABLE 4 – (CONTINUED)
Non-Audit Services and Earnings Announcement Timing (DV = *EA_LAG*)

	Pred. Sign	(1) Coef. (t-stat)		(2) Coef. (t-stat)		(3) Coef. (t-stat)		(4) Coef. (t-stat)		(5) Coef. (t-stat)		(6) Coef. (t-stat)	
LNBSEG	+	0.8580	***	0.1392		0.8469	***	0.1295		0.8620	***	0.1432	
		2.99		0.55		2.95		0.51		3.00		0.56	
MBR	+/-	0.0021		-0.0004		0.0023		-0.0007		0.0027		-0.0002	
		0.16		-0.05		0.18		-0.07		0.21		-0.03	
MKTCONC	+/-	-2.7805		1.0651		-2.6322		1.1788		-2.5467		1.1325	
		-0.79		0.30		-0.75		0.33		-0.73		0.32	
M&A	+	0.7754	***	0.1254		0.7358	***	0.1042		0.7048	***	0.0861	
		3.29		0.87		3.13		0.72		2.98		0.59	
GROWTH	+/-	1.1791	***	0.1753		1.1668	***	0.1692		1.1757	***	0.1740	
		6.73		1.21		6.68		1.17		6.72		1.20	
ZSCORE	+/-	0.4359	***	0.1846		0.4342	***	0.1854		0.4281	***	0.1830	
		4.04		1.56		4.05		1.56		4.01		1.54	
BIGN	-	-3.3185	***	-0.9984	**	-3.2492	***	-0.9531	**	-3.3053	***	-1.0072	**
		-6.75		-2.13		-6.60		-2.03		-6.72		-2.15	
OP_404b		-3.5666	***	-1.3060	***	-3.5718	***	-1.3387	***	-3.4217	***	-1.2116	***
		-9.68		-4.89		-9.77		-5.07		-9.37		-4.58	
MW		4.3334	***	2.2464	***	4.3092	***	2.2316	***	4.3164	***	2.2301	***
		15.92		11.72		15.83		11.66		15.84		11.62	
Intercept		76.7078	***	61.0288	***	76.8063	***	61.1066	***	76.4611	***	60.9440	***
		58.74		48.00		58.87		48.13		58.50		47.96	
Filer Status FE		Yes		Yes		Yes		Yes		Yes		Yes	
Year FE		Yes		Yes		Yes		Yes		Yes		Yes	
Industry FE		Yes		No		Yes		No		Yes		No	
Firm FE		No		Yes		No		Yes		No		Yes	
Observations		30,610		30,610		30,610		30,610		30,610		30,610	
Adjusted R^2		0.447		0.826		0.447		0.826		0.447		0.826	

*, **, ***: p<0.10, p<0.05, p<0.01, respectively, two-tailed tests. Standard errors are clustered by firm to compute t-statistics. Variable definitions can be found in the Appendix. Continuous variables are winsorized at the 1st and 99th percentiles. The sample period includes years 2003 to 2015.

TABLE 5
Non-Audit Services and Audit Completeness (DV = *AUDCOMP*)

		Non-Audit Fee Ratio		Tax Fee Ratio		Audit Related & Other Fee Ratio	
	Pred. Sign	(1) Coef. (t-stat)		(2) Coef. (t-stat)		(3) Coef. (t-stat)		(4) Coef. (t-stat)		(5) Coef. (t-stat)		(6) Coef. (t-stat)	
Test Variable	+	**1.0886**	*	**1.8576**	**	**1.9160**	**	**3.6029**	***	**-0.0236**		**0.1629**	
		1.83		**2.59**		**2.34**		**3.26**		**-0.03**		**0.19**	
LNMVE	-	1.1523	***	1.6178	***	1.1592	***	1.6226	***	1.1659	***	1.6445	***
		9.26		8.17		9.34		8.19		9.38		8.29	
ANLYST_F	-	0.0072		0.0516	*	0.0072		0.0493	*	0.0072		0.0531	**
		0.33		1.95		0.33		1.86		0.33		2.00	
ANLYST_C	-	-1.6292	***	-1.0471	**	-1.6285	***	-1.0281	**	-1.6371	***	-1.0413	**
		-5.06		-2.32		-5.05		-2.28		-5.08		-2.31	
SHLDR	-	-0.0773		-0.0393		-0.0770		-0.0392		-0.0739		-0.0384	
		-1.57		-0.32		-1.56		-0.32		-1.50		-0.31	
INSTPCT	-	2.2203	***	1.5943	**	2.2127	***	1.5743	**	2.2235	***	1.5913	**
		5.25		2.52		5.23		2.49		5.26		2.52	
ROA	-	0.9123		0.0424		0.8999		0.0158		0.9407		0.0582	
		1.28		0.04		1.26		0.02		1.32		0.06	
OCF	-	-0.1297		0.0103		-0.1519		-0.0220		-0.1205		0.0027	
		-0.32		0.02		-0.38		-0.04		-0.30		0.01	
UE_NEG	+	-0.1748		-0.2518	*	-0.1704		-0.2431	*	-0.1739		-0.2506	*
		-1.24		-1.82		-1.20		-1.76		-1.23		-1.82	
LOSS	+/-	-0.7435	***	-0.2987		-0.7392	***	-0.2974		-0.7566	***	-0.3053	
		-3.53		-1.30		-3.51		-1.29		-3.59		-1.32	
SPITEM	+/-	-0.4015	**	-0.0900		-0.3982	**	-0.0836		-0.3917	**	-0.0806	
		-2.49		-0.53		-2.47		-0.49		-2.43		-0.47	
VOLUME	+/-	0.0000	**	0.0000	*	0.0000	**	0.0000	*	0.0000	**	0.0000	*
		2.45		1.84		2.44		1.83		2.46		1.86	
STDRET	+/-	7.6979		18.1055	**	8.0224		18.2441	**	7.3333		18.1129	**
		1.12		2.26		1.17		2.28		1.07		2.26	

*, **, ***: p<0.10, p<0.05, p<0.01, respectively, two-tailed tests. Standard errors are clustered by firm to compute t-statistics. Variable definitions can be found in the Appendix. Continuous variables are winsorized at the 1st and 99th percentiles. The sample period includes years 2003 to 2015.

TABLE 5 – (CONTINUED)
Non-Audit Services and Audit Completeness (DV = *AUDCOMP*)

	Pred. Sign	(1) Coef. (t-stat)		(2) Coef. (t-stat)		(3) Coef. (t-stat)		(4) Coef. (t-stat)		(5) Coef. (t-stat)		(6) Coef. (t-stat)	
LNBSEG	+	0.1966		-0.3332		0.2013		-0.3237		0.1931		-0.3425	
		1.10		-1.10		1.12		-1.07		1.08		-1.13	
MBR	+/-	-0.0135		-0.0075		-0.0137		-0.0073		-0.0138		-0.0078	
		-1.39		-0.71		-1.41		-0.70		-1.42		-0.75	
MKTCONC	+/-	-9.6222	***	-6.1173		-9.7234	***	-6.2882	*	-9.7255	***	-6.1611	
		-2.98		-1.62		-3.01		-1.66		-3.01		-1.63	
M&A	+	-0.3082		-0.5244	***	-0.2803		-0.4796	***	-0.2768		-0.4815	***
		-1.72	*	-2.93		-1.57		-2.69		-1.54		-2.68	
GROWTH	+/-	-0.2233		-0.4905	***	-0.2172	*	-0.4827	***	-0.2229	*	-0.4912	***
		-1.90	*	-3.35		-1.85		-3.29		-1.90		-3.34	
ZSCORE	+/-	0.0118		-0.1368		0.0134		-0.1371		0.0157		-0.1343	
		0.21		-1.60		0.23		-1.60		0.27		-1.57	
BIGN	-	0.2264		-0.1804		0.1916		-0.2298		0.2281		-0.1525	
		0.78		-0.31		0.66		-0.39		0.79		-0.26	
EA_LAG	+	0.6215	***	0.5381	***	0.6218	***	0.5389	***	0.6213	***	0.5376	***
		74.87		41.09		74.84		41.07		74.70		40.99	
OP_404b	+/-	0.1050		-1.8065	***	0.0909		-1.8131	***	0.0282		-1.9430	***
		0.37		-4.87		0.32		-4.91		0.10		-5.25	
MW	+/-	-2.6515	***	-2.1667	***	-2.6389	***	-2.1426	***	-2.6450	***	-2.1502	***
		-13.78		-10.86		-13.73		-10.77		-13.74		-10.78	
Intercept		-51.3165	***	-47.1812	***	-51.3588	***	-47.2820	***	-51.1571	***	-47.0134	***
		-46.49		-28.11		-46.38		-28.10		-46.36		-27.98	
Filer Status FE		Yes		Yes		Yes		Yes		Yes		Yes	
Year FE		Yes		Yes		Yes		Yes		Yes		Yes	
Industry FE		Yes		No		Yes		No		Yes		No	
Firm FE		No		Yes		No		Yes		No		Yes	
Observations		30,610		30,610		30,610		30,610		30,610		30,610	
Adjusted R^2		0.454		0.610		0.454		0.610		0.450		0.610	

*, **, ***: p<0.10, p<0.05, p<0.01, respectively, two-tailed tests. Standard errors are clustered by firm to compute t-statistics. Variable definitions can be found in the Appendix. Continuous variables are winsorized at the 1st and 99th percentiles. The sample period includes years 2003 to 2015.

TABLE 6
Non-Audit Services and Earnings Announcement Reliability (DV = *EARVZ*)

		Non-Audit Fee Ratio			Tax Fee Ratio			Audit Related & Other Fee Ratio		
	Pred. Sign	(1) Coef. (z-stat)		(2) Coef. (t-stat)	(3) Coef. (z-stat)		(4) Coef. (t-stat)	(5) Coef. (z-stat)		(6) Coef. (t-stat)
Test Variable	**n.s./-**	**-0.1428**		**-0.0139**	**-0.3003**	******	**-0.0460**	*******	**0.0534**		**0.0144**	
		-1.39		**-1.13**	**-2.12**		**-2.79**		**0.40**		**0.98**	
LNMVE	-	-0.0435	**	-0.0118	***	-0.0442	**	-0.0116	***	-0.0463	***	-0.0121	***
		-2.52		-3.57		-2.56		-3.51		-2.67		-3.66	
LOSS	+	0.1900	***	0.0053		0.1889	***	0.0053		0.1919	***	0.0054	
		5.01		1.10		4.99		1.09		5.07		1.12	
ROA	-	-0.3511	**	-0.0470	***	-0.3448	**	-0.0462	***	-0.3506	**	-0.0469	***
		-2.11		-3.01		-2.08		-2.97		-2.12		-3.01	
LEVERAGE	+	0.2237	**	0.0117		0.2199	**	0.0117		0.2189	**	0.0115	
		2.06		1.01		2.02		1.01		2.02		0.99	
MBR	+/-	-0.0000		-0.0000		-0.0000		-0.0000		-0.0000		-0.0000	
		-0.53		-0.36		-0.57		-0.41		-0.52		-0.37	
ARINV	+	0.0042		-0.0124		0.0076		-0.0122		0.0077		-0.0106	
		0.04		-0.53		0.07		-0.52		0.07		-0.45	
SPITEM	+	0.2437	***	0.0094	***	0.2440	***	0.0094	***	0.2421	***	0.0093	***
		6.78		3.29		6.78		3.27		6.73		3.24	
M&A	+	0.0295		-0.0005		0.0262		-0.0009		0.0240		-0.0012	
		0.83		-0.13		0.74		-0.21		0.67		-0.30	
GC	+/-	-0.0872		-0.0085		-0.0885		-0.0083		-0.0867		-0.0085	
		-0.65		-0.50		-0.66		-0.49		-0.65		-0.50	
BIGN	+/-	0.0667		0.0126		0.0716		0.0134	*	0.0680		0.0126	
		1.39		1.61		1.48		1.72		1.41		1.60	
YE	+	0.0428		0.0168		0.0428		0.0162		0.0463		0.0179	
		1.15		0.77		1.15		0.75		1.25		0.83	
STDRET	+/-	0.7835		-0.1813		0.7260		-0.1826		0.8178		-0.1824	
		0.62		-1.42		0.57		-1.43		0.64		-1.43	

*, **, ***: p<0.10, p<0.05, p<0.01, respectively, two-tailed tests. Standard errors are clustered by firm to compute z- and t-statistics. Variable definitions can be found in the Appendix. Continuous variables are winsorized at the 1st and 99th percentiles. The sample period includes years 2003 to 2015. Columns (1), (3) and (5) are probit regression models, and (2), (4) and (6) are OLS regression models.

TABLE 6 – (CONTINUED)
Non-Audit Services and Earnings Announcement Reliability (DV = *EARVZ*)

		Non-Audit Fee Ratio			Tax Fee Ratio			Audit Related & Other Fee Ratio		
	Pred. Sign	(1) Coef. (z-stat)		(2) Coef. (t-stat)	(3) Coef. (z-stat)		(4) Coef. (t-stat)	(5) Coef. (z-stat)		(6) Coef. (t-stat)
AUDCHG	+	0.0555		0.0029	0.0533		0.0027	0.0583		0.0029
		0.90		0.47	0.87		0.44	0.95		0.48
GROWTH	+/-	-0.0208		-0.0002	-0.0220		-0.0003	-0.0209		-0.0002
		-0.63		-0.07	-0.66		-0.11	-0.63		-0.08
ZSCORE	-	-0.0436		-0.0024	-0.0429		-0.0024	-0.0435		-0.0024
		-1.55		-1.42	-1.53		-1.40	-1.55		-1.43
EA_LAG	-	-0.0152	***	-0.0011 ***	-0.0153	***	-0.0011 ***	-0.0152	***	-0.0011 ***
		-11.80		-5.64	-11.84		-5.70	-11.78		-5.63
OP_404b	-	-0.0154		0.0014	-0.0147		0.0007	-0.0039		0.0030
		-0.32		0.26	-0.31		0.14	-0.08		0.58
MW	+	0.4081	***	0.0351 ***	0.4070	***	0.0349 ***	0.4067	***	0.0348 ***
		11.01		6.67	10.98		6.63	10.96		6.60
Intercept		-1.2825	***	0.1258 ***	-1.2621	***	0.1282 ***	-1.3219	***	0.1232 ***
		-3.78		3.91	-3.72		4.00	-3.91		3.84
Filer Status FE		Yes		Yes	Yes		Yes	Yes		Yes
Year FE		Yes		Yes	Yes		Yes	Yes		Yes
Industry FE		Yes		No	Yes		No	Yes		No
Firm FE		No		Yes	No		Yes	No		Yes
Observations		30,610		30,610	30,610		30,610	30,610		30,610
Pseudo R^2		0.060			0.060			0.059		
ROC		0.701			0.701			0.700		
Adjusted R^2				0.080			0.080			0.080

*, **, ***: p<0.10, p<0.05, p<0.01, respectively, two-tailed tests. Standard errors are clustered by firm to compute z- and t-statistics. Variable definitions can be found in the Appendix. Continuous variables are winsorized at the 1st and 99th percentiles. The sample period includes years 2003 to 2015. Columns (1), (3) and (5) are probit regression models, and (2), (4) and (6) are OLS regression models.

TABLE 7
Non-Audit Services and Audit/Financial Reporting Quality

Panel A: Misstatement Results

		Non-Audit Fee Ratio		Tax Fee Ratio		Audit Related & Other Fee Ratio	
	Pred. Sign	(1) Coef. (z-stat)	(2) Coef. (t-stat)	(3) Coef. (z-stat)	(4) Coef. (t-stat)	(5) Coef. (z-stat)	(6) Coef. (t-stat)
Test Variable	+/-	0.1130	0.0223	-0.0201	-0.0240	0.2182 *	0.0501 **
		1.25	1.01	-0.17	-0.76	1.92	1.98
Filer Status FE		Yes	Yes	Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes	Yes	Yes
Industry FE		Yes	No	Yes	No	Yes	No
Firm FE		No	Yes	No	Yes	No	Yes
Observations		30,321	30,321	30,321	30,321	30,321	30,321
Pseudo R^2		0.043		0.043		0.043	
ROC		0.654		0.654		0.654	
Adjusted R^2			0.239		0.239		0.239

Panel B: Discretionary Accrual Results

		Non-Audit Fee Ratio		Tax Fee Ratio		Audit Related & Other Fee Ratio	
	Pred. Sign	(1) Coef. (t-stat)	(2) Coef. (t-stat)	(3) Coef. (t-stat)	(4) Coef. (t-stat)	(5) Coef. (t-stat)	(6) Coef. (t-stat)
Test Variable	+/-	0.0035	0.0095	0.0028	-0.0038	0.0022	0.0170
		0.45	0.83	0.29	-0.26	0.21	1.16
Filer Status & Year FE		Yes	Yes	Yes	Yes	Yes	Yes
Industry FE		Yes	No	Yes	No	Yes	No
Firm FE		No	Yes	No	Yes	No	Yes
Observations		28,508	28,508	28,508	28,508	28,508	28,508
Adjusted R^2		0.176	0.225	0.176	0.225	0.176	0.225

*, **, ***: p<0.10, p<0.05, p<0.01, respectively, two-tailed tests. Standard errors are clustered by firm to compute z- and t-statistics. Variable definitions can be found in the Appendix. Continuous variables are winsorized at the 1st and 99th percentiles. The sample period includes years 2003 to 2015. In Panel A, Columns (1), (3) and (5) are probit regression models, and (2), (4) and (6) are OLS regression models. Panel B reports OLS regression results.

TABLE 8
Exploratory Analyses Regarding the Level of the Tax Fee Ratio and Time Trends

Panel A: Regression results for different quartiles of the tax fee ratio

	(1) Coef. (t-stat)	(2) Coef. (t-stat)	(3) Coef. (t-stat)	(4) Coef. (t-stat)	(5) Coef. (z-stat)	(6) Coef. (t-stat)
Dependent Variable:	*EA_LAG*	*EA_LAG*	*AUDCOMP*	*AUDCOMP*	*EARVZ*	*EARVZ*
TXF_RATIO_Q2	7.0757	4.0411	5.1195	-2.9949	1.0693	0.0260
	0.91	0.82	0.97	-0.55	0.98	0.21
TXF_RATIO_Q3	-2.5271	-1.2704	0.6618	0.1312	0.1211	0.0176
	-0.88	-0.75	0.37	0.06	0.34	0.46
TXF_RATIO_Q4	-3.3138 ***	-2.4708 ***	2.0450 **	3.3140 ***	-0.2653 *	-0.0423 **
	-2.70	-2.97	2.45	2.96	-1.78	-2.49
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Filer Status FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes	No	Yes
Observations	30,610	30,610	30,610	30,610	30,610	30,610
Adjusted/Pseudo R^2	0.447	0.826	0.455	0.610	0.060	0.080

TABLE 8 (CONTINUED)

Exploratory Analyses Regarding the Level of the Tax Fee Ratio and Time Trends

Panel B: Descriptive statistics for the tax fee ratio by year

Year	N	% with *TXF_RATIO* > 0	Distribution of *TXF_RATIO*						
			Mean	p10	p25	Median	p75	p90	SD
Full Sample	30,610	0.7459	0.0987	0.0000	0.0000	0.0580	0.1555	0.2647	0.1148
2003	2,889	0.8314	0.1852	0.0000	0.0378	0.1591	0.2960	0.4229	0.1570
2004	2,861	0.8480	0.1340	0.0000	0.0268	0.1012	0.2105	0.3190	0.1272
2005	2,803	0.7966	0.0924	0.0000	0.0086	0.0628	0.1442	0.2325	0.1002
2006	2,622	0.7399	0.0786	0.0000	0.0000	0.0453	0.1243	0.2077	0.0919
2007	2,512	0.7249	0.0797	0.0000	0.0000	0.0440	0.1224	0.2223	0.0973
2008	2,356	0.6974	0.0795	0.0000	0.0000	0.0394	0.1246	0.2232	0.0989
2009	2,239	0.7075	0.0834	0.0000	0.0000	0.0449	0.1364	0.2263	0.1002
2010	2,169	0.7211	0.0875	0.0000	0.0000	0.0476	0.1430	0.2368	0.1045
2011	2,091	0.7193	0.0908	0.0000	0.0000	0.0501	0.1469	0.2518	0.1078
2012	2,062	0.7182	0.0887	0.0000	0.0000	0.0487	0.1402	0.2462	0.1063
2013	2,033	0.7098	0.0862	0.0000	0.0000	0.0445	0.1381	0.2472	0.1046
2014	2,019	0.7112	0.0833	0.0000	0.0000	0.0411	0.1333	0.2363	0.1032
2015	1,954	0.6940	0.0810	0.0000	0.0000	0.0388	0.1311	0.2320	0.1024

TABLE 8 (CONTINUED)
Exploratory Analyses Regarding the Level of the Tax Fee Ratio and Time Trends

Panel C: Regression results for tax fee ratio by year

	(1)	(2)	(3)	(4)	(5)	(6)
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
	(t-stat)	(t-stat)	(t-stat)	(t-stat)	(z-stat)	(t-stat)
Dependent Variable:	*EA_LAG*	*EA_LAG*	*AUDCOMP*	*AUDCOMP*	*EARVZ*	*EARVZ*
TXF_RATIO_YR2003	-4.4803 ***	-1.5456	2.8997	4.5626 **	-0.6318 **	-0.0738 ***
		-1.12	1.54	2.00	-2.08	-2.69
TXF_RATIO_YR2004	-10.6190 ***	-8.1250 ***	13.3019 ***	13.1203 ***	-0.1847	-0.0384
	-5.31	-5.42	6.20	5.26	-0.55	-1.18
TXF_RATIO_YR2005	-7.7668 ***	-6.1217 ***	-1.9100	2.2544	-0.2069	-0.0458
	-3.18	-3.61	-0.84	0.91	-0.49	-1.06
TXF_RATIO_YR2006	-6.0846 **	-6.2337 ***	0.5438	5.5205 **	-0.4275	-0.0549
	-2.26	-3.65	0.28	2.57	-0.77	-1.21
TXF_RATIO_YR2007	-0.0324	-4.3267 ***	-2.2962	1.7544	0.3777	0.0474
	-0.01	-2.68	-1.40	0.99	0.79	0.97
TXF_RATIO_YR2008	-1.8553	-2.8808 *	-2.0271	-1.1130	-0.9633 **	-0.0865 **
	-0.72	-1.69	-1.16	-0.60	-2.01	-2.08
TXF_RATIO_YR2009	0.1723	-1.0742	-1.8139	0.2309	0.4910	0.0083
	0.07	-0.66	-1.14	0.12	0.79	0.17
TXF_RATIO_YR2010	0.9792	-0.1207	-0.4075	0.5705	-0.1483	-0.0231
	0.43	-0.08	-0.25	0.31	-0.23	-0.63
TXF_RATIO_YR2011	-0.9520	-0.9107	-1.2278	-0.4290	-0.0307	-0.0535
	-0.41	-0.57	-0.76	-0.24	-0.05	-1.25
TXF_RATIO_YR2012	-5.4751 **	-1.9582	0.6426	1.3854	-0.1205	-0.0380
	-2.4	-1.15	0.39	0.77	-0.27	-0.76
TXF_RATIO_YR2013	-0.0627	1.4073	1.6171	1.6682	-0.5798	-0.0806 *
	-0.03	0.78	1.02	0.96	-1.12	-1.66
TXF_RATIO_YR2014	0.3318	0.7921	1.2987	-0.5878	-1.2358 **	-0.0822 **
	0.15	0.42	0.84	-0.33	-2.14	-1.97
TXF_RATIO_YR2015	-1.6667	-0.7312	2.2382	1.1607	0.1707	0.0163
	-0.73	-0.42	1.37	0.64	0.31	0.28
Controls, Filer Status FE, and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes	No	Yes
Observations	30,610	30,610	30,610	30,610	30,610	30,610
Adjusted/Pseudo R^2	0.448	0.826	0.456	0.611	0.061	0.080

*, **, ***: p<0.10, p<0.05, p<0.01, respectively, two-tailed tests. Standard errors are clustered by firm to compute z- and t-statistics. Variable definitions can be found in the Appendix. Continuous variables are winsorized at the 1st and 99th percentiles. The sample period includes years 2003 to 2015. In Panels A and C, Column (5) is a probit regression model, and the remaining columns are OLS regression models.