Kick the can: What can tax extenders tell us about financial reporting quality?

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Abstract: The American Taxpayer Relief Act of 2012 (ATRA) retroactivity reinstated previously sunset tax provisions, such as a tax credit for research and development expenditures. We argue that if firms are materially affected by a retroactive tax law change, and this impacts investors' ability to understand tax expense, then voluntary disclosure can be viewed as an unambiguous measure of higher quality tax financial reporting. We use DirectEdgar to hand-collect tax disclosures around the ATRA. This unique sample allows us to examine the determinants of disclosing the tax effects of the ATRA. From the determinants model, we create a measure of tax reporting quality and validate this measure using restatements. This new measure allows for novel insights into the role of tax reporting quality on analysts' forecasts. The results of this test suggest that higher quality voluntary tax disclosures allow analysts to generate more accurate earnings forecasts.

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I. INTRODUCTION

On January 2, 2013, President Obama signed into law the American Taxpayer Relief Act of 2012 (ATRA). The ATRA retroactivity reinstated a series of taxpayer friendly provisions, such as a tax credit for research and development expenditures, which had previously sunset. Prior literature notes that investors have a difficult time comprehending the impact of retroactive tax law changes (Hoopes 2016; Bratten and Hulse 2016). We argue that if firms are materially affected by a retroactive tax law change, and this impacts investors' ability to understand tax expense, then voluntary disclosure can be viewed as an unambiguous measure of higher quality tax financial reporting. We use DirectEdgar to hand-collect tax disclosures around the ATRA. This unique sample allows us to examine the determinants of disclosing the tax effects of the ATRA using common proxies for financial reporting quality. From the determinants model, we create a measure of tax reporting quality, *TaxDiscScore*, and validate this measure using restatements. This new measure allows for novel insights into the role of tax reporting quality on analysts' forecasts. The results of this test suggest that higher quality voluntary tax disclosures allow analysts to generate more accurate forecasts.

Under GAAP financial reporting rules, a firm must report its tax position based on the rules in place as of year-end.[1] Therefore, the enactment of the ATRA creates a quasi-natural experimental setting to examine firm-specific tax voluntary disclosure as a proxy for reporting quality. The ATRA created an interesting paradox for management: adhere to GAAP and report their financial position under rules that are neither relevant nor accurately portray cash tax payments, or deviate from GAAP and report their financial position as if the tax law had been in

[1] ASC 740-10-25-47 and 740-270-25-5

effect on December 31, 2012. The extant financial reporting literature notes that firms do not always comply with mandatory reporting rules (e.g., Robinson, Xue, and Yu 2011). In a tax setting, Ayers Schwab, and Utke (2015) document that a non-trivial number of multinational firms do not comply with the GAAP requirements related to a firm's permanently reinvested earnings (PRE) assertion under Accounting Principles Board No. 23 (APB 23). While we are unable to observe whether firms adhered to GAAP, we can examine the extent to which they provided additional guidance to investors.[2] Thus, we contribute to the disclosure literature by focusing on tax disclosures and creating a new measure of financial reporting quality.

A vast stream of accounting literature focuses on financial statement disclosure decisions and the associated costs and benefits to producing and disseminating this information (See Healy and Palepu (2001) and Beyer, Cohen, Lys, and Walther (2010) for reviews). In a discussion of the voluntary disclosure literature, Core (2001) mentions: "The endogeneity problems and the measurement error problems that make this literature difficult are also what make this literature an especially promising area for future research." These endogeneity and measurement error problems are a byproduct of the inherent difficulty for researchers to create an empirical proxy that disentangles the effects of financial reporting quality from the underlying economics of the transaction.

A way to overcome these issues is to focus on an exogenous event that causes variation in disclosure that can be reliably measured and is orthogonal to the message of the financial disclosure. We believe the passage of the ATRA satisfies these criteria. First, anecdotal evidence suggests that many in practice expected the ATRA would be signed into law prior to the close of

[2] One firm in our sample explicitly stated that it was deviating from GAAP reporting requirements.

the calendar year end (fiscal 12/31) and would not represent a reporting issue. Second, many firms may have been unaware of the reporting requirements under ASC 740 or found that computing the year-end tax provision under the assumption that the tax provisions had lapsed was too difficult. Additionally, because the act retroactively reinstated provisions for over a year, there was no change in the underlying cash tax expense, only GAAP tax expense (i.e., orthogonal). Lastly, other studies examine voluntary disclosure of items that are often recurring (e.g., managerial forecasts), making it difficult to obtain identification because of the "stickiness" of managements actions. The ATRA provides a clean setting where current management is directly responsible for the disclosure and does not have to commit to producing future disclosure.

We identify firms that have reported the ATRA using DirectEDGAR to locate all disclosures that mention the ATRA for calendar year-end 2012 filers. After reviewing each disclosure and eliminating redundant or erroneous observations, we identify 339 observations that adequately capture the intended tax disclosure. Of these 339, we focus on the sample of 255 disclosures related to the research and development credit (R&D tax credit) because this provides us with a relatively homogenous sample. Based on our hand-collected sample of disclosing firms, of the 140 firms that disclose dollar amounts, the average benefit disclosed was approximately $7.5 million.[3] Univariate analysis confirms that disclosing firms are not clustered based on a single auditor.

We begin our empirical analysis by creating a sample of control firms that do not make a disclosure related to the ATRA, but have non-missing R&D expense or operate in R&D

[3] Some firms provide a range estimate of the dollar impact. In such cases, we assign the midpoint as the point estimate.

intensive industries. This group of firms should be impacted by the retroactive extension of the R&D tax credit. We then examine the determinants of ATRA disclosures by testing whether several commonly used proxies for accounting and financial reporting quality explain the ATRA reporting decision. Similar to Francis, LaFond, Olsson, and Schipper (2004), we regress a series of financial reporting quality proxies on a measure of ATRA disclosure.[4] We perform this analysis separately examining each construct then run a pooled regression with all proxies. Accruals quality, a lack of an internal control weakness, and 10-K readability all load in the predicted fashion. We next examine the extent to which governance, tax, and firm characteristics explain the disclosure decision and find strong support for governance related proxies. In the multivariate analysis, accruals quality and governance measures appear to be the strongest predictors of disclosure. We interpret these results to suggest that the decision to disclose is a joint effect of higher financial reporting quality and corporate governance.

We use the point estimates from our determinants model to create a continuous measure of disclosure quality, *TaxDiscScore*. To validate our measure, we examine restatements using similar sample selection criteria as before, but for fiscal years 2004-2015. The results of this analysis are consistent with higher *TaxDiscScore* reducing the probability of restatements. Moreover, *TaxDiscScore* provides incremental explanatory power over each individual financial reporting proxy used in the determinants model. Interestingly, we do not find a strong association between this measure and tax related misstatements. We attribute this lack of finding to the general rarity of tax related misstatements within our sample. Overall, these tests provide

[4] This variable is set to -1, for non-disclosure, 0 for disclosing the ATRA, and 1 for disclosing the dollar impact of the ATRA.

reasonable evidence that we are producing a broad-based measure of voluntary disclosure that encompasses tax and non-tax reporting quality that we use to examine analyst's forecasts.

Recent research has suggested that analysts utilize tax information in generating their forecasts (Mauler 2015; Bratten, Gleason, Larocque, and Mills 2017). Better tax reporting may aid analysts in generating forecasts by making the tax expense easier to forecast and providing additional information on the future profitability of the firm (e.g., Lev and Nissim 2004; Hanlon 2005; Weber 2008; Dhaliwal, Kaplan, Laux, and Weisbrod 2013). In our last analysis we analyze how taxes impact analysts' forecasts. Both Bratten and Hulse (2016) and Hoopes (2016) note that retroactive tax legislation hinders the ability for market participants to understand firms' tax and broader financial positions. We hypothesize that higher quality tax disclosure should mitigate this effect and allow for analysts to better forecast earnings.

We begin this analysis by examining if actual ATRA disclosures affect forecasts in the quarter following the ATRA, when firms were required to book the retroactive tax adjustment. The results indicate that disclosing firms had lower analyst dispersion, but we do not find differences in analyst forecast errors (signed and absolute deviation). Next, we expand our sample period to cover 2004 to 2015 and perform the same regression using *TaxDiscScore* for annual forecasts. We again find that better tax disclosure is associated with lower analyst forecast volatility. However, in this analysis we find that better tax disclosure is also associated with more accurate forecasts, where firms with higher disclosure quality are able to beat analysts' earnings forecasts on average. When partitioning the sample, we find the benefits of better tax disclosure quality are not limited to years of tax law changes.

We extend the voluntary disclosure literature by focusing on a tax setting. Beyer et al. (2010) note that the voluntary disclosure literature is plagued by the lack of appropriate

measures. They go on further to state that: "a sensible economic definition of voluntary disclosure/ financial reporting quality and direct derivation of measures from that definition is missing from the literature" (pg 311). More recent developments using textual analysis have been applied to the accounting setting. However, in a review of the current literature, Loughran and McDonald (2016) point out the limitations of these measures. For example a firm with a December year-end may have a higher Fog Index because December is considered a "complex" word. Unlike other measures of disclosure quality that often consider both mandatory and voluntary disclosure (e.g., due to materiality (Heitzman, Wasley, and Zimmerman 2010)), we proceed under a simple premise – if the tax law affected the tax position, and management voluntarily discloses the effect, the disclosure represents an objective reporting benchmark.

Furthermore, we add to the literature that examines the role tax expense has in analysts' forecasts, a setting where even sophisticated investors seem to struggle with understanding the impact of complex tax law changes (e.g., Plumlee 2003). In a concurrent working paper, Donelson, Koutney, and Mills (2017) also utilize the ATRA as an exogenous event to analyze the effects of disclosure of transitory tax items in management's forecasts of non-GAAP earnings. We document that analysts' forecasts are less volatile when firms provide additional disclosures. In tests using *TaxDiscScore*, we find evidence that higher quality tax disclosure reduces the dispersion of earnings forecasts and reduces the absolute deviation of actual earnings from analyst forecasts. Our findings document that higher quality tax disclosure may provide supplemental information for analysts that they can utilize in generating earnings forecasts. This analysis furthers our understanding of the negative information externalities associated with retroactive tax legislations.

II. Institutional Details

On January 2, 2013, President Obama signed into law the American Taxpayer Relief Act of 2012 (ATRA). The ATRA retroactivity reinstated a series of taxpayer friendly provisions, such as the active financing exception that allows deferral from current U.S. taxation on certain foreign earnings for financial institutes, which had previously sunset at year-end 2011. This was one in a series of tax bills colloquially called "extenders" where tax provisions were temporary extended for a specific duration. For example, the ATRA extended the R&D credit through tax year 2013, then it took an additional 352 days for Congress to extend the bill through 2014 with the Tax Increase Prevention Act of 2014. This practice is summarized by Fleischer (2014) as: "Congress passes a tax extenders package on a biannual basis, renewing a few dozen tax credits, deductions, accelerated depreciation schedules, and any other tax breaks that are set to expire, and adding a few new ones to boot. The ritual has been going on quite regularly since 1999, although the practice dates, at least intermittently, back to the 1970's" (pg 613).

For federal income tax purposes, these retroactively extended provisions are treated as if they had not lapsed and thus, taxpayers could compute their 2012 taxable income under the rules signed into law under the ATRA. While corporate tax returns are generally due annually on March 15, many firms file a six month extension and file returns in September, giving management substantial flexibility in the timing of the return. This differs from the financial accounting rules under U.S. Accounting Standard Codification 740 (ASC 740), which required the 2012 tax provision to be computed assuming that the tax laws had lapsed. More specifically, "for the effect of a change in tax laws or rates, the effect shall be included in income from continuing operations for the period that includes the enactment date." (ASC 740-10-45-15). Thus, for financial reporting purposes, SEC annual filers were required to report their 2012 tax

expense without the benefit of these provisions and subsequently record a benefit for the reinstatement of these provisions in the first quarter of 2013.[5] Additionally, Hoopes (2016) notes that "financial accounting standards require firms to assume that expired tax provisions will not be extended, regardless of expectations for extension (ASC 740-10-30-2)" (pg 1). Therefore, even if firms expect a provision to be extended retroactively, and ex-post it is enacted before the filing deadline, they still cannot incorporate this assumption in their financial statements.

This difference in tax and GAAP reporting makes the ATRA a unique setting to explore voluntary financial reporting decisions. In prior years, most other tax extenders were passed either in December or another month during the fourth quarter (See Table 1 in Bratten and Hulse (2016) for a list of extenders related to the R&D credit). The ATRA was passed by Congress on January 1 and was signed into law the following day, although anecdotal evidence suggests that the act was expected to pass prior to year-end.[6] The ATRA is plausibly exogenous to the extent management believed these extenders were going to pass prior to December 31, 2012 or were unaware of the financial reporting rules requiring the effect of the change to be included in the enactment period. Additionally, there were likely some firms that simply did not comply with the financial reporting rules because doing so creates a paradox where management must compute GAAP tax expense knowing that the number they disclose to shareholders does not represent an accurate picture of the firm's current cash tax position.

[5] Refer to Figure 1 for a timeline of when changes in tax reporting should have been disclosed in firms' financial filings.
[6] This expectation that the law would pass before December 31, 2012 seems reasonable based on the pattern of enactment dates for the R&D credit consistently being in the fourth quarter.

III. Related Literature

There is a vast stream of literature that examines voluntary disclosure decisions. For summaries of this literature as it relates to financial accounting, see Beyer et al. (2010) and Healy and Palepu (2001). All else equal, better information should reduce a firm's cost of capital (Easley and O'Hara 2004; Lambert, Leuz, and Verrecchia 2007). One way that firms can create a better information environment is to voluntarily disclose information to stakeholders. Voluntary disclosure provides numerous benefits, such as reducing information asymmetry between shareholders and management, but is costly to produce and disseminate (e.g., Verecchia 1983). At times there is a tradeoff between cash flow and transparency when firms set the level of disclosure (e.g., synthetic leases Zechman 2010). Much of this literature focuses on financial disclosure to investors, such as through management forecasts or conference calls (e.g., Frankel, Johnson, Skinner 1999); however, recent papers are exploring other channels such as the use of social media (Lee, Hutton, and Shu 2015) and investor relations officers (Chapman, Miller, and White 2017).

The tax disclosure literature often focuses on a handful of important settings. One popular tax disclosure setting is the Financial Accounting Standards Board's (FASB) issuance of financial interpretation number 48 (FIN 48) (e.g., Blouin, Gleason, Mills, and Sikes 2010; Frischmann, Shevlin, and Wilson 2008). It is not surprising that many tax studies focus on FIN 48 because it has been described as the "most significant change in financial accounting for incomes taxes over the past decade" (Mills, Robinson, and Sansing (2010) pg. 1721). The key feature of FIN 48 is that it altered how management discloses uncertain tax positions and requires firms to create a reconciliation schedule. This additional disclosure is intended to allow investors insight into the potential risk of tax positions being overturned upon audit. Several

other studies examine the indefinitely reinvested earnings (PRE) assertion that firms make under Accounting Principles Board (APB) No. 23. For example, Ayers, Schwab, and Utke (2015) explore the determinants of noncompliance with the PRE reporting requirements. Krull (2004), Frank and Rego (2006), and Dhaliwal, Gleason, and Mills (2004) examine the role tax accounts play in earnings management, but in general, do not focus on disclosure choices.

A firm's disclosure choices can impact the ability of market participants to understand its financial position. This has been tested in the financial analyst setting (Lang and Lundholm 1996; among others). Analysts are generally viewed as sophisticated market participants that play an important role in disseminating information. However, prior literature documents that analysts have a difficult time impounding tax law changes into their forecasts, such as the Omnibus Budget Reconciliation Act of 1993 (Chen and Schoderbek 2000) and the Tax Reform Act of 1986 (Plumlee 2003). The literature on analysts and taxes generally falls into two categories: how tax and its components influence: (1) earnings forecasts (e.g., Cazier, Rego, Tian, and Wilson 2016) or (2) tax related forecasts (e.g., Bratten et al. 2017). We choose to focus on the role taxes play in forecasting earnings.

Our paper most closely ties to the nascent stream of literature examining tax disclosure and reporting and how this influences market participants' ability to analyze earnings. Both Hoopes (2017) and Bratten and Hulse (2016) examine the retroactive extensions of R&D tax credits. Hoopes has a time-series of 1997 to 2011 whereas Bratten and Hulse include tax law changes in 1996 and 2013 to extend the sample period. Hoopes finds that analysts' forecast errors increase for firms affected by the retroactive legislation. He also finds that bid-ask spreads and abnormal trading volume increase surrounding retroactive extension of the R&D credit, which he interprets as evidence that market participants have a difficult time understanding these

tax law changes. Bratten and Hulse (2016) examine the same setting; however, they attempt to determine the extent to which market participants previously priced the information that is released at earnings announcement. They conclude that "investors incorporat[e] R&D credit extensions' earnings effects into stock prices when earnings are announced, as if it were unexpected" (pg. 88).

Donelson et al. (2017) analyze how managers may strategically report non-GAAP earnings to exclude or include transitory tax items. They utilize two distinct settings: the ATRA and a sample of Compustat nonrecurring income tax data items. They find that when managers do not issue non-GAAP earnings, I/B/E/S "street" earnings usually exclude transitory tax items and little evidence of taxes influencing earnings forecasts. Alternatively, when managers do include transitory tax items in non-GAAP earnings, forecast errors increase. They attribute this finding to limited attention on the part of analysts and the ability of managers to mislead analysts with their disclosure practices. Methodologically, our paper is similar to Choudhary, Koester, and Shevlin (2016). These authors create a measure of tax accrual quality by modifying a model of working capital accruals from Dechow and Dichev (2002). They validate this measure by documenting that it is predicts future tax-related restatements and internal control weaknesses.

IV. Determinants of ATRA Disclosure

Sample Disclosure Firms

We use Direct Edgar to identify a sample of firms that make a disclosure regarding the ATRA. We run a search for the phrase "American Taxpayer Relief Act" in the 10-K Master File. We filter on filing dates between January 1 and April 16.[7] This search returns data for 937

[7] The April 16th cutoff eliminates firms that file a 10-K late.

disclosures made by 616 unique firms. We drop 48 observations for disclosures made in an amended 10-K and 11 observations with a fiscal year end date before December 28, 2012 or after December 31, 2012.[8] This results in a sample of 878 disclosures made by 587 unique firms. Among this sample, 405 firms mention the ATRA only once, and 182 firms mention the ATRA between two and twelve times. We create a timeline in order to visually depict when changes in tax reporting should be disclosed in annual filings in Figure 1.

[Insert Figure 1 Here]

To arrive at a sample with only one disclosure per firm, we review firms that disclose the ATRA multiple times and eliminate duplicate mentions. For example, some firms mention the ATRA in both the tax footnote and discussion of general law changes. If the mentions differ, we keep either the first mention, or if it exists, the mention that addresses the tax benefit to be recognized in 2013 as a result of the late approval of the bill. This process eliminates observations that are clearly repetitive or outside the scope of this study. This results in a sample of 587 observations, each representing a single unique firm disclosure related to the ATRA. Of these 587, only 523 firm-years can be matched to Compustat.

We next manually review the disclosures to identify whether the disclosure relates to corporate taxes, and drop 114 observations with disclosures purely related to the macroeconomic effects of the legislation or to provisions unrelated to corporate taxation (e.g. Medicare cuts, changes in capital gains and dividends rates for individuals). We also drop 81 observations for utilities firms (SIC 4900 – 4999). This results in a subsample of 328 firm observations that disclose the corporate tax implications of the ATRA. In Appendix B, we include a sample of

[8] The December 28 cutoff is based on some firms' desire to close their books on a given weekday, even though for all intents and purposes they have a calendar year-end.

several different ATRA disclosures that range from mentioning the act to providing a detailed analysis of how the ATRA will affect the firm's current tax position.

For disclosures that do relate to corporate tax, we further identify the relevant provision of the ATRA (e.g. R&D credit, bonus depreciation, foreign tax credits, other). Among the 328 firms, 43 disclosures relate to the "extenders" in general, 244 relate specifically to the extension of the R&D credit, 15 relate to the extension of 50% bonus depreciation, 37 relate to foreign taxes (i.e. extension of the look-thru provision or the "active income" exemption), and 25 relate to "other" tax provisions (e.g. certain television production credits, energy credits, etc.). The distribution of the disclosures is similar to Donelson et al. (2017) who report 462 observations of firm's that are "likely affected by the ATRA" and 222 observations that explicitly disclose the R&D credit (pg. 17).

For our analyses, we focus on the subsample of 244 disclosures that relate to the R&D credit. This research design choice allows us to isolate the effects of tax disclosure among a relatively homogenous group of firms, reducing concerns over an omitted correlated variable. When examining the descriptive statistics on some of the other provisions, these disclosures tended to affect very different firms from the R&D credit, which would increase the noise associated with our tests. We form a sample of control firms that do not make a disclosure related to the ATRA, but have a non-missing 2012 value of R&D expense in Compustat or operate in R&D intensive industries (two-digit SICs 28, 35, 36, or 38). We further restrict the sample to firms that have fiscal year end dates between December 28 and December 31. We require both treatment and control firms to have the necessary Compustat and Audit Analytics data to compute measures of accruals quality, internal control weaknesses, and restatements. The final samples used for the analysis differ depending on the data requirements. They range from

having 156-167 treatment firms and 383-618 control firms. We present the sample selection criteria in Table 1.

[Insert Table 1 Here]

We present descriptive statistics on the variation in disclosure practices by auditors. We perform this analysis to ensure that disclosures are not a byproduct of a single audit firm requiring all of their clients to disclose the ATRA. We obtain auditor data from Compustat for the year ending 2012. We report this data in Table 2. This data helps assure that our sample selection criteria do not result in the over-representation of any particular auditor firm's clients. Overall, we find that EY is the single largest auditor, with PwC, KPMG, and Deloitte all being well-represented. We also observe that a nontrivial portion of the sample is audited by non-Big 4 auditors. The disclosure rate among Big 4 clients is fairly concentrated between 21-28%, with 12-19% providing a numeric estimate of the impact of the credit extension. For non-Big 4 auditors, we find significantly lower disclosure rates, possibly due to an endogenous sorting of firms that are less likely to have sophisticated tax issues to smaller audit firms or due to differences in audit quality that result in variation in disclosure choices.

[Insert Table 2 Here]

Variable Construction

ATRA Disclosures

For our sample of disclosing firms, we construct variables based on the disclosure of the ATRA in firms' 2012 annual 10-K filing. We use this disclosure as a proxy for tax disclosure quality. We view disclosure of tax law changes that prior literature notes are difficult for investors to comprehend as an unambiguously high-quality voluntary disclosure strategy. We

begin by creating a disclosure ranking score and label this variable, *TaxDisclose*. This ordinal variable takes a value of negative one when a firm does not disclose the ATRA, zero if the firm discloses the ATRA without providing numerical values, and one if the firm discloses the ATRA and assigns a numerical value to the impact of the tax law change. The numerical values could be a specific dollar amount (e.g., $30m of R&D credits), changes in ETR (e.g., our rate is 1% higher due to the R&D credit), or total ETR effect (e.g., our ETR would have been 28%).[9] A single firm explicitly states it is not conforming to GAAP and is disclosing its tax position as if the ATRA were enacted prior to the end of the calendar year.[10]

Determinants Model Variables

Our variables of interest fall into four categories: financial reporting quality, tax attributes, governance, and firm characteristics. For brevity, we do not discuss the vector of regressors that capture firm characteristics used within our study (e.g., size, return on assets, loss). See Appendix A for a full list of variable names and definitions. All continuous variables are winzorize at the top and bottom percentile, unless otherwise noted.

There are numerous empirical proxies used in the extant accounting literature that attempt to capture various aspects of financial report quality; we focus on several that have been extensively used in prior literature. The first is a measure of accruals quality (*AQ*), modified from the Dechow and Dichev (2002) model, that captures variation in working capital accruals. This measure regresses changes in working capital accruals on cash flows in year *t*-1, *t*, and *t*+1 plus the change in revenues and the level of property, plant and equipment. We require an

[9] Some firms specifically state that they examine the impact of the ATRA and find that the impact is immaterial. We consider that this is still a high-quality disclosure because it provides investors with information about the magnitude of the impact and assign *TaxDisclose* a value of one.
[10] Though this is arguably low-quality financial reporting, the disclosure is still coded as high-quality because it is informative to investors.

industry to have at least 10 observations and run an annual regression by Fama-French 48 industry classification. We take the absolute value of the residual from this model. For ease of interpretation we multiply this value by negative one such that larger values indicate better working capital accruals quality.[11] The second measure used is whether a firm reports an internal control weakness under SOX 404 testing in fiscal year 2012. We gather this data from Audit Analytics and set the *ICW* indicator variable to one for observations where IC_IS_Effective =N.[12] Lastly, we include a measure of 10-K length which captures the readability of the financial statement. Following Loughran and McDonald (2014), *10K_Length* is the log of the gross file size of the 10-K. While some view longer disclosures as less readable, we assume that more robust disclosure practices will lead to a longer filing. This is consistent with Chen, Miao, and Shevlin (2015) who find that their measure of disclosure quality is positively correlated with number of words in the 10-K. Similarly, Lawrence (2013) argues that more financial information is often associated with better financial disclosure but excessive disclosure of "irrelevant details can potentially confuse and misguide individual investors" (pg. 132). We view disclosure of the ATRA as relevant detail and the lack of disclosure is likely a relevant omission to financial users.

We also examine whether various tax measures influence the decision to disclose the ATRA. The first tax-based item we examine is a three year measure of cash ETR (*CETR3*) to broadly capture tax avoidance activities. To avoid eliminating loss years from our sample, we

[11] We rely on general accruals quality as opposed to tax accruals quality because the model using tax accruals quality is not well-specified. We attribute this to the low degree of variation in tax accruals quality within our single year sample.

[12] We rely on a measure of all internal weakness as opposed to tax-specific internal control weakness because the model using tax-specific internal control weaknesses is not well-specified. We attribute this to the relative infrequency of tax-related internal controls (there are only 12 during our single year sample)

use the Henry and Sansing (2014) measure. We also include a measure of tax risk (*CETR_Vol*), which we define as the standard deviation of the firm's last three years of cash ETR.

We acknowledge that firms' financial disclosure choices may be influenced by the governance mechanisms in place and the information environment in which the firm operates (Bens 2002). Accordingly, we include several variables to examine the degree to which these variables explain the decision to disclose a material tax event. We include an indicator for whether a firm uses a Big 4 auditor (*Big4*) because, all else equal, we predict that the largest audit firms should be aware of the more esoteric disclosure requirements under ASC 740. We include a measure of the percentage of institutional ownership (*InstOwn*) to capture the demand for high quality disclosure as well as heightened monitoring of management. Lastly, we include the number of analyst estimates to capture the extent to which analysts tend to focus on firms that provide better financial information.

Determinants of Tax Disclosure

To examine the determinants of ATRA disclosure, we begin by performing univariate analysis using the following model:

$$TaxDisclose = \alpha + \beta_1 FRQ + \varepsilon \quad (1)$$

We use ordinary least squares to perform this analysis and replace FRQ with accrual quality (*AQ*), presence of an internal control weakness in the current fiscal year (*ICW*), and the length of the 10K (*10K_Length*). We perform this analysis for several reasons. First, this should act as a reasonable validation that disclosure of the tax law is not a random event. By documenting an association with variables that prior literature has found are positively associated with better financial reporting, this analysis provides comfort that we are capturing differences in disclosure

policy. Second, many measures of financial reporting quality are correlated, so documenting univariate results should reduce concerns over multicollinearity or the need to use econometric techniques that may be sensitive to research design choices (e.g., factor analysis).

Next, we examine the determinants of ATRA disclosure in a multivariate regression analysis. We regress ATRA tax disclosures on the financial reporting quality, governance, tax, and firm specific variables the following model:

$$\begin{aligned} TaxDisclose = {} & \alpha + \beta_1 AQ + \beta_2 ICW + \beta_3 10K\_Length + \beta_4 Big4 + \beta_5 AnalystFollowing + \\ & \beta_6 InstOwn + \beta_7 R\&D + \beta_8 MNC + \beta_9 CETR3 + \beta_{10} CETR\_Vol + \beta_{11} Size \\ & + \beta_{12} ROA + \beta_{13} Loss + \varepsilon \end{aligned} \quad (2)$$

We generally predict that *TaxDisclose* should be increasing with a Big 4 auditor, analyst following and institutional ownership. Our sample selection criteria and variable construction for tax disclosure focus on the R&D tax credit. Thus, we predict a positive coefficient on the variable for R&D expenses. There are arguments for and against tax avoidance and tax risk increasing the likelihood of disclosure. On one hand, firms that avoid more taxes or have more tax risk, may want to inform investors about their tax planning to reduce information asymmetry and reduce the cost of equity capital (Botosan 1997; Balakrishnan, Blouin, and Guay 2018). On the other hand, firms may want to avoid additional scrutiny over their tax positions if they are risky or if disclosure may increase reputational concerns (Dyreng, Hoopes, and Wilde 2016; Bozanic, Hoopes, Thornock, and Williams 2017). We do not make a signed prediction on the remaining firm characteristics, but view these as appropriate to control for cross-sectional differences between firms.

Because we have only a single year of observations we do not include fixed effects or cluster standard errors. Instead we use Hubert-White standard errors that are robust to heteroscedasticity. In untabulated results, we find similar results performing these analyses using an indicator variable for *TaxDisclose* and using a Probit model. We choose to use OLS as our main specification in order to generate a predicted value of tax disclosure.

Descriptive Statistics and Results

We present the descriptive statistics for the sample of the full determinants regression model (2) in Table 3. In Panel A, we provide the means of all variables used in our analysis. We note that our sample, on average, includes many growth firms that spend large amounts on R&D. Approximately 70% of the sample uses a Big 4 auditor and 33% of firms report a pretax loss. Restatements and internal control weaknesses are relatively rare (24% and 8.5% respectively), but occur frequently enough to allow for valid inferences. Furthermore, 72% of the sample firms report foreign operations. This is important because several of the provisions in the ATRA (e.g., look-thru rule) relate to foreign tax issues and may have heightened firms' awareness of the tax law changes. Lastly, the variable *Q1EA_Lag* captures how long it takes for a firm to file their annual report. We note that firms that disclose the ATRA announce their earnings, on average, two days earlier than non-disclosers. This mitigates concerns that firms became aware of the ASC rules that require firms to ignore the retroactive extension as the filing season went on.

In Panel B, we compare the means of the variables for when *TaxDisclose*=-1, 0, and 1. The middle group is fairly small (N=47) and caution must be used when attempting to compare across different subgroups. In Panel C, we show the Pearson correlations between our variables. *TaxDisclose* is positively correlated with accruals quality, 10-K length, and all the governance

variables. This presents some descriptive evidence that disclosure is concentrated among firms that are committed to quality voluntary disclosure.

[Insert Table 3 Here]

We next present the univariate regression results from equation (1) in Table 4. In column (1) we present accruals quality, column (2) internal control weaknesses, and column (3) the length of the 10-K. The sample size varies depending on the data requirements.[13] In all three columns we find consistent support that financial reporting quality is increasing in the choice to disclose the ATRA. In terms of economic significance, reporting an internal control weakness reduces the likelihood of ATRA disclosure by 15 percent. A ten percent increase in accrual quality (10-K length), increases the likelihood of ATRA disclosure by approximately 1 percent (30 percent). The predictable and statistically significant results presented act as a validation test for using the ATRA as an exogenous disclosure setting.

[Insert Table 4 Here]

We next turn our attention to multivariate regression. In Table 5, we present the results of testing regression equation (2). In column (1), we focus on the three different measures of financial reporting quality at the same time. This specification allows us to compare if one of these variables is subsuming all of the explanatory power. It appears that accruals quality and the length of the 10K are more predictive of disclosure than internal control weaknesses. In column (2) we present the results of the regression of various governance measures. We find strong support that governance mechanisms are increasing in the disclosure decision. Having a Big 4

[13] If we restrict the sample to only the 785 firms with data available to compute all controls in the multivariate analysis, results are generally similar. The coefficient on *ICW* is of similar magnitude, but no longer statistically significant, likely due to lack of power. The coefficients on *AQ* and *10K_Length* remain statistically significant in the predicted direction.

auditor, analysts following, and intuitional ownership all have a positive and statistically significant association with ATRA disclosure. In column (3) we examine tax related reasons to increase disclosure. We find that higher R&D expense and being a multinational are strongly predictive. Furthermore, we find that as firms improve their tax disclosure as they avoid more taxes. This is consistent with the findings of Balakrishnan, Blouin, and Guay (2018). We do not find that tax risk is associated with the disclosure choice. In column (4) we find that tax disclosure in increasing in firm size. It does not appear that firm fundamentals are driving the disclosure decision, but are important to control for cross-sectional differences.

In column (5) we present the full model. We continue to find that accruals quality is a major determinant of ATRA disclosure, however, now the effect of 10-K length is subsumed by other variables. Given the fairly high correlation with the governance measures and size, it appears the inclusion of these variables largely explains the positive and significant coefficient on *10K_Length* in column (1). As expected, *R&D* loads positively and is strongly significant. This is evidence that as R&D becomes more material, firms are more likely to disclose to investors that R&D tax credits are not included in the current year tax expense. We find strong evidence that governance and information environment variables are associated with the disclosure. The indicator variable for a Big 4 auditor is positive and significant. This supports the findings from Table 2 in a multivariate setting. Additionally, the percentage of institutional ownership and analyst coverage also are positively associated with ATRA disclosure. We find limited evidence that firm characteristics such as size or profitability have much explanatory power. Lastly, we no longer find that cash ETRs are negatively associated with the tax disclosure.

[Insert Table 5 Here]

After documenting the determinants of tax disclosure under the ATRA, we next focus on utilizing this setting to generate a new measure of financial reporting quality. Since the passage of the ATRA in 2013 was exogenous to firms, our identifying assumption is that voluntary disclosure is unambiguously associated with higher quality disclosure practices. Accordingly, we use the point estimates from our regression equation (2) to create a continuous measure of tax disclosure quality. This measure is intended to capture cross-sectional differences in reporting. We name this *TaxDiscScore* and compute it as follows:

$$\begin{aligned} TaxDiscScore = {} & -0.53 + 0.55*AQ + 0.05*ICW - 0.02*10K\_Length + 0.11*Big4 + 0.02 \\ & *AnalystFollowing + 0.16*InstOwn + 0.72*R\&D + 0.08*MNC - 1.28*CETR3 \\ & + 0.14*CETR\_Vol - 0.01*Size + 0.07*ROA - 0.01*Loss \end{aligned} \quad (3a)$$

We construct this variable from 2004-2015. We are limited to 2004 because this is the first year Audit Analytics provides full coverage of internal control weakness. Our sample ends in 2015 because we obtain data for *10K_Length* from Bill McDonald's website which has only been updated through November 2016.[14] This leaves us with a sample of 9,069 firm-year observations. We use the sample selection criteria as we did in the ATRA determinants analysis, requiring firms to either have positive R&D or be in an R&D intensive industry. While this sample selection criteria may not generalize to other settings, prior literature shows that intangible intensive firms are of particular importance when analyzing tax planning (De Simone, Mills and Stomberg 2017; De Simone, Huang, and Krull 2017).

[14] Bill McDonald makes 10-K file summaries from Loughran and McDonald (2014) available on his website at: https://sraf.nd.edu/data/

V. Tax Disclosure Quality Measure

Restatements

To validate our measure, we examine the out-of-sample properties of *TaxDiscScore*. We choose to utilize restatements because they represent a lapse in financial reporting and prior studies have used restatements to validate their empirical proxy (e.g., Choudhary, Koester, and Shevlin 2016). We begin the analysis with a simple univariate regression of *TaxDiscScore* on restatements. We measure restatements from the Audit Analytics Restatement database three different ways: all restatements, tax restatements, non-tax restatements. We set the indicator variable *Restate* to one if a firm reports a restatement in years t+1, t+2, or t+3. Similar to prior tests, we choose to present the linear probability using ordinary least squares to ease in the interpretation of the results.[15] To provide evidence that our measure is incremental to the financial reporting variables used in the determinants model we run a horserace with the three measures of financial reporting quality in the following regression:

$$Restate = \alpha + \beta_1 TaxDiscScore + \beta_2 AQ + \beta_3 ICW + \beta_4 10K\_Length + \varepsilon \quad (4)$$

We report the results of this analysis in Table 6. For all out-of-sample tests, we include year dummies and cluster standard errors at the firm-level. In column (1) we report the univariate regression of our continuous measure of tax disclosure quality on overall restatements. Consistent with our expectation, we find that better tax disclosure scores reduce the probability of restatements. In columns (2) and (3) we split restatements into tax and non-tax related restatements, respectively. In column (2) we do not find univariate support that *TaxDiscScore* reduces the likelihood of tax related misstatements. Similarly, in column (5), we do not find

[15] Our results are not sensitive to this research design choice and inferences are unchanged if we use a Probit model.

multivariate support that our variable is incremental to other common financial reporting variables in predicting tax restatements. We attribute this lack of finding to two causes. The first is the relative rarity of tax related restatements. They occur less than half as often as other restatements (7.5% vs. 16.4% in our sample). Secondly, because we fail to find an association with tax accrual quality, which is negatively associated with tax restatements, our main determinants may capture "overall financial reporting" and not specifically tax or non-tax reporting quality. In column (3) we find our results are concentrated in non-tax related misstatements. In columns (4) and (6), we examine whether our measure adds incremental explanatory power in a horserace among the other variables. We find that the coefficient on *TaxDiscScore* is negative and statistically significant in both of these settings. These findings validate that our measure performs reasonably well in predicting restatements. We view our procedure as producing a measure of voluntary disclosure that captures tax reporting quality, but is a broad-based measure that encompasses reporting quality for tax and non-tax uses.

[Insert Table 6 Here]

Analyst's Forecasts

A growing stream of literature examines how tax complexity and changes in tax policy may inhibit analysts' ability to forecast earnings. Plumlee (2003), using the Tax Reform Act of 1986 as a natural experiment, finds that analysts have difficulty interpreting the impact of tax laws as they become more complex. Donelson et al. (2017) examine how transitory tax items influence analysts' and management's use of non-GAAP earnings. Hoopes (2016) documents that analysts have difficulty forecasting earnings during periods when there are retroactive restatements. Anecdotal evidence suggests that the results of these studies generalize to the recently enacted tax reform (Rapoport 2018). Analysts play an important role by disseminating

information to market participants via forecasts, so understanding how taxation influences analysts' ability to generate accurate forecasts is an area of research that matters to academics and investors alike. This stream of literature is distinct from the research that examines how analysts forecast tax expense (e.g., Mauler 2015; Bratten et al. 2017, among others).

In our last analysis we examine how tax disclosure may alleviate some of the confusion analysts have in forecasting earnings when there are significant changes in tax law. Specifically, we predict that voluntary disclosure around the ATRA should increase the accuracy of analysts' forecasts. We follow a model similar to Hoopes (2016) and examine how disclosure practices alter analysts' forecasts. We first analyze how disclosure of the effects of the ATRA in the 2012 annual report influenced analysts' ability to forecast earnings for the first quarter of 2013 when firms were required to book the tax adjustment. We do this with the following regression model:

$$Forecast = \alpha + \beta_1 TaxDisclose + \beta_2 EarningSurp + \beta_3 MVE + \beta_4 EA\_Lag + \beta_5 AF + \varepsilon \quad (5)$$

In this regression, *Forecast* takes three different values. The first is analysts' forecast errors (*FcstErr*), which we define as actual earnings less the analysts' last consensus earnings forecast. This measure captures the signed accuracy of forecasts. We obtain this data from I/B/E/S. To ensure we are not capturing outdated forecasts we construct our own consensus from the detail file. To be included in the consensus, a forecast must have been issued between the prior period earnings announcement date and the forecast period earnings announcement date. For analysts who provide more than one forecast during this period, we retain only the most recent forecast. Prior to forming the consensus forecast, we delete individual observations in the top and bottom one percent of the distribution to reduce the influence of data-coding errors and extreme observations. The consensus forecast is then measured as the median of individual analysts' earnings forecasts. The second measure is the standard deviation of analysts' earnings

forecasts (*FcstVol*), where the forecasts considered are those included in our consensus. The third measure is the absolute deviation of forecast errors (*FcstAcc*), where we take the absolute value of forecast errors. We multiply this amount by negative one for ease of coefficient interpretation, with a positive β_1 representing more accurate forecasts.

Our main variable of interest is *TaxDisclose*. Consistent with the analyst literature, we control for the earnings surprise (*EarningSurp*). We also include in our model the logged market value of equity (*MVE*) to control for cross-sectional differences in the information environment. We include a measure to control for the number of days between a firm's fiscal period end and the earnings announcement date (*EA_Lag*). Lastly, we include analyst following as the number of analysts may influence the forecast dispersion (*AF*). We report the results of this regression in Table 7.

[Insert Table 7 Here]

In column (1) we fail to find a statistically significant difference in analysts' signed forecast errors based on the level of voluntary disclosure. In column (2) we find that disclosure reduces the volatility of analysts forecast. The negative and statistically significant coefficient indicates that disclosure reduces the dispersion of analysts' forecasts. In the last column, we find that the lack of a statistical relation in column (1) is not due to any netting effects. Our control variables load in a predictable manner. Overall, we find evidence that disclosure may tighten the range of earnings forecasts, but does not alter the accuracy of the point estimate.

Next, we expand the regression to utilize the estimate of tax disclosure quality. This enables us to examine if disclosure quality creates a better information environment allowing analysts to better forecast earnings. For this test we use *TaxDiscScore* as our primary variable of

interest and use the same sample selection criteria for the out of sample restatement analysis. With a sample of over 6,000 observations and a time-series of 12 years (2004-2015) this significantly increases the statistical power of our tests. Over this sample period there were seven retroactive changes to the R&D tax credit (Bratten and Hulse 2016), thus, we feel this is a good setting to test how our measure of voluntary disclosure quality performs when analysts may be inhibited by retroactive changes in tax legislation. We use the same regression equation (5) for this analysis but rely on annual, rather than quarterly, earnings and forecasts. We include year fixed-effects to reduce the influence of the macroeconomic environment and cluster standard errors by firm.

We report the results in panel A of Table 8. In column (1), similar to the in-sample analysis, we find that our measure of tax disclosure quality in not associated with signed forecast errors. In column (2) we again find that forecast volatility is lower for firms with higher disclosure quality. In the broadened sample, the point estimate in this column has nearly doubled and is highly statistically significant. A ten percent increase in tax disclosure quality reduces forecast volatility by approximately 12 percent. In the last column we find a positive coefficient on *FcstAcc,* indicating that analysts' earnings forecasts are more accurate for firms with better disclosure quality. A ten percent increase in tax disclosure quality increases forecast accuracy by approximately 12 percent. Collectively, we find evidence that our measure of voluntary disclosure quality aids in analysts' ability to forecast earnings.

[Insert Table 8 Here]

Since there were seven retroactive changes to the R&D credit during our sample period, in panel B of Table 8, we separately examine whether results hold in periods without a change in the R&D credit. We partition the sample based on whether an extension of the R&D credit was

enacted during the calendar-year (2004, 2006, 2008, 2010, 2013, 2014, 2015), ATRA years (2012, 2013), and non-R&D credit enacted years (2005, 2007, 2009, 2011). The results indicate that the relation between our measure of tax disclosure quality, *TaxDiscScore* and analysts' forecasts holds even in non-extension years. We find similar results as in panel A, where high values of tax disclosure reduce forecast volatility and the absolute deviation of forecast errors. This test provide some comfort that *TaxDiscScore* is not just picking up some measure of quality that is specific to retroactive credit extensions, but rather that it is generalizable to other settings that are both before and after the ATRA.

VI. ADDITIONAL ANALYSIS

Robustness Testing

In our primary analyses we measure the determinants of ATRA disclosure in 2012. To alleviate potential concerns about simultaneity bias, we repeat all of our analyses after lagging all right-hand side variables and the results are qualitatively similar. In addition to having a discrete variable for whether the firm made a disclosure, we also create a measure based on the length of the disclosure. We construct this variable as the natural log of the number of words in the ATRA disclosure. Because some firms mention the ATRA more than once, our sample selection criteria ensure that we are capturing observations that specifically relate to corporate taxes and not confounding events. Inferences remain unchanged. Our results are also not sensitive to sample selection. When we allow our samples to vary based on the availability of data we find similar and often stronger results due to the increased sample size.

In developing a continuous measure of tax disclosure quality (*TaxDiscScore*), we use the point estimates for all 13 regressors in equation (2). In the interest of developing a parsimonious

model that allows other researchers to more easily use the *TaxDiscScore* measure, we re-estimate equation (2) including only the following three determinants: accruals quality (*AQ*), R&D expenses (*R&D)*, and analyst following (*AnalystFollowing*). We then recompute *TaxDiscScore* as follows:

$$TaxDiscScore = -0.79 + 0.92*AQ + 0.03*AnalystFollowing + 0.33*R\&D \quad (3b)$$

Using the measure of *TaxDiscScore* from equation (3b), we repeat all the analyses in in Section V and find that results remain quantitatively and qualitatively similar.

Tax Risk and Forecasting Errors

We assert that changes in tax expense inhibit the ability of analysts to forecast earnings. While this is generally documented in the literature, to ensure comparability with prior studies we replace our measure of tax disclosure quality with the volatility of cash ETRs. Using our total sample we document that three-year cash ETR volatility is positively associated with earnings forecast volatility and negatively associated with earnings forecast accuracy. This should mitigate some concerns that that our time-period or sample selection criteria may inhibit a direct comparison to prior research. Additionally, this should provide construct validity in line with the commentary from Beyer et al. (2010) by documenting that volatility in tax expenses are directly associated with an increase in the difficulty to forecast earnings.

VII. Conclusion

We use the disclosures around the retroactive enactment of the research and development credit in the American Taxpayer Relief Act (ATRA) of 2012 as a quasi-natural experiment to examine firms' tax voluntary disclosure choices. We assert that firms' disclosure of the monetary impact of this tax provision is an unambiguous sign of high disclosure quality. Using a hand-

collected sample of disclosures, we first examine the determinants of this disclosure choice. We find that accruals quality, several measures of governance, and the level of R&D expense are the primary determinants of this disclosure choice. We then use the point estimates from this model to create our own proxy for tax disclosure quality. This measure, *TaxDiscScore*, predicts restatements and provides incremental explanatory power when we include the various financial reporting measures that were included in the determinants model.

After creating a new proxy for voluntary disclosure quality, which captures both tax and non-tax elements, we examine how disclosure quality alters analysts' ability to forecast earnings. Prior literature notes that changes in tax law often inhibit analysts' ability to accurately forecast earnings (e.g., Plumlee 2003; Hoopes 2016). We find some evidence that within-sample disclosure of the ATRA improved analysts' ability to predict the next quarter's earnings when the impact of the tax law was booked. However, in out-of-sample tests, we find that higher quality disclosure is associated with higher forecast accuracy and lower forecast dispersion.

Overall, we contribute to the tax literature by examining the determinants of a specific tax disclosure. We provide institutional details and a rich descriptive analysis on the specific disclosure choices around the ATRA. Next, we provide evidence that disclosure choices can influence analysts' ability to produce earnings forecasts. Additionally, we make an important methodological contribution by creating and validating a new measure of disclosure quality. By using an exogenous setting, our measure relies on minimal assumptions and does not suffer from measurement error at the construct level. Lastly, we provide further evidence on the negative information externalities associated with delayed Congressional actions, which may be of interest to policy makers as well as academics and investors.

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APPENDIX A

Variable Definitions

TaxDisclose	Rank variable that measures firms' disclosure quality related to the ATRA in the 2012 10-K. *TaxDisclose* takes a value of 1 if the firm makes a disclosure related to the ATRA and includes an estimate of the tax benefit to be recognized in 2013. *TaxDisclose* takes a value of 0 if the firm makes a disclosure related to the ATRA but does not include an estimate of the tax benefit. *TaxDisclose* takes a value of negative 1 if the firm does not make a disclosure related to the ATRA.
TaxDiscScore	This variable is created from the point estimates of a pooled regression of Equation (2).
AQ	Absolute value of company j's residual from Fama-French 48 industry-year estimates of: $\Delta WC_t = \alpha + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta REV_t + \beta_5 PPE_t + \varepsilon_t$ from year t-4 to t. Absolute values are multiplied by negative one such that larger values indicate better working capital accruals quality and winsorized at the top and bottom one percent. A minimum of 10 observations per industry-year is required. Following Francis et al. (2005), ΔWC_t is the change in working capital accruals [Δ current assets (ACT_t - ACT_{t-1}) – Δ current liabilities (LCT_t - LCT_{t-1}) – Δ cash (CHE_t - CHE_{t-1}) + Δ current portion of long-term debt (DLC_t - DLC_{t-1})], CFO_t is cash flows from operations ($OANCF_t$), ΔREV_t is the change in revenues ($REVT_t$ – $REVT_{t-1}$), and PPE_t is gross plant, property, and equipment ($PPEGT_t$). All variables are scaled by average total assets ((AT_t + AT_{t-1}) ÷ 2).
ICW	Indicator variable set equal to one if a firm reports an internal control material weakness (IC_IS_EFFECTIVE = N) in year *t* and set equal to zero otherwise.
ICWTax	Indicator variable set equal to one if a firm reports an internal control material weakness related to tax (NOTEFF_ACC_REAS_KEYS = 41) in year *t* and set equal to zero otherwise.
10K_Length	Following Loughran and McDonald (2014), *10K_Length* is the log of the gross file size of the 10-K (https://sraf.nd.edu/data/), where values are winsorized at the top and bottom one percent.
Restate	Indicator variable set equal to one if a firm restated its financials in year *t*+1, *t*+2, or *t*+3, and set equal to zero otherwise.
RestateTax	Indicator variable set equal to one if a firm restated its financials due to a tax-related issue (RES_ACC_RES_FKEY_LIST= '|18|') in year *t*+1, *t*+2, or *t*+3, and set equal to zero otherwise.

Q1FcstErr	Median analyst EPS forecast error in Q1 2013, where forecast error is measured as actual EPS – forecasted EPS. Forecasts must be made between 2012 year-end earnings announcement date and first quarter 2013 earnings announcement date. If an analyst makes more than one forecast per firm per period, then we keep only the most recent forecast. Prior to forming the consensus forecast, we delete individual observations in the top and bottom one percent of the distribution to reduce the influence of data-coding errors and extreme observations.
Q1FcstVol	Standard deviation of all Q1 2013 EPS forecasts that meet the criteria described above in *Q1fcsterr.* Since outlying individual forecast errors are deleted prior to forming consensus forecasts, forecast volatility is not winsorized.
Q1FcstAcc	Median standard deviation of EPS forecast errors in Q1 2013, where forecast error is measured as actual EPS – forecasted EPS. Absolute values are multiplied by negative one such that larger values indicate better forecast accuracy. Since outlying individual forecast errors are deleted prior to forming consensus forecasts, forecast accuracy is not winsorized.
Q1EarningSurp	EPS in Q1 2013 less EPS in Q1 2012. Prior to forming the consensus forecast, we delete individual observations in the top and bottom one percent of the distribution to reduce the influence of data-coding errors and extreme observations.
Q1MVE	Logged market value of equity ($\log(PRCC\_F_t * CSHO_t)$), where values are winsorized at the top and bottom one percent.
Q1EA_Lag	The number of days between a firm's fiscal period end and the earnings announcement date. Since forecasts are restricted to being issued between prior quarter earnings announcement date and current quarter earnings announcement date in order to be included in the consensus, values of earnings announcement lag are not winsorized.
Q1AF	The number of analysts issuing EPS forecasts for Q1 2013.
R&D	R&D scaled by lagged assets (XRD_t / AT_{t-1}), where values are winsorized at the top and bottom one percent. Missing XRD set equal to zero.
BIG4	Indicator variable set equal to one if a firm-year is audited by a Big Four auditor (AUt = 1 through 8) and set equal to zero otherwise.
AnalystFollowing	The number of analysts issuing EPS forecasts for firm *j* during time *t.* When a firm is missing from I/B/E/S we assume zero coverage.
InstOwn	Percentage institutional ownership calculated as total shares held by institutions ($SHARES_t$) divided by total shares outstanding ($SHROUT_t$). When a firm is missing from Thomson we assume zero institutional ownership.
Size	Log of total assets (AT_t), where values are winsorized at the top and bottom one percent.
ROA	Return on assets calculated as pretax income (PI_t) divided by lagged total assets (AT_{t-1}), where values are winsorized at the top and bottom one percent.
Loss	Indicator variable set equal to one if the firm has a pretax loss ($PI_t < 0$) or zero otherwise.

CETR3	Three-year average effective tax rate (ETR) from *t-2* to *t*, where ETR is calculated as the difference between cash taxes paid (CTP_t) and 35% times pretax book income (PI_t), scaled by total assets (AT), following Henry and Sansing (2014), and values are winsorized at the top and bottom one percent.
CETRVol	Volatility of the one-year ETR from *t*-2 to *t*, where ETR is calculated as above in *CETR3*, and values are winsorized at the top and bottom one percent.
MNC	Indicator variable set equal to one if the firm has positive pretax foreign income ($PIFO_t$) of nonzero and nonmissing foreign tax expense ($TXFO_t$) and zero otherwise.

APPENDIX B

Sample ATRA Disclosures

3M

On January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law. Included in this Act was the extension of the research and development credit for years 2012 and 2013. As this Act was enacted during 2013, the impacts of this law are not included in the 2012 financial results. The Company anticipates a beneficial impact on the effective tax rate in 2013 for both the 2012 and 2013 research and development credit.

Ebay

Pursuant to the American Taxpayer Relief Act of 2012, the federal research and development credit has been reenacted retroactively to January 1, 2012. As the law implementing this change was signed on January 3, 2013, we expect to record an immaterial discrete tax benefit during the first quarter of 2013.

Facebook

Our effective tax rate in 2012 was also higher due to the expiration of the federal tax credit for research and development activities. On January 2, 2013, the American Taxpayer Relief Act of 2012 was enacted, which includes a reinstatement of the federal research and development credit for the tax year ended December 31, 2012. We estimate that our tax credit for 2012 would have been approximately $80 million to $120 million, which we will record as a discrete benefit in the first quarter of 2013.

Zillow

On January 2, 2013 the American Taxpayer Relief Act of 2012 ("the Act") was signed into law. Included in the Act was the extension of the research and development tax credit under Internal Revenue Code Section 41 retroactive to January 1, 2012 through December 31, 2013. The effect of this enactment has not been included within our financial statements for the year ended December 31, 2012. Had the effect of the enactment been included within our financial statements, we would have record a net increase to deferred tax assets of approximately $1.8 million and a corresponding increase of $1.8 million in the valuation allowance. The increase in net deferred tax assets of $1.8 million reflects an estimated research and development tax credit for the year ended December 31, 2012 of $3.5 million, reduced by 50% under the relevant accounting guidance for uncertain tax positions.

TABLE 1

Sample Selection

	2012		2004 – 2015
	Total Firm-years	**Disclosers**	**Total Firm-years**
Calendar year-end Compustat firms with nonmissing, nonzero R&D or in R&D intensive industries	1,679	244	26,616
Firms with non-missing Compustat controls	785	167	9,156
Firms with nonmissing Audit Analytics restatement data	774	167	9,069
Firms with nonmissing I/B/E/S analyst data	539	156	6,444

TABLE 2

Disclosure by Audit Firm

	Auditor					
	Deloitte	*EY*	*KPMG*	*Other*	*PwC*	*Total*
Total (N)	170	396	171	662	280	1,679
Percent (%)	10.13	23.59	10.18	39.43	16.68	100%
No Disclosure (N)	132	319	139	633	212	1,435
Percent (%)	77.65	80.56	81.29	95.62	75.71	85.47%
ATRA Disclosure without estimate (N)	6	23	12	9	19	69
Percent (%)	3.53	5.81	7.02	1.36	6.79	4.11%
ATRA Disclosure with estimate (N)	32	54	20	20	49	175
Percent (%)	18.82	13.64	11.70	3.02	17.50	10.42%

TABLE 3

Panel A: Descriptive Statistics

VARIABLES	N	Mean	P25	Median	P75	S.D.
TaxDisclose	785	-0.634	-1.000	-1.000	-1.000	0.538
AQ	785	-0.063	-0.083	-0.044	-0.020	0.005
ICW	785	0.085	0.000	0.000	0.000	0.078
10K_Length	785	16.430	16.090	16.426	16.773	0.267
Restate	774	0.239	0.000	0.000	0.000	0.182
RestateTax	774	0.076	0.000	0.000	0.000	0.071
RestateNotTax	774	0.163	0.000	0.000	0.000	0.136
Q1FcstErr	565	0.015	-0.015	0.010	0.050	0.012
Q1FcstVol	533	0.039	0.013	0.025	0.045	0.002
Q1FcstAcc	565	-0.069	-0.090	-0.040	-0.020	0.007
Q1EarningSurp	539	-0.004	-0.070	0.020	0.080	0.048
Q1MVE	572	7.150	5.853	6.956	8.255	3.180
Q1EA_Lag	572	30.115	25.000	30.000	36.000	43.587
Q1AF	572	9.016	4.000	7.000	13.000	53.760
R&D	785	0.098	0.015	0.045	0.114	0.028
BIG4	785	0.702	0.000	1.000	1.000	0.209
AnalystFollowing	785	7.123	1.500	4.750	10.583	54.947
InstOwn	785	0.515	0.098	0.644	0.832	0.129
Size	785	6.197	4.653	6.060	7.688	4.214
ROA	785	-0.016	-0.048	0.052	0.112	0.120
Loss	785	0.329	0.000	0.000	1.000	0.221
CETR3	785	0.015	-0.014	-0.004	0.019	0.004
CETR_Vol	785	0.038	0.009	0.016	0.040	0.004
MNC	785	0.724	0.000	1.000	1.000	0.200

Panel B: Difference in Means

	TaxDisclose = -1		*TaxDisclose* = 0		*TaxDisclose* = 1	
VARIABLE	N= 618		N= 47		N= 120	
AQ	-0.066		-0.062		-0.046	***
ICW	0.094		0.021	***	0.067	
10K_Length	16.397		16.478		16.560	***
Restate	0.246		0.170		0.233	
RestateTax	0.069		0.043		0.125	*
RestateNotTax	0.177		0.128		0.108	**
Q1FcstErr	0.012		0.023		0.021	
Q1FcstVol	0.041		0.037		0.033	**
Q1FcstAcc	-0.069		-0.060		-0.074	
Q1Esurp	-0.007		-0.021		0.013	
Q1MVE	6.986		7.678	**	7.553	***
Q1EA_Lag	30.673		28.455	**	28.696	***
Q1AF	8.055		11.909	***	11.446	***
RD	0.093		0.133	*	0.113	
BIG4	0.647		0.936	***	0.892	***
AnalystFollowing	6.043		11.581	***	11.090	***
InstOwn	0.473		0.647	***	0.691	***
Size	5.980		7.009	***	7.042	***
ROA	-0.034		0.069	***	0.043	***
Loss	0.353		0.319		0.200	***
CETR3	0.025		-0.003	***	-0.003	***
CETR_Vol	0.050		0.029	**	0.031	***
MNC	0.689		0.787		0.875	***

Panel C: Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) TaxDisclose											
(2) AQ	**0.1100**										
(3) ICW	-0.0466	**-0.0886**									
(4) 10K_Length	**0.1152**	**0.1197**	-0.0511								
(5) Restate	-0.0189	0.0246	**0.2057**	**0.2004**							
(6) RestateTax	0.0669	0.0191	0.0552	**0.1209**	**0.5126**						
(7) RestateNotTax	-0.0699	0.0147	**0.1980**	**0.1446**	**0.7868**	**-0.1267**					
(8) Q1FcstErr	0.0388	0.0008	-0.0372	0.0817	-0.0271	-0.0380	-0.0032				
(9) Q1FcstVol	-0.0749	**-0.0977**	**0.0882**	**0.0882**	0.0711	-0.0329	**0.1071**	-0.0264			
(10) Q1FcstAcc	-0.0164	-0.0174	-0.0567	**-0.1178**	**-0.0893**	0.0324	**-0.1282**	**-0.0844**	**-0.5461**		
(11) Q1EarningSurp	0.0327	-0.0245	-0.0560	0.0260	-0.0476	-0.0257	-0.0362	**0.4336**	**-0.1754**	0.0723	
(12) Q1MVE	**0.1390**	**0.1347**	**-0.1538**	0.5272	0.0226	0.0069	0.0212	**0.1477**	-0.0055	-0.0158	0.0731
(13) Q1EA_Lag	**-0.1295**	**-0.1002**	**0.2829**	**-0.2832**	0.0202	-0.0106	0.0316	**-0.1207**	**0.0921**	-0.0064	-0.0100
(14) Q1AF	**0.2003**	0.0638	**-0.1262**	**0.3115**	-0.0424	-0.0233	-0.0319	**0.1003**	-0.0043	0.0722	0.0388
(15) R&D	0.0532	**-0.1210**	0.0364	**-0.1994**	**-0.0957**	-0.0690	-0.0609	-0.0088	0.0273	0.0376	0.0295
(16) BIG4	**0.2072**	**0.1473**	**-0.1299**	**0.4766**	**0.0963**	0.0681	0.0623	0.0406	0.0110	0.0266	-0.0250
(17) AnalystFollowing	**0.2724**	**0.1289**	**-0.1617**	**0.3937**	-0.0153	0.0124	-0.0266	**0.1051**	-0.0116	0.0566	0.0591
(18) InstOwn	**0.2343**	**0.1953**	**-0.1607**	**0.3524**	0.0190	0.0559	-0.0183	**0.1099**	**-0.1500**	**0.0911**	-0.0091
(19) Size	**0.2041**	**0.2091**	**-0.1613**	**0.7131**	**0.1240**	**0.1117**	0.0629	**0.1439**	0.0464	**-0.0950**	-0.0095
(20) ROA	**0.0909**	**0.2152**	**-0.1473**	**0.1468**	0.0238	0.0340	0.0030	0.0463	-0.0376	-0.0218	0.0026
(21) Loss	**-0.1159**	**-0.1510**	**0.1066**	**-0.2296**	-0.0289	-0.0133	-0.0238	-0.0697	**0.1062**	-0.0024	-0.0106
(22) CETR3	**-0.1188**	**-0.2306**	**0.1084**	**-0.2101**	-0.0314	-0.0372	-0.0096	-0.0613	**0.0889**	0.0301	0.0193
(23) CETRVol	**-0.0874**	**-0.2230**	**0.0888**	**-0.1707**	-0.0153	-0.0492	0.0177	-0.0572	0.0580	-0.0079	-0.0184
(24) MNC	**0.1528**	**0.1662**	**-0.1170**	**0.4256**	0.0552	**0.0796**	0.0066	0.0335	**-0.1298**	-0.0514	-0.0361

	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
(12) Q1MVE												
(13) Q1EA_Lag	**-0.4964**											
(14) Q1AF	**0.7521**	**-0.3838**										
(15) R&D	**-0.2128**	**0.1907**	-0.0656									
(16) BIG4	**0.4028**	**-0.2702**	**0.3094**	-0.0503								
(17) AnalystFollowing	**0.7657**	**-0.3878**	**0.9434**	-0.0441	**0.4341**							
(18) InstOwn	**0.4119**	**-0.3022**	**0.2864**	**-0.1055**	**0.4902**	**0.4796**						
(19) Size	**0.9025**	**-0.4862**	**0.6692**	**-0.3072**	**0.5872**	**0.6856**	**0.5412**					
(20) ROA	**0.3000**	**-0.2892**	**0.1685**	**-0.6620**	**0.1767**	**0.1800**	**0.2957**	**0.3443**				
(21) Loss	**-0.3820**	**0.2663**	**-0.1831**	**0.3655**	**-0.1962**	**-0.2433**	**-0.3701**	**-0.4214**	**-0.5458**			
(22) CETR3	**-0.3320**	**0.3140**	**-0.1914**	**0.6353**	**-0.2012**	**-0.2051**	**-0.3494**	**-0.4062**	**-0.8501**	**0.6038**		
(23) CETRVol	**-0.3020**	**0.2236**	**-0.1635**	**0.4195**	**-0.2350**	**-0.1800**	**-0.2942**	**-0.3335**	**-0.5668**	**0.3876**	**0.6064**	
(24) MNC	**0.2799**	**-0.2859**	**0.1916**	**-0.2595**	**0.4005**	**0.3101**	**0.3707**	**0.4834**	**0.2854**	**-0.3195**	**-0.3598**	**-0.2582**

Note: In Panel A we present the descriptive statistics for our test variables. All variables are defined in Appendix A. We winsorize all continuous variables at the top and bottom one percent. In Panel B: We examine the difference in the means of test variables for firms that do not disclose the ATRA, those that disclose the ATRA without providing a monetary impact, and those that disclose and provide the impact. *** p<0.01, ** p<0.05, * p<0.1. In Panel C we present the correlation matrix. Bolded figures are statistically significant at a greater than 5% threshold.

TABLE 4

Financial Reporting Quality and ATRA disclosure (Univariate)

DV=*TaxDisclose*			
VARIABLES	(1)	(2)	(3)
AQ	0.8812***		
	(5.02)		
ICW		-0.1531**	
		(-2.40)	
10K_Length			0.1481***
			(4.28)
Constant	-0.6141***	-0.6428***	-3.0752***
	(-22.47)	(-28.12)	(-5.49)
Observations	1,173	1,103	1,071
R-squared	0.012	0.004	0.013

Note: Table 4 reports the results of regression Equation (1). The dependent variable *TaxDisclose* = 1 if firm makes ATRA disclosure and estimates the benefit; 0 if firm makes ATRA disclosure but does not estimate benefit; and -1 if firm does not make ATRA disclosure. We define all variables in Appendix A. Robust t-statistics in parentheses. All continuous variables are winsorized at the 1 and 99 percentiles and p-values are two-tailed.
*** p<0.01, ** p<0.05, * p<0.1

TABLE 5

Financial Reporting Quality and ATRA disclosure (Multivariate)

DV=*TaxDisclose* VARIABLES	*(1) FRQ Vars*	*(2) Governance Vars*	*(3) Tax Vars*	*(4) Firm Vars*	*(5) All Vars*
AQ	1.0298***				0.5650**
	(3.87)				(2.07)
ICW	-0.0866				0.0545
	(-1.04)				(0.65)
10K_Length	0.1452***				-0.0245
	(3.27)				(-0.38)
BIG4		0.1153**			0.1142*
		(1.97)			(1.68)
AnalystFollowing		0.0187***			0.0196***
		(3.90)			(3.51)
InstOwn		0.2213**			0.1567*
		(2.57)			(1.74)
R&D			0.9753***		0.7207***
			(4.73)		(3.38)
MNC			0.2182***		0.0806
			(4.44)		(1.40)
CETR3			-2.3068***		-1.2784
			(-3.73)		(-1.57)
CETR_Vol			-0.3114		0.1426
			(-0.90)		(0.47)
Size				0.0671***	-0.0132
				(5.15)	(-0.54)
ROA				0.0188	0.0749
				(0.40)	(0.60)
Loss				-0.0499	-0.0063
				(-0.84)	(-0.10)
Constant	-2.9481***	-0.9627***	-0.8419***	-1.0332***	-0.5315
	(-4.06)	(-31.13)	(-20.33)	(-12.02)	(-0.54)
Observations	785	785	785	785	785
R-squared	0.024	0.092	0.058	0.043	0.114

Note: Table 6 reports the results of regression Equation (2). The dependent variable *TaxDisclose* = 1 if firm makes ATRA disclosure and estimates the benefit; 0 if firm makes ATRA disclosure but does not estimate benefit; and -1 if firm does not make ATRA disclosure. Column (1) includes only financial reporting quality variables. Column (2) includes only governance related variables. Column (3) includes all tax specific variables. Column (4) reports all variables. We define all variables in Appendix A. Robust t-statistics in parentheses. All continuous variables are winsorized at the 1 and 99 percentiles and p-values are two-tailed. *** p<0.01, ** p<0.05, * p<0.1

TABLE 6

Restatements and Tax Disclosure Quality

VARIABLES	(1) *All Restatements*	(2) *Tax Restatements*	(3) *Non-tax Restatements*	(4) *All Restatements*	(5) *Tax Restatements*	(6) *Non-tax Restatements*
TaxDiscScore	-0.0731***	0.0088	-0.0819***	-0.0563**	-0.0035	-0.0528**
	(-2.74)	(0.67)	(-3.42)	(-2.09)	(-0.23)	(-2.18)
AQ				0.0137	0.1207***	-0.1070*
				(0.21)	(3.66)	(-1.75)
ICW				0.3343***	0.0924***	0.2419***
				(17.05)	(7.10)	(12.71)
10K_Length				0.0617***	0.0238***	0.0380***
				(6.71)	(3.81)	(4.78)
Constant	0.2206***	0.0745***	0.1461***	-0.7012***	-0.2764***	-0.4248***
	(9.70)	(5.97)	(7.26)	(-5.28)	(-3.06)	(-3.68)
Observations	9,069	9,069	9,069	9,069	9,069	9,069
R-squared	0.018	0.005	0.014	0.091	0.026	0.062

Note: Table 6 reports the results of the OLS regression of Equation (3a). The dependent variable *Restate* = 1 if firm had any restatement in Columns (1) and (3). In Columns (2) and (5) we examine tax specific restatements. In Columns (3) and (6) we examine non-tax restatements. We define all variables in Appendix A. *TaxDiscScore* is created from the point estimates of Column (4) in Table 5. Robust t-statistics in parentheses. All continuous variables are winsorized at the 1 and 99 percentiles and p-values are two-tailed. *** p<0.01, ** p<0.05, * p<0.10.

TABLE 7

Analyst Forecasts and ATRA Tax Disclosure

VARIABLES	(1) *In-Sample Q1FcstErr*	(2) *In-Sample Q1FcstVol*	(3) *In-Sample Q1FcstAcc*
TaxDisclose	-0.0043	-0.0039**	-0.0005
	(-0.92)	(-1.99)	(-0.12)
Q1EarningSurp	0.1978***	-0.0356	0.0289
	(6.42)	(-1.64)	(0.94)
Q1MVE	0.0054	0.0015	-0.0087***
	(1.38)	(0.81)	(-2.62)
Q1EA_Lag	-0.0009	0.0009***	-0.0006
	(-1.36)	(2.70)	(-1.00)
Q1AF	0.0002	0.0001	0.0019***
	(0.23)	(0.28)	(2.71)
Constant	-0.0003	-0.0012	-0.0032
	(-0.01)	(-0.07)	(-0.10)
Observations	539	520	539
R-squared	0.207	0.049	0.022

Note: Table 7 reports the results of the OLS regression of Equation (4). The dependent variable in Column (1) is analysts forecast errors (*Q1FcsErr*). The dependent variable in Column (2) is the dispersion of analysts' forecasts (*Q1FcstVol*). In Column (3) the dependent variable is the absolute value of forecast errors (*Q1FcstAcc*). The dependent variable *TaxDisclose* = 1 if firm makes ATRA disclosure and estimates the benefit; 0 if firm makes ATRA disclosure but does not estimate benefit; and -1 if firm does not make ATRA disclosure. We define all variables in Appendix A. Robust t-statistics in parentheses percentiles and p-values are two-tailed. *** p<0.01, ** p<0.05, * p<0.10.

TABLE 8

Panel A: Analyst Forecasts and Tax Disclosure Score

VARIABLES	(1) *Out-of-Sample* *FcstErr*	(2) *Out-of-Sample* *FcstVol*	(3) *Out-of-Sample* *FcstAcc*
TaxDiscScore	0.0521	-0.1953***	0.2491***
	(1.50)	(-8.20)	(7.00)
EarningSurp	0.0418***	-0.0068**	0.0170***
	(7.54)	(-2.06)	(3.19)
MVE	0.0051*	-0.0033*	0.0037
	(1.81)	(-1.74)	(1.22)
EA_Lag	-0.0009***	0.0004*	-0.0004
	(-3.17)	(1.66)	(-1.36)
AF	-0.0013	0.0056***	-0.0040***
	(-1.54)	(8.80)	(-4.62)
Constant	0.0357	-0.0847***	0.0730**
	(1.25)	(-4.34)	(2.44)
Observations	6,444	6,208	6,444
R-squared	0.061	0.068	0.059

TABLE 8

Panel B: Analyst Forecasts and Tax Disclosure Score by R&D Credit Extension Enactment Dates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ATRA Years			R&D Credit Extension Enactment Years			Non-Enactment Years		
VARIABLES	*FcstErr*	*FcstVol*	*FcstAcc*	*FcstErr*	*FcstVol*	*FcstAcc*	*FcstErr*	*FcstVol*	*FcstAcc*
TaxDiscScore	0.0254	-0.1525***	0.2002***	0.0519	-0.2011***	0.2471***	0.0596	-0.2088***	0.2701***
	(0.41)	(-3.79)	(3.18)	(1.10)	(-7.36)	(5.26)	(1.31)	(-6.04)	(6.16)
EarningSurp	0.0613***	-0.0055	0.0364**	0.0453***	-0.0094**	0.0231***	0.0299***	-0.0038	0.0021
	(2.78)	(-0.53)	(2.03)	(6.16)	(-2.03)	(3.16)	(3.51)	(-0.71)	(0.28)
MVE	0.0025	-0.0024	-0.0021	0.0058	-0.0029	0.0042	0.0045	-0.0042*	0.0045
	(0.41)	(-0.61)	(-0.35)	(1.58)	(-1.34)	(1.17)	(1.02)	(-1.65)	(1.05)
EA_Lag	-0.0012**	0.0003	-0.0011*	-0.0011***	0.0005**	-0.0007*	-0.0005	0.0002	0.0002
	(-2.14)	(0.74)	(-1.91)	(-2.95)	(2.06)	(-1.83)	(-1.13)	(0.71)	(0.51)
AF	-0.0007	0.0048***	-0.0030*	-0.0012	0.0057***	-0.0045***	-0.0015	0.0058***	-0.0036***
	(-0.43)	(3.97)	(-1.83)	(-1.11)	(7.63)	(-4.04)	(-1.27)	(7.40)	(-3.10)
Constant	0.0764	-0.0451	0.1015*	0.0364	-0.0957***	0.0801**	0.0433	-0.0686**	0.0441
	(1.30)	(-1.09)	(1.90)	(0.94)	(-4.35)	(2.10)	(0.95)	(-2.55)	(1.02)
Years	2012 and 2013			2004, 2006, 2008, 2010, 2013, 2014, 2015			2005, 2007, 2009, 2011		
Observations	1,119	1,087	1,119	3,232	3,100	3,232	2,093	2,021	2,093
R-squared	0.085	0.037	0.068	0.074	0.079	0.071	0.035	0.066	0.047

Note: Table 8 reports the results of the OLS regression of Equation (4). In Panel A, the dependent variable in Column (1) is analysts' forecast errors (*FcstErr*). The dependent variable in Column (2) is the dispersion of analysts' forecasts (*FcstVol*). In Column (3) the dependent variable is the absolute value of forecast errors (*FcstAcc*). *TaxDiscScore* is created from the point estimates of Column (4) in Table 5. In Panel B, we separate the analysis based on tax law change years. We define all variables in Appendix A. Robust t-statistics in parentheses and p-values are two-tailed. *** p<0.01, ** p<0.05, * p<0.10.

FIGURE 1

Timeline of the ATRA and its Impact on Earnings