



Types of nonaudit service fees and earnings response coefficients in the post-sarbanes-oxley era



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ABSTRACT

In this study, we partition the joint provision of nonaudit services (NAS) into audit-related, tax, and all other services, and examine whether these services have varying impacts on independence-in-appearance, as measured by earnings response coefficients, over an extended period following the enactment of SOX. Prior research examining independence-in-appearance generally focuses on the years surrounding SOX and uses an aggregate NAS measure despite anecdotal and experimental evidence that there may be heterogeneity in how investors perceive different types of NAS. We first show, consistent with prior research, that an aggregate measure of NAS does not, on average, significantly influence earnings response coefficients. We then partition NAS fees by type and provide evidence that investors have negative perceptions of audit-related NAS and positive perceptions of tax NAS, and that these two effects cancel out one another in aggregate. Further investigation reveals that our results are driven by firms with high levels of accruals and smaller firms, which further corroborates our findings. We also find that measures of financial dependence fail to fully capture the channels through which NAS influences investor perceptions. Lastly, we provide evidence that perceptions of tax NAS are, in part, driven by their effect on a firm's tax strategies.

1. Introduction

The joint provision of audit and nonaudit services (NAS) by public accounting firms to their clients has been fiercely debated for many decades. In the late 1990's, auditors experienced a dramatic increase in revenues from providing NAS to clients. Shortly after, numerous accounting scandals perpetrated by corporate giants, such as Enron and WorldCom, led regulators to believe, either rightly or wrongly, that the joint provision of NAS impaired auditor objectivity and played a significant role in the failure of auditors to catch these egregious misstatements. This helped lead to the passage of the Sarbanes-Oxley (SOX) Act of 2002, which severely limited the nonaudit services that auditors could provide to their clients. Nonetheless, concerns over the provision of NAS and their impact on auditor independence continue to persist. For example, in October 2013, the SEC announced the launch of Operation Broken Gate, an initiative aimed at identifying auditors who violate auditor independence rules. In the following year, the SEC (2014) charged KPMG with providing several prohibited nonaudit services to their clients.

Auditors are required to be both independent-in-fact and in-

appearance. Whereas the former notion deals with whether auditors factually provide unbiased judgment, the latter deals with whether auditors are *perceived* to provide unbiased judgment (regardless of whether auditors are factually biased). It is clear that independence-in-fact is crucial to the value of an audit. However, the SEC (2000) has also emphasized the importance of investors' perceptions of auditor independence, stating that an auditor is not independent if a reasonable investor would conclude that the auditor is not capable of providing objective and impartial judgment. To help investors assess independence, the SEC required that firms disclose nonaudit service fees paid to the auditor using three distinct categories: audit-related, tax, and other. The SEC (2002, 2003a) suggested that this disclosure should provide better and more complete information regarding nonaudit services to financial statement users (hereafter users), and suggested that users would view audit-related and tax nonaudit service fees differently from other nonaudit fees, but did not provide any empirical evidence to support this notion. In this study, we examine investor perceptions of distinct NAS types (i.e. audit-related, tax, and other) over an extended period following the passage of SOX. We use earnings response coefficients (ERCs), a market-based measure, as a proxy of

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perceptions of auditor independence as a higher quality audit should provide investors with greater confidence about the quality of earnings.¹

Several studies have examined investor perceptions of NAS in the pre-SOX era and generally find that independence is perceived to be impaired when high NAS fees are paid to the auditor (e.g., Francis & Ke, 2006; Khurana & Raman, 2006; Krishnan, Sami, & Zhang, 2005). More recently, studies find that following SOX, investors' perceptions of earnings quality are no longer significantly influenced by NAS, on average (Ghosh, Kallapur, & Moon, 2009; Hollingsworth & Li, 2012). However, these studies do not distinguish NAS fee types and focus on an aggregate measure of NAS, despite the required classifications in NAS fee disclosures. An aggregate NAS measure may obscure the channels through which NAS is perceived to impair auditor independence (DeFond & Zhang, 2014), and if investors have contrasting perceptions of distinct NAS types (SEC, 2003b), these effects may cancel out one another in aggregate. Moreover, the more recent NAS studies largely focus on the years immediately following SOX, which is a tumultuous period where a matter of months may change the attitude of investors towards auditors (Mishra, Raghunandan, & Rama, 2005). DeFond and Zhang (2014) also note it would be premature to draw conclusions from studies focusing on the years surrounding SOX as the effects of SOX may materialize slowly over time. However, there is little post-SOX research examining investor perceptions of NAS types. We fill these gaps in the literature.

In general, the joint supply of nonaudit services by an auditor are viewed as either leading to audit efficiencies and/or impairing auditor objectivity (see e.g., Simunic, 1984). To the extent that investors view a NAS type as impairing auditor independence, investor uncertainty regarding audit, and hence, earnings quality should increase, which will cause investors to respond less strongly to earnings surprises. In a similar vein, if investors believe that the joint provision of a nonaudit service type provides knowledge spillovers and improves the quality of the audit, investors should respond more strongly to earnings surprises (Holthausen & Verrecchia, 1988; Teoh & Wong, 1993).

The SEC (2003a) has stated that the joint provision of tax services has traditionally been viewed as not conflicting with an auditor's independence, and that investors would have differing views of NAS depending on the type.² In consistency with this notion, prior experimental studies (Lowe, Geiger, & Pany, 1999; Pany & Reckers, 1984; Swanger & Chewning, 2001) provide evidence that when NAS are performed by a separate division of the audit firm, independence concerns are significantly alleviated due to greater separation between the individuals completing the tasks. The SEC (2003b) also suggests that audit-related services have the most significant startup and switching costs because they relate most closely to the audit. Prior analytical research (Simunic, 1984) shows that these factors increase the economic bond between the auditor and client, thereby increasing the likelihood that auditors compromise their independence. While this also suggests that audit-related NAS may provide the most knowledge spillover to the audit, discussions with several audit partners and empirical evidence (see e.g., Holm, 2015; Paterson & Valencia, 2011) suggests that audit-related NAS provides little to no knowledge spillover. For example, Paterson and Valencia (2011) find that audit-related NAS is associated with an increased likelihood of a financial restatement. Conversely, both practitioners and academics have noted significant knowledge

¹ Studies that examine independence-in-fact generally focus on the impact of NAS on proxies that potentially reflect *factual* impairment of auditor independence such as discretionary accruals, financial restatements, and other measures of earnings management. Studies that examine independence-in-appearance generally focus on market-based measures to capture *perceptions* of independence.

² While the SEC further restricted tax NAS in 2006, there is a lack of empirical evidence to support their position. Lennox (2016) finds that these restrictions on tax NAS did not improve audit quality.

spillovers from providing tax NAS (see e.g., DeSimone, Ege, & Stomberg, 2015; Gleason & Mills, 2011; Paterson & Valencia, 2011; Robinson, 2008). Overall, this suggests that tax NAS is more likely to be perceived positively by investors than audit-related NAS.³

Following prior research (e.g. Francis & Ke, 2006; Krishnan et al., 2005), we use earnings response coefficients (ERCs) as a proxy for investor perceptions of NAS because ERCs have strong measurement consensus, low measurement error, and a short measurement window which mitigates the effect of confounding factors (DeFond & Zhang, 2014). In contrast, the other most commonly used proxy is implied cost of equity capital estimates (see e.g., Hollingsworth & Li, 2012; Khurana & Raman, 2006), which are an indirect measure of investor perceptions, have low measurement consensus, and have high measurement error (DeFond & Zhang, 2014). As our main measure of the extent to which an audit client purchases nonaudit services, we calculate a separate fee ratio (the proportion of nonaudit fees to total fees) for each NAS type. As alternative measures, we scale nonaudit fees by audit fees, use a decile rank measure of the nonaudit fee ratio, and, following Francis and Ke (2006), use an indicator variable set equal to one if the fee ratio is greater than the median and the dollar value of the fees is greater than the 75th percentile (and zero otherwise).

We first replicate the results of prior studies to show that the use of an aggregate NAS measure may obscure the underlying relationships between different NAS types and investor perceptions of auditor independence. We show, consistent with Ghosh et al. (2009), that an aggregate measure of NAS is not significantly associated with ERCs in the post-SOX period, however, a measure of client importance (the ratio of a client's total fees scaled by the audit firm's total revenues) is significantly and negatively associated with ERCs. This potentially suggests that investors do not perceive the NAS fee ratio as influencing earnings quality in the post-SOX period. However, the results are also consistent with an aggregate NAS fee ratio failing to capture the channels through which investor perceive NAS to influence earnings quality.

Next, in consistency with the SEC's auditor fee disclosure requirements, we partition NAS fees into three categories: audit-related, tax, and other. We find that audit-related NAS are associated with lower ERCs, consistent with investors perceiving audit-related NAS as impairing auditor independence. In contrast, we find that tax NAS is associated with higher ERCs, suggesting that investors perceive net benefits to audit quality from the joint provision of these services. Lastly, we are unable to document a significant association between other NAS and ERCs. As most firms purchase very little, if any, other NAS, it is reasonable to expect that the provision of these services is unlikely to provide much knowledge spillover or incentive for auditors to impair their independence, on average. We also find that the coefficients of interest on audit-related and tax NAS are significantly different from one another, supporting our conjecture that tax NAS is more likely to be perceived positively by investors than audit-related NAS. Combined with our results using an aggregate NAS measure, our findings suggest that the use of an aggregate NAS measure obscures the details in how investors perceive different types of NAS. Thus, while the results of prior research are consistent with investor perceptions of audit quality being uninfluenced by NAS in the post-SOX era, our results suggest that audit-related NAS are perceived negatively, while tax NAS are perceived positively.

We also examine how investor perceptions of different NAS types vary with the level of total and discretionary accruals reported by firms, as well as the size of the firm. Prior research shows that a greater proportion of (discretionary) accruals in earnings is associated with

³ Following the prohibition of many nonaudit services in 2002, most firms have purchased very little, if any, other nonaudit services. Due to the insignificant nature of other NAS, on average, we do not make a prediction with respect to these nonaudit services.

greater uncertainty (see e.g., Sloan, 1996; Xie, 2001), and that firms with higher levels of accruals have a greater demand for high quality audits, which improve the quality of accruals (see e.g., Becker, DeFond, Jiambalvo, & Subramanyam, 1998). Similarly, smaller firms also tend to have weaker information environments, resulting in greater earnings uncertainty. Therefore, if NAS influences investors' perceptions of financial reporting quality, we expect this effect to be more pronounced for firms with high levels of (discretionary) accruals and for smaller firms. We find that for firms with high accruals, audit-related (tax) NAS is perceived negatively (positively) by investors. For low accrual firms, we find that audit-related and tax NAS do not significantly influence investor perceptions of financial reporting quality. Segregating firms by size, we find that our results hold for smaller firms, however, for large firms, there is not a significant association between ERCs and each type of nonaudit service, as expected. Overall, these findings corroborate our previous results and make it difficult to attribute our results to alternative explanations as the earnings of smaller firms and firms with higher levels of (discretionary) accruals have greater uncertainty (Francis & Ke, 2006).

We find that our results are robust to a multitude of different sensitivity tests, such as excluding zero tax NAS firms, focusing on Big 4 audit firm clients, using annual ERCs, using alternative NAS measures, and controlling for measures of client importance. We further separate our sample period (2004–2015) into three-year periods, include firm and time fixed effects, and examine the impact of NAS on ERCs within each three-year period. We find similar results across each period. As firm fixed effects largely control for time-invariant firm characteristics, and firm characteristics are less likely to change significantly over short periods, this analysis helps to provide greater confidence that our results are not confounded by correlated omitted variables. We also provide evidence that tax NAS influences investor perceptions, in part, through their perceived effect on the firm's tax strategies, as suggested by the findings of Alsadoun, Naiker, Navissi, and Sharma (2018). We find that the association between tax NAS and ERCs becomes more positive as the level of uncertain tax benefits (UTBs) increase, consistent with the findings of prior research (see e.g., Koester, 2011) that investors positively value UTBs. We also find that the relationship between tax NAS and ERCs remains positive and significant even when UTBs are equal to zero. Taken together, these results suggest that investor perceptions of tax NAS are influenced by not only their perceived effect on audit quality, but also through their perceived effect on a firm's tax strategies. Lastly, we find that when a firm does not purchase tax NAS from the incumbent auditor, ERCs decrease with the level of UTBs. Thus, it appears that investors may positively value UTBs, but only when tax NAS are purchased from the auditor.

Our study provides several contributions to the literature. The prior NAS literature generally finds that investors negatively perceive jointly-provided NAS in the pre-SOX era (e.g., Francis & Ke, 2006; Khurana & Raman, 2006; Krishnan et al., 2005), but that their perceptions are no longer significantly influenced by NAS in the post-SOX era (e.g. Ghosh et al., 2009; Hollingsworth & Li, 2012; Mishra et al., 2005). However, these studies generally focus on the years surrounding SOX and do not distinguish between NAS types.⁴ As prior research suggests that investors' attitudes towards auditors may evolve over time following the enactment of SOX (DeFond & Zhang, 2014; Mishra et al., 2005), we extend upon the NAS literature by examining investor perceptions of different types of NAS over an extended period following the passage of SOX. In contrast with the studies above, we show that audit-related and tax NAS have contrasting effects on investor perceptions of audit quality, as proxied by ERCs, in the post-SOX period and that the effect of different types of NAS on ERCs cancel out one another in aggregate.

⁴ Mishra et al. (2005) distinguish between the types of NAS, however, their results suggest that investors, on average, are not concerned with jointly provided nonaudit services.

Second, many studies examining independence-in-appearance scale nonaudit fees by total auditor revenues to proxy for the auditor's economic dependence on the client (e.g., Ghosh et al., 2009; Hollingsworth & Li, 2012; Khurana & Raman, 2006). As noted by Ghosh et al. (2009), this specification is motivated by economic theory (e.g., DeAngelo, 1981). Ghosh et al. (2009) find that NAS fee ratios do not significantly influence ERCs, while measures of economic dependence do. We extend upon the literature by showing that economic dependence measures fail to fully capture investors' perceptions of nonaudit services when distinguishing the type of NAS. Thus, our results have implications for future research examining independence-in-appearance.

Third, very few studies examine investor perceptions of different types of NAS, despite anecdotal and experimental evidence suggesting that distinct NAS types may differentially impact investor perceptions (Lowe & Pany, 1996; Pany & Reckers, 1984; SEC, 2003a; Swanger & Chewning, 2001). We thus respond to the call of Schneider, Church, and Ely (2006) and Hollingsworth and Li (2012) for more research investigating how investors perceive different types of NAS, and help to fill this gap in the literature. Our study complements and extends upon a recent study by Alsadoun et al. (2018) who find that tax (audit-related) NAS is positively (not significantly) associated with implied cost of equity capital estimates. They find that this association is driven by the firm's tax strategies and not financial reporting quality, contrary to the findings of prior studies that NAS influences investor perceptions through its perceived effect on audit quality. While their study is informative, it is unclear how well implied cost of equity capital (COEC) estimates capture investor perceptions of NAS due to measurement issues and the effect of confounding factors.⁵ Using ERCs, which have high measurement consensus and low measurement error, we find evidence suggesting that tax (audit-related) NAS is perceived positively (negatively) and as providing knowledge spillovers (compromising auditor objectivity). We also provide evidence that tax NAS influences ERCs, in part, through its impact on the firm's tax strategies. Our study is the first, to our knowledge, that bridges the findings of experimental studies (Lowe & Pany, 1996; Pany & Reckers, 1984; Swanger & Chewning, 2001) with archival studies that having a separate division of the audit firm perform the nonaudit service mitigates independence concerns. We add to very limited evidence in the literature that the joint provision of tax NAS is viewed positively by investors.

Our findings also complement the results of Krishnan, Visvanathan, and Yu (2013), who find that tax NAS is associated with greater value relevance of earnings. In contrast with their study, we examine several categories of NAS (i.e. audit-related, tax, and other), which are correlated with one another, and their impact on ERCs. Lo and Lys (2000) note the importance of distinguishing between value relevance (i.e. long-term stock price association) studies and valuation relevance (i.e. short-term market reaction) studies, and that valuation relevance allows the researcher to draw much stronger inferences.⁶ In addition, the use of ERCs to examine investor perceptions of NAS is motivated by prior theoretical research (Choi & Salamon, 1989; Holthausen &

⁵ The limitations of and issues with implied COEC measures are well-known. For example, Larocque and Lyle (2017) find that none of the commonly used implied cost of equity capital estimates have a reliable, positive association with future ROE. In some cases, they find that the two are negatively associated. However, if implied COEC estimates capture expected returns, and hence investor perceptions, they should positively predict future accounting returns. This calls into question the validity of implied cost of equity capital measures. In contrast, ERCs have little measurement issues and focus on short-term windows, which mitigate the effect of confounding factors.

⁶ Supporting this notion, prior NAS studies using a market-based research design commonly use earnings response coefficients, and not value relevance, as a proxy for investor perceptions. Other studies (e.g. Hollingsworth & Li, 2012; Khurana & Raman, 2006) use implied cost of equity capital estimates as this measure is motivated by prior theoretical research (e.g. Lambert, Leuz, & Verrecchia, 2007).

Verrecchia, 1988). Moreover, while Krishnan et al. suggest that tax NAS is associated with greater value relevance because of knowledge spillovers, they do not provide evidence to support this notion. Our study provides evidence that both knowledge spillovers and tax considerations influence investor perceptions of tax NAS.

Our results also have potential policy implications. Our results suggest that the SEC's requirement to disclose NAS fees by type is warranted because investors have different views of audit-related, tax, and other nonaudit services. To the extent that some audit-related, tax, and other services are viewed more or less negatively by investors, regulators may want to consider requiring firms to provide additional information regarding the different types of services falling under each category. Many firms also still prohibit the purchase of nonaudit services from their auditor in fear that the behavior will be viewed negatively by investors. Our results suggest that managers may want to reconsider the purchase of tax nonaudit services as they may not be viewed negatively, particularly as other research shows that tax NAS may improve financial reporting outcomes (e.g., Paterson & Valencia, 2011).

The remainder of the paper proceeds as follows. We discuss the related literature and develop our hypotheses in the next section. The third section describes our sample selection process and the measurement of key variables. The fourth section presents our research design and results. The fifth section concludes the study.

2. Prior research and hypothesis development

2.1. Background and prior literature

DeAngelo (1981) models the relationship between auditor and client as a bilateral monopoly. She shows that because a firm's current auditor has start-up and switching cost advantages over competitors, this allows auditors to earn quasi-rents after the initial engagement year. These cost advantages combined with the long-term relationship between auditor and client provide incentives for auditors to compromise their independence to retain the client. Simunic (1984) further extends upon their study and shows that the joint provision of NAS increase the auditor's financial dependence on the client, and hence provides greater incentives for auditors to compromise their independence. However, he also notes that the joint provision of NAS may provide greater economies of scale and knowledge spillovers, which include a better understanding of the client. Therefore, NAS, on average, could lead to a net increase in audit quality as opposed to a decrease if the benefits of the knowledge spillovers exceed the costs resulting from a loss of independence.

Overall, NAS studies have generally examined whether NAS factually impairs auditor independence and, hence, audit quality (i.e. independence-in-fact) or whether NAS is perceived to impair auditor independence (i.e. independence-in-appearance). Studies that examine the relationship between the joint provision of NAS and independence-in-fact provide mixed evidence. For example, Frankel, Johnson, and Nelson (2002) find that the joint provision of NAS by a client's auditor is associated with greater earnings management. Other studies find that the joint provision of NAS are not significantly associated with earnings management (Ashbaugh, LaFond, & Mayhew, 2003; Chung & Kallapur, 2003; Reynolds, Deis, & Francis, 2004). Still yet, several studies find that auditor-provided NAS are associated with less earnings management, and positively associated with audit fees and auditor independence (Antle, Gordon, Narayanamoorthy, & Zhou, 2006; Geiger & Rama, 2003; Reynolds & Francis, 2001).

Another stream of literature has examined independence-in-appearance, or whether investors *perceive* the joint provision of NAS to impair auditor independence. Most of these studies focus on the pre-SOX era and conclude that NAS is perceived as impairing auditor independence and, hence, audit quality. For example, Francis and Ke (2006) and Krishnan et al. (2005) find that earnings response

coefficients (ERCs) are significantly lower for firms with high levels of NAS fees relative to firms with low levels of NAS fees. Khurana and Raman (2006) use implied cost of equity capital estimates as a proxy for investor perceptions and find that both nonaudit and total fees are perceived negatively by investors. However, these studies focus on the pre-SOX period before the prohibition of several nonaudit services.

Using more recent data, including years following the passage of SOX, Ghosh et al. (2009) find that the NAS fee ratio does not significantly influence ERCs, suggesting that investors do not perceive the NAS fee ratio as impairing auditor independence. However, they find that client importance (i.e. financial dependence), defined as the ratio of total fees paid to the auditor, scaled by total auditor revenues, is perceived as impairing auditor independence. Hollingsworth and Li (2012) find that NAS are perceived negatively by investors in the pre-SOX period, however, this relationship significantly weakens following SOX. Overall, the literature suggests that NAS do not significantly influence investor perceptions of earnings quality in the post-SOX period.

However, these studies focus on the years that immediately follow the passage of SOX in 2002. As noted by DeFond and Zhang (2014), the period following SOX is a turbulent period where a multitude of regulations have been newly implemented, and the effects of these changes may be realized slowly over time. Mishra et al. (2005) also suggest that as the period surrounding SOX was tumultuous, a matter of months could lead to significant differences in the attitudes of investors towards auditors. Thus, it is unclear if the findings of these post-SOX studies will persist.

In addition, the majority of NAS studies use an aggregate measure of NAS. The results of experimental studies (e.g. Lowe et al., 1999; Mauldin, 2003; Swanger & Chewning, 2001) suggest that investor perceptions of independence may depend upon the type of NAS provided as greater separation between staff diminishes the degree to which investors perceive NAS as impairing independence. In consistency, DeFond and Zhang (2014) suggest a focus on the aggregate NAS ratio largely captures the effect of an auditor's economic dependence on clients, but may not adequately capture other channels through which investors perceive NAS to impair independence. For example, investors may perceive NAS negatively, not because of economic dependence, but because of a lack of staff separation, auditors taking on the role of managers, and/or NAS increasing regulatory scrutiny and litigation risk (even if it does not impair audit quality). Thus, the results of these prior studies may obscure the underlying relationships between NAS types and investor perceptions.

Lastly, Kinney, Palmrose, and Scholz (2004), using a proprietary dataset, partition NAS fees into five types and find that auditor-provided tax services decrease the likelihood of a restatement, while unspecified services increase the likelihood of a restatement. They show that, in aggregate, the effects of NAS types cancel one another out, which causes the association between aggregate NAS and restatements to be statistically insignificant. However, as independence-in-fact can be inconsistent with independence-in-appearance (Dopuch, King, & Schwartz, 2003), it is an empirical question as to whether investor perceptions of different types of NAS cancel out one another in aggregate.

Despite evidence that distinguishing the type of NAS is an important consideration, only a few studies examining investor perceptions have done so and these studies have provided mixed evidence. Mishra et al. (2005) find that investor votes against auditor ratification increase with tax-related and other NAS, and decrease with audit-related NAS. However, as < 5% of shareholders in their sample, on average, vote against the auditor, their results potentially suggest that investors generally pay very little, if any, attention to auditor ratification votes as it is a routine voting matter. An alternative interpretation is that most investors do not perceive jointly provided NAS as impairing independence following the passage of SOX (Ragunandan, 2003; Schneider et al., 2006).

In a more recent study, Krishnan et al. (2013) find that tax NAS is

positively associated with earnings value relevance, but do not examine the effect of audit-related and other NAS, which are correlated with tax NAS. In addition, they do not examine if tax NAS enhances value relevance as a result of knowledge spillovers. Lo and Lys (2000) also note the importance of distinguishing between *value* relevance and *valuation* relevance, and that the former draws much weaker inferences relative to the latter, especially if the event window in valuation relevance tests is short. Accordingly, prior studies that examine investor perceptions of NAS and use a market-based research design (e.g. Francis & Ke, 2006; Ghosh et al., 2009; Krishnan et al., 2005) utilize ERCs measured over a short window. The use of ERCs as a proxy for investor perceptions of NAS is also motivated by prior analytical studies (Choi & Salamon, 1989; Holthausen & Verrecchia, 1988).⁷ Thus, while the results of Krishnan et al. (2013) are informative with respect to earnings value relevance, it is difficult to infer from their findings if investors perceive jointly-provided tax NAS as providing knowledge spillovers and enhancing the quality of the audit.

For example, tax NAS may be associated with more value relevant earnings because it may be associated with more effective tax planning, more sustainable tax strategies, and/or reduced tax risk (Chyz, Gal-Or, Naiker, & Sharma, 2017; Klassen, Lisowsky, & Mescall, 2016). This may cause income tax expense, and hence earnings, to be more value relevant. Alternatively, more sustainable tax strategies may increase the persistence of earnings (McGuire, Neuman, & Omer, 2013), which is positively associated with earnings value relevance.⁸ Our study extends upon the results of Krishnan et al. (2013) by utilizing ERCs as a proxy for investor perceptions, providing evidence that tax NAS influences investor perceptions of earnings quality as a result of knowledge spillovers, and by examining the effect of audit-related and other NAS, which may be correlated with tax NAS.

Lastly, Alsadoun et al. (2018) find that tax NAS is positively associated with implied cost of equity capital, however, they do not find a significant association for audit-related and other NAS. In supplemental analyses, they provide evidence that tax NAS influences investor perceptions through its perceived impact on the firm's tax strategies, particularly when the auditor is a tax or overall industry specialist. However, they find that the association between tax NAS and implied COEC is not conditional upon financial reporting quality. Interestingly, their findings suggest that investors perceive industry tax experts, on average, as providing lower quality tax planning to their clients. Their results also appear to contrast with the contention in the extant literature that NAS, to the extent that they influence investor perceptions, generally influence investor perceptions of earnings quality (e.g., Francis & Ke, 2006; Krishnan et al., 2005), findings that independence concerns are mitigated when NAS are performed by a separate division of the audit firm (e.g. Hill & Booker, 2007; Pany & Reckers, 1984; Swanger & Chewning, 2001), and findings that tax NAS, on average, is associated with reduced tax risk (Chyz et al., 2017; Klassen et al., 2016). However, limitations of implied COEC are well-known and include low measurement consensus and high measurement error. Thus, it is unclear how well implied COEC estimates capture investor perceptions of NAS with respect to earnings quality. Using a proxy that has high measurement consensus, low measurement error, and a short three-day measurement window that helps to eliminate potential

⁷ As shown in Lo and Lys (2001), valuation and value relevance become comparable if two conditions are met. However, one of these conditions (i.e. that the price at time *t* is determined solely by earnings released at time *t*) is unlikely to be satisfied.

⁸ More generally, the earnings of firms with jointly provided tax NAS may be more highly associated with a given stock price for many reasons. However, this does not imply that investors perceive the earnings of these firms to be associated with less uncertainty at the time of the earnings release. Investors may respond less strongly to earnings surprises because of uncertainty, however, the information in earnings may eventually be fully reflected in year-end market values as information is revealed that eliminates prior uncertainty.

confounding factors, we find evidence suggesting that tax (audit-related) NAS is perceived positively (negatively) by investors. We also show that this relationship varies with earnings quality, consistent with knowledge spillovers influencing investor perceptions.

Overall, studies in the post-SOX era have not examined the effect of different types of NAS on ERCs. Given both limited and mixed evidence regarding investor perceptions of different NAS types in the post-SOX era, we fill this gap in the literature.

2.2. Hypothesis development

Holthausen and Verrecchia (1988) model the ERC as a function of the prior uncertainty of future cash flows and the perceived quality of accounting earnings. For a given amount of unexpected earnings, they show that the ERC increases with the prior uncertainty of future cash flows and decreases with the perceived noise in accounting earnings. Consistent with this notion, prior studies show that the ERC is greater for clients that receive a higher quality audit. For example, Teoh and Wong (1993) show that ERCs are greater for clients of Big N auditors, and Balsam, Krishnan, and Yang (2003) show that ERCs are greater for industry specialist auditors.

The joint provision of nonaudit services are generally viewed as either leading to knowledge spillovers or impaired auditor objectivity (Simunic, 1984). If investors believe that a type of NAS impairs auditor independence, then they will have less confidence in the quality of the audit and perceive greater noise in the audit client's reported earnings, resulting in a smaller ERC. On the other hand, if investors believe that a type of NAS provides knowledge spillovers and improves the quality of the audit, uncertainty regarding the quality of the earnings signal should be lower, leading to larger ERCs. We expect the effect of NAS on ERCs to vary by type.

Both anecdotal and empirical evidence suggests that investors have differing views regarding different types of NAS. The SEC (2003) noted that "tax services traditionally have been viewed as closely related to audit services and as not being in conflict with an auditor's independence" and that investors would view audit-related fees and tax fees differently than other nonaudit fees. Prior studies (e.g. Hill & Booker, 2007; Lowe et al., 1999; Pany & Reckers, 1984; Swanger & Chewning, 2001) also provide evidence that independence concerns are mitigated when NAS are performed by a separate division of the audit firm. This is because greater mental, physical, and financial separation between two individuals performing two different tasks increases the likelihood that one will not influence the judgment of the other.⁹ For example, Lowe et al. (1999) find that bank loan officers' perceptions of independence are equivalent when a separate division of the audit firm performs the nonaudit service and when the audit firm does not perform the nonaudit service. These studies suggest that audit-related NAS is more likely to be perceived as impairing independence than tax and other NAS fees.

Furthermore, the SEC (2003a) suggests that audit-related services have the most significant startup and switching costs as they most closely relate to the audit.¹⁰ As previously noted, prior analytical research (e.g. Simunic, 1984) shows that greater start-up and switching costs increase the economic bond between auditor and client. Moreover, if there is insufficient monitoring of audit-related services provided to audit clients, many of which may have global operations,

⁹ The SEC (2002) notes that at least some of the audit-related work must be performed by the auditors of the client.

¹⁰ As defined by the SEC (2003), audit-related fees are generally "assurance and related services that traditionally are performed by the independent accountant". These services include, but are not limited to, audits of employee benefit plans, due diligence related to mergers and acquisitions, accounting consultations and audits in connection with acquisitions, internal control reviews, non-mandatory attestation services related to financial reporting, and consultation with respect to financial accounting standards (SEC 2003).

investors may be concerned with the provision of prohibited nonaudit services. For example, in 2014, the SEC charged KPMG with providing prohibited audit-related NAS – including bookkeeping, payroll services, restructuring, corporate finance, and expert services – to several audit clients. Thus, investors may perceive audit-related NAS as increasing the likelihood that auditors take on the role of managers and audit their own work, thereby compromising their independence.¹¹ In contrast, as tax and other NAS are performed by a separate division of the audit firm, the provision of prohibited NAS in these areas are likely of less concern due to staff separation. Therefore, tax and other NAS, relative to audit-related NAS, may be less likely to receive regulatory scrutiny, increase litigation risk, and trigger independence concerns.

While audit-related NAS may also provide knowledge spillovers, which improve the quality of the audit, prior research (e.g. Holm, 2015; Paterson & Valencia, 2011) finds that audit-related NAS provide little to no spillover. Discussions with several audit partners from public accounting firms also suggest that audit-related work is not beneficial to the audit as it is not clear how much due diligence was exercised in performing the work. In contrast, De Simone et al. (2015) suggest that taxes require an understanding of almost all business and accounting processes outside the tax department, and naturally involve both tax and non-tax processes that are material to financial reporting. For example, tax is closely tied to revenues, which is the most important driver of a company's performance, and involves significant risks that warrant special consideration by auditors. They also note that the tax partner, who is part of the audit team, frequently communicates with the audit partner. This suggests that tax NAS is likely to provide a significant amount of knowledge spillover. Along these lines, several studies (e.g., Gleason & Mills, 2011; Kinney et al., 2004; Paterson & Valencia, 2011; Robinson, 2008) have linked tax NAS to improved financial reporting outcomes. Overall, the preceding discussion suggests that tax NAS is less likely to be perceived as impairing independence but more likely to be perceived as providing knowledge spillovers, relative to audit-related NAS. This leads to the following hypothesis:

H1. All else equal, tax NAS will be associated with higher earnings response coefficients relative to audit-related NAS.

If, however, investors largely use NAS fees as an input to evaluate the auditor's economic dependence on the client (Ghosh et al., 2009), investor perceptions of auditor independence are unlikely to vary across NAS types. With respect to other NAS, the SEC (2003b) notes that for most public companies, other NAS are insignificant relative to the other types of NAS fees.¹² As a result, other fees, on average, are unlikely to provide much knowledge spillover or provide much incentive for auditors to compromise their independence. In other words, the insignificant nature of other NAS suggests that it is unlikely to be viewed as resulting in significant benefits or costs, on average. As a result, we do not make a formal prediction with respect to other NAS.

3. Sample selection and key variables

3.1. Sample selection

Our sample selection process begins with all firms covered in the

¹¹ Tax NAS are generally not prohibited under the Sarbanes-Oxley Act because traditional tax services are believed by regulators to be appropriate and not a source of serious problems. While the SEC further restricted auditor-provided tax services in 2006, there was a lack of systematic empirical evidence to support their position. Lennox (2016) finds that these restrictions on tax NAS did not improve audit quality.

¹² The average amount of other NAS fees relative to total fees in our sample is approximately 1.5%. While the SEC (2003) provides examples of both audit-related and tax NAS, they do not provide any examples of services falling into the other category. We examine several proxy statements of firms with non-zero other NAS and find vague descriptions of a variety of services such as informal regulatory inquiries, advisory services, and training and subscriptions.

Audit Analytics database, with the necessary audit and nonaudit service fee data. We collect data starting in 2004 as our intent is to examine a post-SOX period and the SEC was finalizing and clarifying rules regarding nonaudit services in 2003.¹³ We collect quarterly financial statement data from Compustat and stock price data from the Center for Research in Security Prices (CRSP). We further collect analyst data from the Institutional Brokers' Estimate System (I/B/E/S). Firms without the required data for our empirical models are eliminated from the sample. While some prior NAS studies (e.g., Frankel et al., 2002) eliminate firms from the financial services industry from their sample, these studies focus on the relation between NAS and accruals, which differ in the financial sector. As our focus is on the market's valuation of unexpected earnings, we retain all industries in our sample. Our base sample consists of 127,690 firm-quarter observations from the years 2004–2015.

3.2. Measurement of key variables

3.2.1. Investor perceptions of NAS

As we examine the impact of NAS on independence-in-appearance, in contrast to independence-in-fact, our choice of a proxy should reflect perceptions of auditor independence, rather than whether independence was factually impaired. For example, measures such as discretionary accruals, financial restatements, and audit opinions may reflect whether auditors provided biased judgment, but fail to capture whether investors perceive auditors to provide biased judgment. Several different proxies have been used within the literature to capture investors' perceptions of the effect of jointly provided NAS on earnings quality. These proxies include the market's valuation of earnings surprises (i.e. ERCs), implied cost of equity capital estimates, and auditor ratification votes.

It is well known that implied cost of equity capital estimates have high measurement error, have low measurement consensus, and provide an indirect measure of investor perceptions (see e.g., DeFond & Zhang, 2014). Auditor ratification votes, until recent years, required hand collection of data, which severely limits the sample size. Furthermore, over 95% of investors, on average, vote to ratify the auditor. This makes it difficult to interpret the results from using this proxy as it is not clear whether investors pay little attention to auditor ratification votes or investors' perceptions of audit quality are largely uninfluenced by the joint provision of NAS.

In contrast, ERCs have low measurement error and high measurement consensus, which directly contrasts with implied cost of equity capital estimates. A short measurement window surrounding the earnings surprises also helps to eliminate confounding factors. In addition, ERCs are the most commonly used proxy within the NAS literature to capture investor perceptions. As a result, we use ERCs as a proxy for investor perceptions of the effect of jointly provided NAS on earnings quality as it is the most appropriate and most commonly used proxy, which allows us to maintain greater comparability to prior studies and draw stronger inferences.

3.2.2. Purchases of nonaudit services

We examine in this study whether fees from different types of nonaudit services are perceived by investors to influence the quality of an audit. The economic theory (DeAngelo, 1981) underlying the audit and nonaudit fee literature suggests that auditors' incentives to compromise their independence depend on the auditor's economic dependence on the client. This suggests that an appropriate measure of the impact of NAS fees on auditor independence is the ratio of NAS fees to total auditor revenues. However, we note that this theory applies to independence-in-fact and not necessarily independence-in-appearance. In this study, we use nonaudit fee ratios, commonly defined as nonaudit

¹³ The year of 2003 was the first year that the SEC required firms to categorize NAS fees as audit-related, tax, or other.

fees divided by the sum of audit and nonaudit fees, and calculate a separate ratio for each type of nonaudit service. We also use the decile rank of the nonaudit fee ratio as an additional measure. As a third measure, we scale each type of NAS fee by audit fees. Lastly, we follow Francis and Ke (2006) and use an indicator variable set equal to one when a firm's ratio of nonaudit fees to total fees for a type of NAS is greater than the sample median and the dollar value of nonaudit fees for a type of NAS is greater than the 75th percentile, and zero otherwise. We choose these measures over specifications that scale by total auditor revenues for several reasons.

First, firm's proxy statements list audit fees, audit-related fees, tax fees, all other fees, and total fees paid to the auditor.¹⁴ Thus, the most salient and least costly measure for investors to use is the nonaudit fee ratio. On the other hand, it is costlier for investors to compare different NAS fee types to an auditor's total revenues. Moreover, investors may find this measure irrelevant as individual audit offices serve as the decision-making units of the firm (Reynolds & Francis, 2001). While investors could compare nonaudit fees to the revenues of individual audit offices, office revenue can be costly for investors to accurately estimate.¹⁵ Second, the SEC has emphasized the importance and use of the proportion of NAS fees relative to audit or total fees in warranting the various requirements of FRR No. 56 and 68, and discussing investor perceptions of NAS types. Third, as mentioned by Krishnan et al. (2005), the business press frequently mentions the magnitude of nonaudit fees relative to audit fees.

Lastly, scaling by total auditor revenues focuses on financial dependence, which may obscure or fail to capture other channels through which NAS is perceived to impair auditor independence, such as auditors taking on management roles or auditing their own work (DeFond & Zhang, 2014). In other words, if investors are simply concerned with the economic dependence of the auditor on the client, segregating different NAS fees by type is unlikely to be informative to investors. For example, the proportion of NAS relative to total fees paid to the auditor better captures the relative proportion of audit and nonaudit work done by the auditing firm, which may better capture the focus of an auditing firm for a particular client.¹⁶ If the majority of services provided by an auditor to a client are nonaudit, investors may perceive that the auditing firm plays more of a management role for the client as opposed to providing independent, reasonable assurance regarding the financial statements. Investors may also perceive that the auditing firm may be less motivated to provide a high-quality audit to the client to retain the provision of NAS to the client in the future (Harris, 2014). Prior experimental research also suggests that economic dependence does not fully explain the independence concerns of investors as staff separation influences their perceptions (see e.g., Lowe et al., 1999).

4. Research design and results

4.1. Descriptive statistics and univariate results

Descriptive statistics and univariate correlations are presented in Tables 1 and 2, respectively.

¹⁴ We provide an example of the typical auditor fee disclosure provided in the proxy statements in Appendix A.

¹⁵ While a researcher can estimate auditor office revenues by allocating auditor revenues to auditor offices, investors may not have the resources (i.e. time, ability, effort) to do so. Moreover, the investor must perceive a net benefit from calculating auditor office revenues over using nonaudit fee ratios, which are readily available.

¹⁶ Supporting this notion, in 2011, James Doty, chairman of the PCAOB, noted that several inspection reviews of partner evaluation and compensation processes find that partners are evaluated based on selling nonaudit services to audit clients. Partners were rewarded for selling services to clients that previously purchased very little nonaudit services. This implies that audit partners commonly take a client-specific approach.

Table 1 shows that the mean (median) three-day cumulative abnormal return surrounding earnings surprises is approximately 0.0003 (0.0001), which is similar to the values reported in prior research (see e.g., Krishnan et al., 2005). The mean and median unexpected earnings is also close to zero, as expected, and is comparable to prior studies as well. For our sample, the overall average NAS fees, as a proportion of total fees, is 0.173, suggesting that audit fees compose the majority of fees paid to the auditor. Partitioning NAS fees by type, we find that audit-related, tax, and other services comprise 6.6%, 9.1%, and 1.5% of total fees, respectively, paid to the auditor, on average. We also find that the quartile values of TAX, are greater than AUDITRELATED and OTHER. Together, this suggests that tax NAS are the most frequently purchased NAS, and also tend to be the greatest in magnitude. On the other hand, we find that most firms purchase very little, if any, other NAS. Turning to our control variables, we find that the descriptive statistics are similar to those reported in previous studies (e.g., Francis & Ke, 2006; Krishnan et al., 2005).

Table 2 shows that the univariate correlations between the majority of our variables are statistically significant. Pearson (Spearman) correlations are presented below (above) the diagonal. Bolded values indicate statistical significance at the 0.10 alpha level or better. We discuss only the bottom half of the correlation table, as the upper half is qualitatively similar. The correlations do not provide any indication of multicollinearity as the largest correlation is -0.429 between SIZE (the natural logarithm of the market value of equity measured at the end of the quarter) and STDRET (the standard deviation of daily stock returns over a 90-day window ending a week before the earnings announcement date). We find that OTHER is significantly and negatively correlated with AUDITRELATED and TAX, suggesting that it is important to control for the different types of nonaudit services. We also find that AUDITRELATED, TAX, and OTHER are significantly correlated with most of our control variables. Thus, we allow the coefficient on UE (unexpected earnings) to vary with these control variables to separate the effect of each type of nonaudit service on investors' valuations of unexpected earnings.

4.2. Aggregate measure of nonaudit service fees

The results of prior studies (Ghosh et al., 2009; Hollingsworth & Li, 2012) suggest that in the periods following SOX, jointly-provided NAS no longer significantly influence the perceptions of investors. However, these studies use an aggregate NAS ratio. As an initial step to show that the use of an aggregate NAS ratio may obscure heterogeneity in investor perceptions of different types of NAS, we first replicate the results of these prior studies by showing that the aggregate NAS ratio is not significantly associated with earnings response coefficients in the post-SOX era years 2004–2015, and examine how ERCs vary with an aggregate NAS fee ratio using the following model:

$$CAR = \beta_0 + \beta_1 NAS + \beta_2 UE + \beta_3 UE * NAS + \sum_{k=4}^{20} \beta_k Controls \quad (1)$$

where CAR is the three-day $[-1,1]$ cumulative abnormal return surrounding the earnings announcement date. Abnormal returns are calculated as the difference between stock returns and value-weighted CRSP market returns. NAS is an aggregate measure of nonaudit service fees, scaled by total fees. Following prior research (e.g., Francis & Ke, 2006; Ghosh et al., 2009), we use fee data from the proxy statements filed prior to the quarterly earnings announcements. That is, NAS fee data is measured in fiscal year $t-1$ so that investors have fee information available when they respond to unexpected earnings. UE is unexpected earnings and captures the earnings surprise to investors. It is calculated as the difference between the actual quarterly earnings per share and the most recent median consensus analyst forecast.

Our selection of control variables follows Francis and Ke (2006), and includes the following variables: SIZE, LEV, STDRET, BTM, LOSS, FQTR4, RESTRUCTURE, and ABSFERR. SIZE proxies for the degree of

Table 1
Descriptive statistics.

Variable	N	Mean	Std. Dev.	Q1	Median	Q3
CAR	127,690	0.000	0.083	-0.038	0.000	0.040
UE	127,690	-0.003	0.043	-0.001	0.000	0.002
NAS	127,690	0.173	0.158	0.047	0.135	0.259
AUDITRELATED	127,690	0.066	0.098	0.000	0.028	0.089
TAX	127,690	0.091	0.110	0.000	0.051	0.141
OTHER	127,690	0.015	0.055	0.000	0.000	0.002
SIZE	127,690	6.855	1.756	5.591	6.741	7.993
LEV	127,690	0.202	0.197	0.018	0.158	0.326
STDRET	127,690	0.027	0.016	0.016	0.023	0.033
BTM	127,690	0.591	0.536	0.282	0.476	0.752
LOSS	127,690	0.253	0.435	0.000	0.000	1.000
FQTR4	127,690	0.234	0.423	0.000	0.000	0.000
RESTRUCT	127,690	0.022	0.147	0.000	0.000	0.000
ABSFERR	127,690	0.017	0.079	0.001	0.002	0.006

Notes. Table 1 presents the descriptive statistics for our base sample of 127,960 firm-quarter observations. CAR is the cumulative abnormal return in the 3-day period [-1, 1] surrounding the earnings announcement. UE is unexpected earnings, which is calculated as the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. NAS is the nonaudit fee ratio, defined as total nonaudit service fees, scaled by total fees paid to the auditor. AUDITRELATED, TAX, and OTHER is audit-related, tax, and all other nonaudit service fees, respectively, scaled by total fees. Nonaudit service fee data is measured as of the proxy statement preceding the quarterly earnings announcement date. Unless otherwise noted, all other variables are measured at quarter-end. SIZE is the natural logarithm of the market value of equity. LEV refers to financial leverage, and is defined as the sum of total debt in current liabilities and total long-term debt, scaled by total assets. STDRET is the standard deviation of daily stock returns over a 90-day window ending seven days prior to the earnings announcement date. BTM is the book-to-market ratio. LOSS is an indicator variable taking the value of one if a firm reports a loss in the current quarter, and zero otherwise. FQTR4 is an indicator variable taking the value of one if the earnings announcement relates to the fourth quarter. RESTRUCTURE is an indicator variable set equal to one if special items as a percentage of total assets is less than or equal to -5%, and zero otherwise. ABSFERR is the absolute value of the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast.

Table 2
Correlation table.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
CAR (1)		0.321	0.008	0.016	0.006	0.029	0.002	-0.025	0.009	-0.126	0.011	-0.021	0.011
UE (2)	0.124		-0.008	0.022	0.013	0.035	-0.042	0.009	0.000	-0.175	-0.014	-0.032	0.104
AUDITRELATED (3)	-0.004	-0.002		0.114	0.044	0.225	0.124	-0.148	0.011	-0.102	-0.016	0.008	-0.094
TAX (4)	0.012	0.025	-0.014		0.055	0.130	0.038	-0.113	-0.064	-0.088	-0.022	-0.008	-0.104
OTHER (5)	0.000	-0.001	-0.016	-0.029		0.127	-0.006	-0.067	-0.013	-0.037	-0.006	0.008	-0.040
SIZE (6)	0.018	0.084	0.113	0.096	-0.033		0.236	-0.469	-0.284	-0.333	-0.005	-0.016	-0.395
LEV (7)	0.000	-0.021	0.068	0.037	-0.020	0.168		-0.184	0.056	-0.065	-0.007	0.006	0.021
STDRET (8)	-0.020	-0.113	-0.050	-0.093	0.004	-0.429	-0.086		0.067	0.362	-0.027	0.047	0.354
BTM (9)	0.018	-0.121	-0.020	-0.075	0.001	-0.289	0.047	0.261		0.043	0.002	0.022	0.293
LOSS (10)	-0.117	-0.181	-0.038	-0.082	-0.002	-0.329	-0.024	0.360	0.122		0.028	0.140	0.360
FQTR (11)	0.013	-0.022	-0.017	-0.030	-0.014	-0.006	-0.008	-0.009	0.004	0.028		0.058	0.028
RESTRUCTURE (12)	-0.020	-0.076	0.003	-0.009	0.002	-0.012	0.004	0.068	0.033	0.140	0.058		0.050
ABSFERR (13)	-0.042	-0.404	-0.005	-0.053	0.002	-0.213	0.016	0.263	0.229	0.225	0.021	0.071	

Notes. Table 2 presents Pearson (Spearman) correlations below (above) the diagonal for the main variables used in the study. Bolded values indicate statistical significance at the 0.10 alpha level or better, using two-tailed significance tests. CAR is the cumulative abnormal return in the 3-day period [-1, 1] surrounding the earnings announcement. UE is unexpected earnings, which is calculated as the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. AUDITRELATED, TAX, and OTHER is audit-related, tax, and all other nonaudit service fees, respectively, scaled by total fees. Nonaudit service fee data is measured as of the proxy statement preceding the quarterly earnings announcement date. Unless otherwise noted, all other variables are measured at quarter-end. SIZE is the natural logarithm of the market value of equity. LEV refers to financial leverage, and is defined as the sum of total debt in current liabilities and total long-term debt, scaled by total assets. STDRET is the standard deviation of daily stock returns over a 90-day window ending seven days prior to the earnings announcement date. BTM is the book-to-market ratio. LOSS is an indicator variable taking the value of one if a firm reports a loss in the current quarter, and zero otherwise. FQTR4 is an indicator variable taking the value of one if the earnings announcement relates to the fourth quarter. RESTRUCTURE is an indicator variable set equal to one if special items as a percentage of total assets is less than or equal to -5%, and zero otherwise. ABSFERR is the absolute value of the difference between actual quarterly earnings per share and the most recent median consensus analyst. Unless otherwise noted, all variables are measured at quarter-end. Ghosh et al. (2009) show that investors do not perceive the nonaudit fee ratio as impairing auditor independence. Rather, investors perceive client importance, defined as the total fees paid to an auditor divided by total auditor revenues, as impairing auditor independence. We use our main sample from the.

uncertainty prior to the earnings release and is measured as the natural log of the market value of equity at the end of the quarter. LEV is the debt-to-assets ratio, measured at the end of the quarter. STDRET is the standard deviation of daily stock returns for the 90-day period ending 7 days before the earnings announcement. BTM is the book-to-market ratio, measured at the end of the quarter. LOSS is an indicator variable set equal to one if a firm reports a loss in the current quarter, and zero otherwise. FQTR4 is an indicator variable set equal to one if the earnings announcement relates to the fourth quarter, and zero otherwise. RESTRUCTURE is an indicator variable set equal to one if special items as a percentage of total assets in the quarter is less than or equal to -5%, and zero otherwise. ABSFERR is the absolute value of UE, and controls for the magnitude of the earnings surprise. Industry fixed effects, defined at the one-digit SIC level are included, but omitted for brevity. The results are qualitatively similar if we define industries at the two-, three-, or four-digit level. We interact each control variable and each industry dummy with UE.

The results from estimating model (1) are presented in the first column of Table 3. We find that the coefficient on the interaction between UE and NAS is negative, but is not statistically significant. This result is consistent with the notion that, over an extended period following the enactment of SOX, investors' perceptions of audit quality, on average, are no longer influenced by auditor-provided NAS. In the second column of Table 3, we include a measure of client importance (i.e. CI), defined as total fees divided by total auditor revenues, and interact this measure with UE. We find that the coefficient on UE*CI is negative and statistically significant, however, the coefficient on UE*NAS remains statistically.

insignificant, consistent with Ghosh et al. (2009). These results potentially suggest that investors do not perceive the nonaudit fee ratio as impairing auditor independence, but consider the auditor's economic dependence on the client as impairing independence. However, the results also potentially suggest that the use of an aggregate NAS measure may not capture the channels through which investors perceive different nonaudit service types to influence earnings quality.

Table 3
Aggregate NAS and ERCs.

Variables	(1)	(2)
UE	0.656*** (18.61)	0.661*** (18.63)
UE*NAS	-0.010 (-0.29)	-0.009 (-0.26)
NAS	0.000 (0.04)	0.000 (0.09)
CI		-0.005* (-1.66)
UE*CI		-0.079* (-1.72)
UE*SIZE	0.025*** (6.05)	0.024*** (5.84)
UE*LEV	-0.155*** (-6.62)	-0.156*** (-6.64)
UE*STDRET	0.599*** (2.59)	0.591** (2.55)
UE*BTM	0.013*** (4.66)	0.013*** (4.71)
UE*LOSS	-0.430*** (-20.06)	-0.431*** (-20.09)
UE*FQTR4	-0.058*** (-5.35)	-0.058*** (-5.36)
UE*RESTRUCTURE	0.021 (1.47)	0.021 (1.46)
UE*ABSFERR	-0.552*** (-26.79)	-0.552*** (-26.79)
SIZE	-0.000** (-1.97)	-0.000** (-2.19)
LEV	0.002 (1.45)	0.002 (1.41)
STDRET	0.070*** (3.06)	0.070*** (3.04)
BTM	0.006*** (10.97)	0.006*** (10.95)
LOSS	-0.019*** (-27.50)	-0.019*** (-27.53)
FQTR4	0.003*** (6.17)	0.003*** (6.17)
RESTRUCTURE	-0.001 (-0.64)	-0.001 (-0.65)
ABSFERR	-0.036*** (-10.20)	-0.037*** (-10.23)
INTERCEPT	0.001 (0.39)	0.001 (0.62)
Adjusted r ²	0.042	0.042
N	127,690	127,690

Notes. This table replicates the results of prior studies (Ghosh et al., 2009; Hollingsworth & Li, 2012) within our sample period of 2004–2015. These prior studies show that an aggregate measure of nonaudit services does not significantly influence investor perceptions of auditor independence, however, Ghosh et al. (2009) show that measures of client importance (CI) influence perceptions. The dependent variable is the 3-day [-1, 1] cumulative abnormal returns surrounding the earnings announcement date. UE is unexpected earnings, which is calculated as the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. NAS is the non-audit fee ratio, defined as total nonaudit service fees, scaled by total fees paid to the auditor. Nonaudit service fee data is measured as of the proxy statement preceding the quarterly earnings announcement date. Unless otherwise noted, all other variables are measured at quarter-end. CI is defined as the total fees paid to the auditor, scaled by the auditor's total revenue at the national level. SIZE is the natural logarithm of the market value of equity. LEV refers to financial leverage, and is defined as the sum of total debt in current liabilities and total long-term debt, scaled by total assets. STDRET is the standard deviation of daily stock returns over a 90-day window ending seven days prior to the earnings announcement date. BTM is the book-to-market ratio. LOSS is an indicator variable taking the value of one if a firm reports a loss in the current quarter, and zero otherwise. FQTR4 is an indicator variable taking the value of one if the earnings announcement relates to the fourth quarter. RESTRUCTURE is an indicator variable set equal to one if special items as a percentage of total assets is less than or equal to -5%, and zero otherwise. ABSFERR is the absolute value of the difference between actual quarterly earnings per share and

the most recent median consensus analyst forecast. Robust standard errors are clustered by firm and year. All specifications include industry fixed effects. Each industry dummy is interacted with UE. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed significance tests.

4.3. Nonaudit service fees by type

We next investigate whether different types of NAS differentially influence investor perceptions of earnings quality. Following prior research (e.g., Francis & Ke, 2006; Krishnan et al., 2005), we estimate the following model:

$$\begin{aligned} \text{CAR} = & \beta_0 + \beta_1 \text{UE} + \beta_2 \text{AUDITRELATED} + \beta_3 \text{TAX} + \beta_4 \text{OTHER} \\ & + \beta_5 \text{UE} * \text{AUDITRELATED} + \beta_6 \text{UE} * \text{TAX} + \beta_7 \text{UE} * \text{OTHER} \\ & + \sum_{k=8}^{24} \beta_k \text{Controls} \end{aligned} \quad (2)$$

where AUDITRELATED is audit-related NAS fees, TAX is tax NAS fees, and OTHER is all other NAS fees.¹⁷ NAS fees are measured as of the proxy statements preceding the earnings announcement date.

We include the same control variables as in model (1) and interact each control variable with UE to isolate the effect of each nonaudit service on investor perceptions. Industry (one-digit SIC) fixed effects are included in the model, but omitted for brevity.¹⁸ Robust standard errors are clustered by both firm and year.

The results from estimating model (2) are presented in Table 4. The control variables have the expected signs and are consistent with prior research (e.g. Francis & Ke, 2006; Krishnan et al., 2005). Except for RESTRUCTURE, the coefficients on the control variables are statistically significant at the 0.01 alpha level or better. In the first column, we scale each NAS fee type by total fees. The negative

coefficient on UE*AUDITRELATED is statistically significant (p-value < .01), suggesting that audit-related NAS is associated with a lower ERC. This result is consistent with investors perceiving audit-

related NAS as impairing auditor independence. In contrast, the coefficient on UE*TAX is positive and statistically significant (p < 0.05), consistent with investors perceiving a net benefit to audit quality from the auditor providing tax services to an audit client. Lastly, we find that the coefficient on UE*OTHER is not statistically significant. This result is consistent with the notion that investors may not be concerned with other NAS, on average, as most firms purchase very little, if any, other NAS. We also test the difference in coefficients between UE*AUDITRELATED and UE*TAX, and find that the difference in coefficients is statistically significant (p < 0.01). Thus, we find support for our conjecture that investors will perceive tax NAS more favorably than audit-related NAS.

In the second column, we scale each type of NAS fee by audit fees, and in the third column, we use the decile rank measure of the nonaudit fee ratio. Lastly, in the fourth column, we use an indicator variable to capture high NAS fees as explained in Section 3.2.2. In each case, our results are qualitatively similar to the first column, however, when we use the decile rank measure, the coefficient on UE*AUDITRELATED is no longer statistically significant and the coefficient on UE*OTHER is positive and significant (p < 0.05). This again supports the notion that investor concerns of auditor independence are lessened when there is staff separation. Overall, the evidence in Table 4 is consistent with investors perceiving audit-related NAS as impairing auditor independence, and perceiving tax NAS as providing knowledge spillovers and improving audit quality. As our results are largely similar across

¹⁷ We do not include audit fees as a control variable as it is collinear with our NAS fee measures.

¹⁸ The results are qualitatively similar when we include both industry and year fixed effects, and when we specify industry fixed effects at the 2-digit, 3-digit, and 4-digit SIC level.

Table 4
Segregated NAS and ERCs.

Variables	NAS =			
	NAS/Total	NAS/Audit Fees	Decile	Dummy
UE	0.645*** (18.26)	0.651*** (18.54)	0.639*** (17.97)	0.660*** (18.19)
UE*AUDITRELATED (β_1)	-0.153*** (-3.28)	-0.083*** (-4.05)	-0.002 (-1.18)	-0.031** (-2.01)
UE*TAX (β_2)	0.146** (2.42)	0.076** (2.30)	0.004** (2.08)	0.072*** (3.01)
UE*OTHER	0.140* (1.70)	0.030 (1.05)	0.004** (2.55)	0.018 (1.31)
AUDITRELATED	-0.004 (-1.64)	-0.001*** (-2.63)	-0.000 (-0.34)	-0.001 (-0.91)
TAX	0.003* (1.67)	0.002** (2.07)	0.000* (1.68)	0.002*** (3.77)
OTHER	0.000 (0.07)	-0.000 (-0.07)	0.000 (0.98)	0.001 (1.22)
UE*SIZE	0.026*** (6.35)	0.026*** (6.24)	0.024*** (5.77)	0.024*** (5.29)
UE*LEV	-0.158*** (-6.73)	-0.159*** (-6.79)	-0.149*** (-6.33)	-0.160*** (-6.72)
UE*STDRET	0.629*** (2.71)	0.625*** (2.69)	0.609*** (2.63)	0.584** (2.50)
UE*BTM	0.013*** (4.75)	0.013*** (4.63)	0.014*** (4.79)	0.013*** (4.55)
UE*LOSS	-0.431*** (-20.16)	-0.431*** (-20.14)	-0.432*** (-20.12)	-0.433*** (-20.24)
UE*FQTR4	-0.057*** (-5.29)	-0.057*** (-5.33)	-0.056*** (-5.22)	-0.057*** (-5.28)
UE*RESTRUCTURE	0.020 (1.38)	0.020 (1.38)	0.023 (1.60)	0.021 (1.47)
UE*ABSFERR	-0.548*** (-26.58)	-0.549*** (-26.65)	-0.552*** (-26.69)	-0.549*** (-26.62)
SIZE	-0.000* (-1.86)	-0.000** (-2.03)	-0.000** (-2.12)	-0.000*** (-2.60)
LEV	0.002 (1.44)	0.002 (1.38)	0.002 (1.44)	0.001 (1.16)
STDRET	0.071*** (3.12)	0.071*** (3.11)	0.071*** (3.10)	0.071*** (3.13)
BTM	0.006*** (11.02)	0.006*** (11.03)	0.006*** (10.98)	0.006*** (10.75)
LOSS	-0.019*** (-27.41)	-0.019*** (-27.44)	-0.019*** (-27.45)	-0.019*** (-27.38)
FQTR4	0.003*** (6.20)	0.003*** (6.24)	0.003*** (6.20)	0.003*** (6.20)
RESTRUCTURE	-0.001 (-0.63)	-0.001 (-0.64)	-0.001 (-0.64)	-0.001 (-0.70)
ABSFERR	-0.036*** (-10.24)	-0.036*** (-10.24)	-0.037*** (-10.29)	-0.037*** (-10.32)
INTERCEPT	0.000 (0.24)	0.000 (0.25)	-0.000 (-0.00)	0.001 (0.84)
$\beta_1 = \beta_2$ (Prob > F)	$p < .001$	$p < .001$	$p < .05$	$p < .001$
Adjusted r^2	0.042	0.042	0.042	0.042
N	127,690	127,690	127,690	127,690

Notes. This table examines how different types of NAS fees impact earnings response coefficients. The dependent variable in each specification is the 3-day $[-1,1]$ cumulative abnormal returns surrounding earnings announcement dates. UE is unexpected earnings, which is calculated as the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. AUDITRELATED, TAX, and OTHER is audit-related, tax, and all other nonaudit service fees, respectively. Nonaudit service fee data is measured as of the proxy statement preceding the quarterly earnings announcement date. Unless otherwise noted, all other variables are measured at quarter-end. SIZE is the natural logarithm of the market value of equity. LEV refers to financial leverage, and is defined as the sum of total debt in current liabilities and total long-term debt, scaled by total assets. STDRET is the standard deviation of daily stock returns over a 90-day window ending seven days prior to the earnings announcement date. BTM is the book-to-market ratio. LOSS is an indicator variable taking the value of one if a firm reports a loss in the current quarter, and zero otherwise. FQTR4 is an indicator variable taking the value of one if the earnings announcement relates to the fourth quarter. RESTRUCTURE is an indicator variable set equal to one if special items as a percentage of total assets is less than or equal to -5% , and zero otherwise. ABSFERR is the absolute value of the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. Robust standard errors are clustered by firm and year. All specifications include industry fixed effects. Each industry dummy is also interacted with UE. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed significance tests.

our proxies of NAS, we use the NAS fee ratio in the remainder of our analyses.

4.4. High versus low accrual firms

The results in Table 4 suggest that audit-related nonaudit services are associated with lower ERCs while tax nonaudit services are associated with larger ERCs. This suggests that investors perceive audit-related NAS to erode auditor independence, which decreases audit quality and leads to greater uncertainty in earnings. In contrast, investors perceive tax NAS to provide knowledge spillovers, which provides net benefits to audit quality and leads to lower uncertainty in earnings. To further corroborate these findings and help rule out alternative explanations, we examine how investors perceive NAS types when varying the amount of earnings uncertainty.

Prior research provides evidence that accruals tend to be associated with greater uncertainty than cash flows and are more easily manipulated by managers to meet earnings targets (see e.g., Sloan, 1996; Subramanyam, 1996; Xie, 2001). Other studies show that firms with high levels of (discretionary) accruals have greater demand for higher quality audits, and that higher quality audits improve the quality of accruals (e.g., Becker et al., 1998; Behn, Choi, & Kang, 2008). Therefore, if NAS influence investors' uncertainty over the quality of earnings, we expect the effect to be more pronounced for firms with high levels of (discretionary) accruals. That is, if the pre-audited financial statements are already of high quality, an audit (whether high or low quality) is unlikely to significantly influence earnings quality. We also examine how investor perceptions of NAS vary with firm size. Firm size is commonly used as a proxy for the strength of the information environment (see e.g., Collins, Kothari, & Rayburn, 1987). All else equal, we expect investors of firms with stronger information environments to have less earnings uncertainty. In addition, larger firms tend to be more subject to scrutiny, which provides greater incentive for auditors to maintain their independence (Reynolds & Francis, 2001). Thus, we expect the effect of NAS on investor perceptions to be more pronounced for smaller firms.

We first re-estimate model (2) separately for high and low (discretionary) accrual firms. To designate firms as high or low accrual firms, we use the absolute value of (discretionary) accruals. To estimate discretionary accruals, we use a modified Dechow-Dichev (2002) model, following McNichols (2002). We estimate industry-year cross-sectional regressions for each Fama-French 48 industry classification with > 15 observations per year. We define accruals as the difference between net income and operating cash flows before extraordinary items, and measure accruals at the end of each quarter. Firms with values below the median are designated as low accruals, and firms with values greater than the median are designated as high accruals. Due to missing observations on the data required to estimate the modified Dechow-Dichev model, the sample size decreases considerably when partitioning the sample on discretionary accruals. The results are presented in Table 5.

Consistent with expectations, we find that for high accrual firms, the coefficient on UE*AUDITRELATED is negative and statistically significant (p -value < 0.01), while the coefficient is not significant for low accrual firms. This suggests that for high accrual firms, audit-related NAS is associated with lower ERCs, consistent with greater uncertainty over the earnings quality of these firms. On the other hand, audit-related fees had no perceived effect on the earnings quality of low accrual firms. We also find that for high-accrual firms, the coefficient on UE*TAX is positive and statistically significant (p -value < .05), whereas for low accrual firms, the coefficient is not statistically significant. This result is consistent with the notion that tax NAS is associated with decreased earnings uncertainty for high accrual firms, but has no effect on the perceived earnings quality of low accrual firms. In the next two columns, we find qualitatively similar results when using absolute discretionary accruals instead of absolute total accruals.

In the last two columns of Table 5, we partition firms according to size. To classify firms as small or large, we rank firms into quartiles based upon the natural logarithm of the market value of equity measured at the end of the quarter. We eliminate the inner two quartiles, and denote firms in the top and bottom quartile as large and small firms, respectively. We find that for small firms, the coefficient on UE*AUDITRELATED (UE*TAX) is negative (positive) and statistically significant, as expected. For large firms, we find that the coefficients are not statistically significant. These results suggest that for larger firms, nonaudit services did not influence investor perceptions of earnings quality.

However, as smaller firms tend to have weaker information environments, the results are consistent with NAS influencing the perceived earnings quality of these firms. Overall, the results in Table 5 indicate that our results are driven by firms with a greater amount of earnings uncertainty. As the quality of the audit bears greater significance for firms with greater earnings uncertainty, the results in this table corroborate our previous results and arguments, and make it more difficult to attribute our results to alternative explanations.

4.5. Additional t

4.5.1. Client importance versus nonaudit service fee ratios

We argue that measures focused on financial dependence may fail to capture the channels through which investors perceive NAS to impair auditor independence, such as auditors taking on the role of managers. In contrast, Ghosh et al. (2009) find that earnings response coefficients do not vary with the nonaudit fee ratio, but vary with measures of financial dependence. They conclude that nonaudit fee ratios, per se, do not influence investor perceptions of earnings quality. In other words, the nonaudit fee ratio may simply be correlated with the financial dependence of the auditor on the client.

To further examine the relation between non-audit fees, financial dependence, and investor perceptions, we re-estimate model (2) when including a measure of client importance, CI, defined as total fees divided by total auditor revenues at the national level. The results are provided in Table 6. In the first column, we omit nonaudit services from the regression, and examine the impact of client importance on investor perceptions of auditor independence. We find that the coefficient on UE*CI is negative and significant as expected. This suggests that as the auditor becomes more dependent upon a client for revenues, investors perceive an impairment of auditor independence.

In the second column, we include each nonaudit service in the regression along with a measure of client importance. We find that the coefficient on UE*CI is negative, but is no longer statistically significant. In contrast, the coefficient on UE*AUDITRELATED (UE*TAX) is negative (positive) and statistically significant, consistent with our prior findings. In untabulated analyses, we find qualitatively similar results when instead defining client importance as total fees divided by total auditor office revenues. Overall, the results of this table suggest that segregated nonaudit fee ratios are not simply correlated with the financial dependence of the auditor on the client.¹⁹ Rather, measures of client importance fail to fully capture the channels through which investors perceive NAS to influence earnings quality.

4.5.2. Alternative measures of independence-in-appearance

As previously discussed, we use nonaudit fee ratios because: (1) the SEC has emphasized the use of these ratios, (2) they are the most salient measure to investors, (3) audit partners are often motivated to take a client-specific approach, and (4) scaling by total auditor revenues focuses on the notion of financial dependence. In this section, we examine the sensitivity of the results to using alternative NAS measures.

¹⁹ A positive coefficient on UE*TAX is also inconsistent with nonaudit fee ratios simply capturing the financial dependence of the auditor on the client.

Table 5
Segregated NAS, ERCs, and earnings uncertainty.

Variables	Low Total Accruals	High Total Accruals	Low Disc. Accruals	High Disc. Accruals	Small Firms	Large Firms
UE	0.611*** (9.35)	0.691*** (14.93)	0.997*** (4.56)	0.533*** (5.04)	0.564*** (11.38)	1.976*** (5.77)
UE*AUDITRELATED	-0.124 (-1.34)	-0.179*** (-3.11)	-0.216 (-0.96)	-0.368** (-2.54)	-0.128*** (-2.61)	-0.452 (-1.21)
UE*TAX	0.210 (1.54)	0.141** (2.04)	0.547 (1.41)	0.399** (2.04)	0.108* (1.68)	-0.545 (-0.98)
UE*OTHER	0.179 (1.30)	0.026 (0.25)	-0.312 (-0.68)	-0.426** (-2.05)	0.100 (1.06)	1.762 (1.46)
AUDITRELATED	0.002 (0.67)	-0.006 (-1.58)	0.003 (0.45)	-0.015** (-2.24)	-0.013** (-2.55)	0.002 (0.65)
TAX	0.007** (2.56)	-0.001 (-0.42)	0.006 (1.27)	-0.000 (-0.06)	0.004 (0.81)	0.004 (1.35)
OTHER	-0.002 (-0.50)	0.000 (0.06)	-0.003 (-0.26)	-0.021 (-1.61)	-0.001 (-0.15)	-0.003 (-0.37)
UE*SIZE	0.043*** (5.49)	0.022*** (4.17)	-0.003 (-0.12)	0.015 (1.22)	0.020** (2.53)	-0.020 (-0.53)
UE*LEV	-0.177*** (-3.65)	-0.176*** (-6.15)	0.007 (0.06)	-0.137 (-1.63)	-0.090*** (-3.46)	-1.603*** (-5.96)
UE*STDRET	0.955* (1.90)	0.422 (1.51)	1.854 (1.28)	0.235 (0.31)	0.445* (1.73)	-0.530 (-0.25)
UE*BTM	0.014** (2.53)	0.018*** (4.87)	0.020 (0.94)	0.038*** (2.68)	0.015*** (5.00)	-0.135* (-1.91)
UE*LOSS	-0.427*** (-12.40)	-0.460*** (-15.30)	-0.531*** (-5.45)	-0.284*** (-5.11)	-0.405*** (-16.04)	-0.622*** (-4.96)
UE*FQTR4	-0.065*** (-2.63)	-0.057*** (-4.40)	-0.107* (-1.74)	-0.020 (-0.57)	-0.037*** (-3.04)	-0.147* (-1.66)
UE*RESTRUCTURE	-0.040 (-0.43)	0.014 (0.91)	0.054 (0.44)	0.108** (2.37)	0.010 (0.59)	-0.083 (-0.72)
UE*ABSFERR	-0.646*** (-16.53)	-0.521*** (-20.75)	-0.868*** (-8.61)	-0.465*** (-7.31)	-0.392*** (-17.09)	-1.289*** (-7.89)
SIZE	-0.000** (-2.50)	0.000 (0.60)	0.000 (0.15)	-0.001 (-1.42)	-0.001 (-0.80)	-0.000 (-0.65)
LEV	0.000 (0.13)	0.003 (1.59)	0.008** (2.21)	0.010** (2.30)	0.004 (1.21)	-0.004* (-1.90)
STDRET	0.085*** (2.61)	0.073** (2.23)	0.136* (1.90)	0.108* (1.71)	0.038 (1.03)	0.124** (2.39)
BTM	0.007*** (7.85)	0.007*** (8.09)	0.011*** (5.57)	0.007*** (3.90)	0.007*** (8.33)	0.004*** (2.59)
LOSS	-0.018*** (-17.41)	-0.021*** (-21.83)	-0.021*** (-11.46)	-0.023*** (-12.53)	-0.026*** (-19.97)	-0.010*** (-6.77)
FQTR4	0.003*** (3.84)	0.003*** (3.63)	0.004*** (2.86)	0.006*** (3.85)	0.003** (2.10)	0.003*** (3.81)
RESTRUCTURE	-0.001 (-0.51)	-0.001 (-0.57)	-0.002 (-0.47)	-0.000 (-0.01)	-0.002 (-0.47)	-0.001 (-0.65)
ABSFERR	-0.034*** (-5.43)	-0.039*** (-8.37)	-0.026 (-1.60)	-0.039*** (-3.43)	-0.023*** (-5.91)	-0.070 (-1.53)
INTERCEPT	-0.001 (-0.52)	0.000 (0.03)	-0.007* (-1.71)	0.002 (0.52)	0.007 (1.29)	-0.001 (-0.22)
Adjusted r ²	0.040	0.044	0.046	0.040	0.065	0.027
N	61,995	61,995	20,303	20,303	31,922	31,922

Notes. This table examines how the association between ERCs and different types of NAS fees vary with the amount of earnings uncertainty, as proxied by the level of (discretionary) accruals and the size of the firm. UE is unexpected earnings, which is calculated as the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. AUDITRELATED, TAX, and OTHER is audit-related, tax, and all other nonaudit service fees, respectively, scaled by total fees. Nonaudit service fee data is measured as of the proxy statement preceding the quarterly earnings announcement date. Unless otherwise noted, all other variables are measured at quarter-end. SIZE is the natural logarithm of the market value of equity. LEV refers to financial leverage, and is defined as the sum of total debt in current liabilities and total long-term debt, scaled by total assets. STDRET is the standard deviation of daily stock returns over a 90-day window ending seven days prior to the earnings announcement date. BTM is the book-to-market ratio. LOSS is an indicator variable taking the value of one if a firm reports a loss in the current quarter, and zero otherwise. FQTR4 is an indicator variable taking the value of one if the earnings announcement relates to the fourth quarter. RESTRUCTURE is an indicator variable set equal to one if special items as a percentage of total assets is less than or equal to -5%, and zero otherwise. ABSFERR is the absolute value of the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. Robust standard errors are clustered by firm and year. All specifications include industry fixed effects. Each industry dummy is also interacted with UE. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed significance tests.

The results of these analyses are presented in Table 7. In the first column, each type of NAS is scaled by auditor revenues at the national level. We find that the coefficient on UE*AUDITRELATED is negative and significant (p -value < .05). However, we find that the coefficients on UE*TAX and UE*OTHER are not statistically significant. In the

second column, we scale each type of NAS by auditor revenues at the office level. We again find that the coefficient on UE*AUDITRELATED is negative and statistically significant (p -value < .10), while the coefficient on UE*TAX is positive and statistically significant (p -value < .05). Finally, we find that the coefficient on UE*OTHER is not statistically

Table 6
Client Importance and the Nonaudit Fee Ratio.

Variables	(1)	(2)
UE	0.660*** (18.77)	0.650*** (18.27)
UE*CI	-0.079* (-1.72)	-0.073 (-1.56)
UE*AUDITRELATED		-0.151*** (-3.23)
UE*TAX		0.143** (2.37)
UE*OTHER		0.146* (1.76)
AUDITRELATED		-0.004 (-1.57)
TAX		0.003 (1.64)
OTHER		0.000 (0.13)
CI	-0.005* (-1.66)	-0.005 (-1.54)
UE*SIZE	0.024*** (5.83)	0.026*** (6.14)
UE*LEV	-0.155*** (-6.64)	-0.158*** (-6.75)
UE*STDRET	0.590** (2.55)	0.621*** (2.68)
UE*BTM	0.013*** (4.75)	0.014*** (4.80)
UE*LOSS	-0.431*** (-20.10)	-0.432*** (-20.19)
UE*FQTR4	-0.057*** (-5.36)	-0.057*** (-5.30)
UE*RESTRUCTURE	0.021 (1.47)	0.020 (1.38)
UE*ABSFERR	-0.552*** (-26.79)	-0.548*** (-26.58)
SIZE	-0.000** (-2.19)	-0.000** (-2.07)
LEV	0.002 (1.42)	0.002 (1.40)
STDRET	0.069*** (3.04)	0.071*** (3.10)
BTM	0.006*** (10.96)	0.006*** (10.99)
LOSS	-0.019*** (-27.54)	-0.019*** (-27.44)
FQTR4	0.003*** (6.18)	0.003*** (6.20)
RESTRUCTURE	-0.001 (-0.65)	-0.001 (-0.63)
ABSFERR	-0.037*** (-10.23)	-0.037*** (-10.26)
INTERCEPT	0.001 (0.64)	0.001 (0.46)
Adjusted r^2	0.042	0.042
N	127,690	127,690

Notes. This table examines the association between ERCs and different types of NAS fees when controlling for measures of client importance (CI). CI is defined as the total fees paid to the auditor, scaled by the auditor's total revenue at the national level. The results are qualitatively similar when CI is scaled by auditor revenues at the office level. UE is unexpected earnings, which is calculated as the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. AUDITRELATED, TAX, and OTHER is audit-related, tax, and all other nonaudit service fees, respectively, scaled by total fees. Nonaudit service fee data is measured as of the proxy statement preceding the quarterly earnings announcement date. Unless otherwise noted, all other variables are measured at quarter-end. SIZE is the natural logarithm of the market value of equity. LEV refers to financial leverage, and is defined as the sum of total debt in current liabilities and total long-term debt, scaled by total assets. STDRET is the standard deviation of daily stock returns over a 90-day window ending seven days prior to the earnings announcement date. BTM is the book-to-market ratio. LOSS is an indicator variable taking the value of one if a firm reports a loss in the current quarter, and zero otherwise. FQTR4 is an indicator variable taking the value of one if the earnings announcement relates

to the fourth quarter. RESTRUCTURE is an indicator variable set equal to one if special items as a percentage of total assets is less than or equal to -5%, and zero otherwise. ABSFERR is the absolute value of the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. Robust standard errors are clustered by firm and year. All specifications include industry fixed effects. Each industry dummy is also interacted with UE. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed significance tests.

significant. Overall, the results from this table are largely consistent with our previous findings and suggest that our results are robust to alternative fee ratio specifications.

4.5.3. Other analyses

To further examine the robustness of our results, and investigate the relation between different types of NAS and investor perceptions, we utilize several different regression specifications and

subsamples. The results of these analyses are presented in Table 8. Each specification includes all control variables included in the previous tables, however, the coefficients are omitted for brevity. In the first four columns, we include both firm and time fixed effects to control for time invariant, firm-specific factors and time-series trends in the data that may be correlated with the use of nonaudit services. However, as firm fixed effects are not well-suited to account for changing firm-specific circumstances and our sample period spans longer than a decade, we further segregate our sample into three-year periods, thereby allowing the firm fixed effects to provide a stronger control for confounding effects. Our results for each three-year period of our sample is reported in the first four columns of Table 8. Across all first four columns, and hence three-year time periods, we find that investors have negative perceptions of audit-related NAS and positive perceptions of tax NAS. Thus, we find that the results are qualitatively similar to those reported in Table 4. This increases confidence that confounding effects are not influencing our findings.

In the fifth column, we restrict the sample to those firms with non-zero tax NAS fees. Firms that do not purchase tax NAS from their auditor may be different in terms of their characteristics from firms that purchase tax NAS from their auditor, which may lead to a correlated omitted variables problem. In the next column, we restrict the sample to clients of Big N auditors to examine if our results are driven by the non-big N auditor client firms. Additionally, by restricting the sample to clients of Big N auditors, we provide a control for perceived auditor quality. Teoh and Wong (1993) show that Big N auditors are perceived to be higher quality auditors. To the extent that big N auditors have a higher likelihood and/or magnitude of NAS provisions, our results may be confounded by the effect of perceived auditor quality. We find that, in both columns, our results are similar to those reported from our main analyses. In the seventh column, we remove the financial crisis years (2007 and 2008) from the sample, and continue to find similar results. In the next column, we use only annual earnings surprises to examine investor perceptions of NAS types. Auditors generally perform less work and provide a lower level of assurance during interim reviews relative to annual audits. Focusing on annual ERCs, we continue to find qualitatively similar results.

Finally, the results of Alsadoun et al. (2018) suggest that investor perceptions of tax NAS may be influenced by items unrelated to financial reporting quality, such as the degree of tax aggressiveness. To investigate this notion, we examine how the association between tax NAS and ERCs vary with the level of uncertain tax benefits (UTBs) reported by the firm. The results are reported in the final column. We

find that the interaction term UE*TAX*UTB is positive and statistically significant (p-value < .10), suggesting that the positive association between tax NAS and ERCs increases in the presence of greater uncertain tax benefits. This result is consistent with prior studies (e.g., Chyz et al., 2017; Cook & Omer, 2013; Hogan & Noga, 2015) who find that companies who pay their auditors tax NAS fees are more effective tax planners (lower effective tax rates, higher cash tax savings, and lower tax risk) than firms who do not

Table 7
Alternative Nonaudit Fee Measures.

Variables	NAS =	
	NAS/NATIONAL REV	NAS/OFFICE REV
UE	0.941*** (18.79)	0.938*** (18.76)
UE*AUDITRELATED	-1.523** (-2.10)	-0.663** (-2.08)
UE*TAX	-0.976 (-0.93)	0.977** (2.16)
UE*OTHER	3.731** (2.11)	0.800 (0.75)
AUDITRELATED	0.008 (0.44)	-0.005 (-0.63)
TAX	0.007 (0.21)	0.005 (0.63)
OTHER	-0.023 (-1.05)	-0.015 (-1.39)
AUDIT	-0.005 (-0.85)	-0.003 (-1.56)
UE*AUDIT	0.145* (1.79)	0.071* (1.71)
UE*SIZE	0.083*** (13.70)	0.083*** (13.70)
UE*LEV	-0.357*** (-12.45)	-0.358*** (-12.52)
UE*STDRET	0.857*** (2.95)	0.842*** (2.89)
UE*BTM	0.019*** (4.34)	0.018*** (4.20)
UE*LOSS	-0.876*** (-26.79)	-0.877*** (-26.81)
UE*FQTR4	-0.118*** (-8.91)	-0.120*** (-9.03)
UE*RESTRUCTURE	0.052*** (3.03)	0.054*** (3.17)
UE*ABSFERR	-0.917*** (-30.33)	-0.910*** (-29.98)
SIZE	-0.000 (-1.45)	-0.000 (-1.25)
LEV	0.002 (1.26)	0.002 (1.29)
STDRET	0.059** (2.57)	0.059** (2.57)
BTM	0.007*** (11.33)	0.007*** (11.43)
LOSS	-0.017*** (-24.12)	-0.017*** (-24.12)
FQTR4	0.003*** (5.87)	0.003*** (5.90)
RESTRUCTURE	-0.002 (-0.92)	-0.002 (-0.93)
ABSFERR	-0.062*** (-12.97)	-0.061*** (-12.94)
INTERCEPT	-0.000 (-0.30)	-0.000 (-0.28)
Adjusted r ²	0.053	0.053
N	114,108	114,108

Notes. This table examines the association between ERCs and different types of NAS fees when scaling each type of nonaudit fee by either total auditor revenues at the national or office level. UE is unexpected earnings, which is calculated as the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. AUDITRELATED, TAX, OTHER, and AUDIT is audit-related, tax, all other nonaudit service fees, and audit fees, respectively, scaled by total auditor national fees or total auditor office fees. Nonaudit service fee data is measured as of the proxy statement preceding the quarterly earnings announcement date. Unless otherwise noted, all other variables are measured at quarter-end. SIZE is the natural logarithm of the market value of equity. LEV refers to financial leverage, and is defined as the sum of total debt in current liabilities and total long-term debt, scaled by total assets. STDRET is the standard deviation of daily stock returns over a 90-day window ending seven days prior to the earnings announcement date. BTM is the book-to-market ratio. LOSS is an indicator variable taking the value of one if a firm reports a loss in the current quarter, and zero otherwise. FQTR4 is an indicator

variable taking the value of one if the earnings announcement relates to the fourth quarter. RESTRUCTURE is an indicator variable set equal to one if special items as a percentage of total assets is less than or equal to -5%, and zero otherwise. ABSFERR is the absolute value of the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. Robust standard errors are clustered by firm and year. All specifications include industry fixed effects. Each industry dummy is also interacted with UE. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed significance tests.

engage their auditor for tax work.²⁰ In consistency with this notion, we find that the coefficient on UE*UTB is negative and significant (p -value < .05), suggesting that investors have negative perceptions of UTBs when the firm does not engage the auditor for tax work. Lastly, we find that the interaction term UE*TAX is again positive and statistically significant (p -value < .10). This result suggests that investors' positive perceptions of tax NAS are not driven solely by the effect of more.

sustainable tax strategies, but also through knowledge spillovers and their effect on earnings quality. Overall, the findings in Table 8 show that our results are robust to several different specifications, and that our results with respect to tax NAS are partially driven by tax considerations, in addition to perceptions of audit quality.

5. Conclusion

With the exception of a few studies, prior research examining investor perceptions of NAS in the post-SOX era focuses on the years immediately following SOX and employs an aggregate NAS measure. As noted by previous research, the years surrounding SOX are an extremely turbulent period where a matter of months may influence investors' attitudes towards auditors (e.g., DeFond & Zhang, 2014; Mishra et al., 2005), and investors may have differing views of NAS depending on the type (e.g., Hill & Booker, 2007; Pany & Reckers, 1984; Swanger & Chewning, 2001). We thus examine investor perceptions, as proxied by earnings response coefficients, of different types of nonaudit services over an extended period following SOX, and respond to the call of both Schneider et al. (2006) and Hollingsworth and Li (2012).

We first provide evidence consistent with prior research (Ghosh et al., 2009; Hollingsworth & Li, 2012) that investor concerns over auditor independence are not significantly influenced by aggregate nonaudit services in the post-SOX period. However, we argue that the use of an aggregate NAS measure may obscure the underlying relationships between different NAS types and investor perceptions of earnings quality. Consistent with this notion, we find that investors perceive audit-related NAS as impairing auditor independence. In contrast, our evidence suggests that investors perceive tax NAS as providing knowledge spillovers, which improves audit quality.

Next, we find that our results are driven by firms with high levels of (discretionary) accruals and firms smaller in size. As the earnings of these firms have greater uncertainty, this makes it difficult to attribute our results to alternative explanations. We also show that measures of client importance are no longer statistically significant when segregating NAS fees by type. This suggests that segregation of NAS types better captures the channels through which investors perceive NAS to influence audit quality. As most studies that examine independence-in-appearance focus on an aggregate NAS measure, our study has implications for future NAS research and suggests that future studies should examine partitioned, as opposed to aggregate, NAS fees. Our results are robust to including firm and time fixed effects while segregating our sample period into separate three-year periods. Our results are also robust to numerous different specifications, such as alternative measures of nonaudit fees, the use of annual ERCs, and several different sample restrictions. Finally, we find that our results with respect to tax

²⁰ McGuire et al. (2013) show that the sustainability of a firm's tax strategy signals incremental information about a firm's earnings quality.

Table 8
Additional supplemental analyses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	Years 2004–2006	Years 2007–2009	Years 2010–2012	Years 2013–2015	Tax NAS > 0	Big N Audit Clients Only	Removing Financial Crisis Years	Annual ERCs	UTB Interaction
UE	0.685*** (3.68)	0.537*** (6.21)	0.653*** (6.75)	1.138*** (8.02)	0.835*** (15.55)	0.649*** (14.83)	0.658*** (14.75)	0.197*** (4.09)	0.885*** (10.77)
UE*AUDITRELATED	−0.317** (−1.98)	−0.226* (−1.82)	−0.236* (−1.67)	−0.321* (−1.85)	−0.225*** (−3.63)	−0.109* (−1.72)	−0.155*** (−2.82)	−0.152** (−1.97)	−0.205* (−1.88)
UE*TAX	0.377* (1.88)	0.291* (1.69)	0.316* (1.72)	0.887*** (2.69)	0.188** (2.43)	0.225*** (3.09)	0.216*** (3.20)	0.151* (1.75)	0.311* (1.81)
UE*OTHER	−0.089 (−0.32)	0.072 (0.31)	−0.191 (−0.56)	0.392* (1.91)	0.012 (0.09)	0.326** (2.48)	0.125 (1.34)	0.040 (0.30)	0.199 (0.68)
UE*UTB									−1.178** (−2.35)
UE*TAX*UTB									11.761* (1.80)
Firm and Time fixed effects	Yes	Yes	Yes	Yes	No	No	No	No	No
Adjusted r ²	0.078	0.067	0.093	0.074	0.047	0.038	0.043	0.018	0.050
N	33,005	32,951	31,068	30,666	93,458	105,918	105,556	25,144	52,661

Notes. This table examines the association between ERCs and different types of NAS fees under several different specifications, as described by the column headings. UE is unexpected earnings, which is calculated as the difference between actual quarterly earnings per share and the most recent median consensus analyst forecast. AUDITRELATED, TAX, and OTHER is audit-related, tax, and all other nonaudit service fees, respectively, scaled by total fees. UTB is uncertain tax benefits, scaled by total assets. All specifications include control variables and each control variable is interacted with UE. Lower-order interaction terms are also included in each specification, however, are excluded for brevity. Robust standard errors are clustered by firm and year. All specifications, unless otherwise noted, include industry fixed effects. Each industry dummy is also interacted with UE. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively, using two-tailed significance tests.

NAS, are due, in part, to the effect of tax NAS on the firm's tax strategies.

Our results suggest that the SEC's requirement to disclose NAS fees by type are warranted because investors have different views of audit-related, tax, and other nonaudit services. In particular, our results support the SEC (2002) implicit claim that tax NAS would not be viewed negatively because investors have viewed tax services "as not being in conflict with an auditor's independence." Our study also supports the SEC's concern that audit-related NAS may be viewed more negatively than tax NAS

because some audit-related services must be performed by auditors for their audit client (SEC 2002), as well as the findings of prior experimental studies examining the effect of staff separation on investor perceptions. The findings from this study also have implications for audit clients. Many firms have adopted policies that prohibit the purchase of jointly provided nonaudit services, without considering the type of NAS. Our results suggest that the managers and audit committees of these firms may want to reconsider the purchase of tax NAS, particularly as prior research shows that it also improves financial reporting outcomes.

Example of auditor fee disclosure in proxy statement

Fees paid to the independent registered public accounting firm

The following table presents fees for professional audit services and other services rendered to our company by PwC for our fiscal years ended December 31, 2012 and 2013.

	2012	2013
	(In Thousands)	
Audit Fees (1)	\$ 778	\$ 3495
Audit-Related Fees (2)	\$ 115	\$ 733
Tax Fees (3)	\$ 262	\$ 574
All Other Fees (4)	\$ 579	\$ 179
Total Fees	\$ 1734	\$ 4981

(1) Audit Fees consist of professional services rendered in connection with the audit of our annual consolidated financial statements, including audited financial statements presented in our Annual Report on Form 10-K and services that are normally provided by the independent registered public accountants in connection with statutory and regulatory filings or engagements for those fiscal years. Fees for fiscal 2013 also consisted of professional services rendered in connection with our Registration Statement on Form S-1 related to the initial public offering of our common stock completed in November 2013.

(2) Audit-Related Fees consist of fees for professional services for assurance and related services that are reasonably related to the performance of the audit or review of our consolidated financial statements and are not reported under "Audit Fees." These services include accounting consultations concerning financial accounting and reporting standards

- (3) Tax Fees consist of fees for professional services for tax compliance, tax advice and tax planning. These services include assistance regarding federal, state and international tax compliance
- (4) All Other Fees consist of permitted services other than those that meet the criteria above

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