VOLUNTARY EXPLANATIONS OF EFFECTIVE TAX RATE DECREASES

by

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(Under the Direction of Benjamin C. Ayers)

ABSTRACT

This study investigates the determinants and content of voluntary explanations that firms

provide for a fourth quarter decrease in their effective tax rate (ETR). Recent evidence suggests

market participants do not fully understand the implications of earnings created by a decrease in

ETR. Economic theory predicts firms will provide supplemental information to help market

participants interpret the implications of earnings components for firm value. However, theory

also asserts that the decision to disclose additional information will vary with the costs of

disclosure. ETR decreases provide an interesting setting to investigate firms' disclosure choices

because a decrease in ETR is potentially the result of two activities that have a high cost of

disclosure: earnings management and tax planning. Using a hand-collected sample of earnings

announcements, I find that approximately 10 percent of the firms with a fourth quarter ETR

decrease explain the decrease. Results suggest firms with larger ETR-related earnings are more

likely to explain an ETR decrease, while firms that opportunistically manage their ETR and

firms that engage in significant tax planning are less likely to provide an ETR-related

explanation. These results are consistent with firms disclosing less information in settings where

the costs of reducing the information asymmetry between the firm and investors (e.g., when

managing earnings) or regulators (e.g., when engaging in tax planning) are particularly high. I

also analyze the content of ETR-related explanations and find firms with an ETR decrease are more likely to indicate the ETR change is permanent. Collectively, my results suggest that firms strategically explain ETR decreases and use disclosure in an attempt to enhance market participants' perception of earnings created by an ETR decrease.

INDEX WORDS: Effective tax rate; Voluntary disclosure

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To Tara: Thank you for your constant love and support.

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CHAPTER 1

INTRODUCTION

This study investigates the determinants and content of voluntary explanations that firms provide for a fourth quarter decrease in their effective tax rate (ETR, hereafter). A firm's ETR can change for a wide variety of reasons (e.g., earnings management, tax planning, tax law changes, etc.), and changes in ETR can significantly affect earnings (Schmidt 2006). For example, a fourth quarter decrease in Apple Computer's 2005 ETR (from 32 percent to 27 percent) increased its annual earnings per share from $1.44 to $1.56 (Wingfield 2005).

Prior research suggests that some firms opportunistically reduce their ETR during the fourth quarter to beat analyst expectations, and investors penalize, at least to some degree, firms that appear to manage their ETR to beat analysts' forecasted earnings (Dhaliwal et al. 2004; Gleason and Mills 2008). While these findings are consistent with the traditional view that earnings created by ETR changes are transitory (Abarbanell and Bushee 1997, 1998; Lev and Thiagarajan 1993), recent research suggests that ETR changes also have a permanent component (Schmidt 2006). However, because it is difficult to identify and interpret the transitory and permanent components of ETR changes, market participants generally fail to utilize effectively the information contained in ETR changes when predicting future earnings (Bauman and Shaw 2005; Schmidt 2006). In such situations, voluntary disclosure theory predicts that firms will disclose supplemental information to help market participants' determine how earnings components translate into firm value (Bagnoli and Watts 2007). However, the decision to

disclose additional information will vary with the costs of disclosure (Bagnoli and Watts 2007; Verrecchia 1983, 2001).

Decreases in ETR provide an interesting setting to investigate voluntary disclosure practices for at least three reasons. First, ETR decreases potentially reflect the outcome of a specific type of proprietary information (tax planning), which may invite increased regulatory (IRS) and political scrutiny. Prior research that investigates the association between disclosure and proprietary costs relies on broad proxies for proprietary costs (e.g., Ajinkya et al. 2005). The decision to explain an ETR decrease provides a powerful setting to investigate the trade-off between a firm's desire to provide value-relevant information to investors and its desire to avoid a specific type of proprietary cost (i.e., increased regulatory scrutiny).

Second, some firms opportunistically manage ETR downward to beat analyst expectations (Dhaliwal et al. 2004; Comprix et al. 2006). Examining whether firms that manage ETR opportunistically make ETR-related disclosures provides a unique opportunity to investigate the association between disclosure and earnings management.[1] Third, the permanence of an ETR decrease varies in the cross-section, which allows me to investigate whether the persistence of an ETR decrease influences firm disclosure. Prior research investigates the association between overall earnings quality and voluntary disclosure (Francis et al. 2008; Miller 2002; Tasker 1998), but does not consider if the disclosure of a specific financial statement component varies with its underlying characteristics.

I investigate four hypotheses regarding the determinants of a firm's decision to provide

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[1] The only extant evidence on the relation between disclosure and earnings management is Jo and Kim's (2007) study of the relation between disclosure frequency and earnings management during seasoned equity offerings. Using discretionary accruals as a proxy for earnings management, they find that disclosure frequency is negatively associated with earnings management. Jo and Kim (2007) interpret their results as evidence that disclosure frequency reduces earnings management. However, causality could go in the other direction as well. Thus, it is an empirical question whether earnings management influences the decision to voluntarily disclose information. I address this question by investigating whether an opportunistic change in a specific earnings component is associated with the probability of disclosure about that change.

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ETR-related explanations, motivated by Bagnoli and Watts' (2007) model of voluntary

supplemental disclosures. First, the complexity and discretion of tax accounting creates

information asymmetry between firms and market participants (Dhaliwal et al. 2004). However,

firms have private information about the source of an ETR decrease that can help market

participants interpret the implications of ETR-related earnings. Bagnoli and Watts (2007)

contend that firms with larger performance "surprises" are more likely to provide supplemental

information about a financial statement item to help market participants interpret the surprise.

Accordingly, I expect firms will be more likely to disclose ETR-related information as the

magnitude of ETR-related earnings increases.

Second, information asymmetry is likely higher when an ETR decrease is permanent

because the market generally views fourth quarter ETR decreases as transitory (Gleason and

Mills 2008; Schmidt 2006). Bagnoli and Watts (2007) predict that firms will be more likely to

provide supplemental information when an event results in a sustainable change in firm

performance. Therefore, I expect that firms will be more likely to explain ETR decreases that

are permanent.[2]

Third, prior research suggests that some ETR-related earnings are the product of

opportunistic decreases in ETR (Dhaliwal et al. 2004). Providing an explanation of an

opportunistically reduced ETR is costly because it increases the likelihood investors will see

through earnings management. Theory predicts that the cost of disclosure influences firms'

decision to disclose supplemental information (Bagnoli and Watts 2007; Verrecchia 1983, 2001).

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[2] To identify permanent ETR decreases, I calculate a ratio that compares the third quarter annual ETR estimate in year *t* less annual ETR in year *t+1* to the third quarter annual ETR estimate in year *t* less annual ETR in year *t*. I designate firms with a ratio greater than or equal to one as having a permanent ETR decrease.

Thus, I expect firms that opportunistically decrease ETR will be less likely to explain it.[3] Fourth, ETR decreases can also be the result of proprietary tax planning strategies (Cook et al. 2008; Schmidt 2006). ETR-related disclosure is costly for firms that engage in significant tax planning because disclosure could increase political and regulatory scrutiny. Therefore, I predict firms that engage in significant tax planning will be less likely to explain a decrease in ETR.[4]

I hand-collect annual earnings announcements of firms with an ETR change in the fourth quarter of 2003 or 2004 to document the incidence of ETR-related explanations. I focus on annual earnings announcements because prior research suggests that firms opportunistically reduce ETR during the fourth quarter either via earnings management (Dhaliwal et al. 2004) or tax planning (Cook et al. 2008). Using a sample of 1,611 earnings announcements, I find that approximately 10 percent of the sample provides an explanation for a decrease in ETR. While this percentage is small, it is consistent with prior research on other tax-related disclosures (Gleason and Mills 2002).[5]

I test my first four hypotheses using a logistic regression to model the probability that a firm will provide an ETR-related explanation in its annual earnings announcement. My empirical results support three of the four hypotheses. First, as expected, I find that the probability of providing an ETR-related explanation increases with the magnitude of earnings created by a decrease in ETR, consistent with firms providing ETR-related explanations to

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[3] I classify firms as opportunistically managing ETR if a fourth quarter decrease in ETR allows a firm to meet or beat analyst expectations (Gleason and Mills 2008) and the firm beats analyst expectations by less than one cent. I limit the analyst forecast error to one cent because prior research identifies firms as just beating earnings benchmarks as likely engaging in opportunistic earnings management (e.g., Ayers et al. 2006).

[4] I assess a firm's tax planning activities using cumulative cash ETR calculated as the ratio of the sum of cash taxes paid over the five years from year *t-4* to year *t* to the sum of annual pre-tax book income calculated over the same period (Dyreng et al. 2008). Following Dyreng et al. (2008), a cash ETR below 20 percent suggests that a firm engages in significant tax planning activities.

[5] Gleason and Mills (2002) examine whether the annual reports of firms involved in an IRS audit provide mandatory disclosures of the related tax contingency. They find that 27 percent of the reports in their sample mention a tax contingency, but only 8 percent provide the detailed information required by GAAP (Gleason and Mills 2002). Thus, the rate of voluntary disclosure about ETR decreases is roughly equivalent to the rate of mandatory disclosure about tax contingencies.

reduce information asymmetry when a decrease in ETR generates larger earnings. However, contrary to my second hypothesis, the permanence of an ETR decrease is not associated with the probability that the firm explains the change in ETR. Although puzzling, this result suggests that, on average, firms are not disclosing information sufficient to interpret correctly ETR changes, consistent with prior research that concludes that market participants have difficulty interpreting the transitory and permanent components of ETR changes.

Third, as expected, I find that firms are less likely to explain an ETR decrease if they have opportunistically managed ETR. This result is consistent with firms maintaining information asymmetry in an effort to hide earnings management. Consistent with my fourth hypothesis, firms that engage in significant tax planning are less likely to provide explanations for ETR changes. This finding is consistent with firms preferring not to highlight their tax planning activities (e.g., to preserve information asymmetry between the firm and regulators).

I also examine the second-stage of the disclosure process, the content of ETR-related explanations, to investigate whether firm performance influences the content of explanations. Once firms have decided to provide supplemental information, Bagnoli and Watts (2007) predict that firms will attempt to enhance the market's perception of good (bad) news by issuing disclosures that indicate performance is permanent (transitory). In the context of ETR changes, a decrease in ETR is good news. Therefore, my fifth hypothesis predicts that firms with an ETR decrease will be more likely to provide an explanation that indicates the ETR change is permanent.

To test my fifth hypothesis, I restrict my sample to 180 firm-year observations that explain an ETR change and estimate a logistic regression to model the probability an explanation indicates the change is permanent. Consistent with expectations, results indicate that, after

controlling for the underlying persistence of the ETR change, firms with a decrease in ETR are more likely to indicate an ETR change is permanent (e.g., tax law change, a change in the mix of earnings, or corporate restructuring). This evidence suggests firms understand that market participants are skeptical of decreases in ETR (Gleason and Mills 2008) and use ETR-related explanations to attempt to enhance market participants' perception of ETR-related earnings.

This study contributes to several streams of research. First, this study contributes to the literature investigating market participants' use of tax-related information (e.g., Hanlon 2005; Gleason and Mills 2008; Lev and Nissim 2004; Schmidt 2006). Prior research suggests market participants do not understand the implications of ETR changes for future earnings and, in some cases, punish firms for decreasing their ETR in the fourth quarter (Bauman and Shaw 2005; Schmidt 2006; Gleason and Mills 2008). I extend this line of research by providing evidence on factors associated with firms' decisions to provide information to help market participants price ETR-related earnings more accurately.

My study also contributes to the voluntary disclosure literature. Prior research that investigates the extent to which proprietary information costs deter voluntary disclosure relies on general proxies of proprietary information such as the market-to-book ratio, research and development expenses, industry concentration ratios, and abnormal profits (e.g., Ajinkya et al. 2005; Bamber and Cheon 1998; Botosan and Stanford 2005; Francis et al. 2008; Jones 2007; Wang 2007). Likewise, the limited research that investigates the association between voluntary disclosure and earnings management relies on discretionary accrual models (Jo and Kim 2007) that contain significant measurement error (McNichols 2000). By using more direct proxies for

proprietary costs (tax planning) and earnings management, I develop more powerful tests that extend both lines of research.[6]

This study also extends research on the relation between aggregate earnings quality and disclosure (Francis et al. 2008) by examining whether the persistence of a component of earnings influences the decision to disclose additional information. Contrary to expectations, I find that the permanence of an ETR decrease is not associated with the probability a firm will provide supplemental information. However, a content analysis of ETR-related explanations suggests the permanence of an ETR change influences the type of explanations firms provide. Finally, I complement research that examines the content of voluntary disclosures (e.g., Baginski et al. 2004) by investigating whether firm performance influences the content of ETR-related explanations. I find that, once a firm decides to provide an ETR-related explanation, firms with good news (i.e., an ETR decrease) are more likely to indicate performance is permanent.

Chapter 2 discusses background research and motivates my hypotheses. Chapter 3 explains my sample selection and research design. Chapter 4 reports descriptive statistics and results while Chapter 5 presents sensitivity analyses. Chapter 6 concludes.

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[6] Guo et al. (2004) provide a direct test of proprietary costs and disclosure by examining the extent to which product-related information is disclosed by biotech firms in their initial public offering prospectuses. However, the information contained within a prospectus is the joint work of several parties (e.g., auditors and legal counsel) because the legal liability to both the firm and underwriter is significant. Thus, firms likely have little discretion over the information disclosed in their prospectuses (Hribar 2004).

CHAPTER 2

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Literature Review

GAAP requires firms to estimate their annual ETR for interim (quarterly) reporting.[7] The annual ETR estimate is the ratio of estimated annual total tax expense (current tax expense plus deferred tax expense) divided by estimated annual ordinary income. Firms revise their estimate at the end of each quarter, and apply their revised estimate to year-to-date pre-tax earnings at the end of each quarter to calculate year-to-date tax expense.

Estimating annual tax expense, the numerator in ETR, is difficult because managers must anticipate complex items such as tax credits, tax planning (federal, foreign, and state), audit settlements, and export incentives (APB No. 28, ¶ 19). The complex nature of tax expense creates information asymmetry between firms and market participants. For example, Plumlee (2003) examines analysts' ETR forecasts around the Tax Reform Act of 1986. She finds that analyst are able to forecast the effects of simple tax law changes, but are unable to forecast the effects of more complex tax law changes (Plumlee 2003).

In addition to anticipating complex items, annual tax expense estimates also involve a substantial amount of discretion, which makes tax expense an ideal account for opportunistic earnings management. Dhaliwal et al. (2004) examine whether firms opportunistically reduce their total tax expense estimate during the fourth quarter. Using the annual estimate of ETR at

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[7] Firms are required to base their annual ETR estimate on ordinary income. The FASB defines ordinary income as "income (or loss) from continuing operations before income taxes (or benefits)," excluding significant "unusual or infrequently occurring items" (FASB Interpretation No. 18, ¶ 5).

the end of the third quarter as a proxy for unmanaged earnings, they find that firms opportunistically decrease ETR during the fourth quarter when unmanaged earnings fall short of analysts' expectations. However, Dhaliwal et al. (2004) are not able to determine whether decreases in ETR during the fourth quarter are due to additional tax planning or opportunistic earnings management. Cook et al. (2008) provide evidence that is consistent with firms engaging in additional tax planning during the fourth quarter. However, after controlling for tax planning, they also find evidence suggesting some firms opportunistically reduce ETR to beat analyst expectations. In addition, Comprix et al. (2006) suggest that firms lower ETR estimates throughout the year when unmanaged quarterly earnings fall short of analyst expectations.

While the studies discussed above focus on whether firms opportunistically manage total tax expense, and thus ETR, downward, a second stream of research focuses on the opportunistic management of specific components of total tax expense. GAAP provides substantial discretion to firms in estimating components of tax expense such as permanently reinvested foreign earnings (PRE), valuation allowances, and contingent tax liabilities. Krull (2004) examines whether firms opportunistically designate foreign subsidiary earnings as permanently reinvested. Designating earnings as permanently reinvested allows firms to delay financial statement recognition of U.S. taxes on the designated foreign earnings. Krull (2004) finds that firms designate a larger amount of earnings as permanently reinvested when unmanaged earnings fall short of analysts expectations. Her findings suggest that firms opportunistically use PRE to meet or beat analyst expectations.

Statement of Financial Accounting Standard (SFAS) No. 109 requires firms to create a valuation allowance against a deferred tax asset if it is more likely than not that a firm will fail to realize the tax benefits associated with a deferred tax asset (FASB 1992). To the extent a firm's

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outlook changes, it is allowed to adjust the valuation allowance, and therefore total tax expense, to reflect the probability the tax benefit from a deferred tax asset will be realized (FASB 1992). Schrand and Wong (2003) investigate whether commercial banks opportunistically manage their valuation allowances. They find evidence consistent with banks using their valuation allowances to manage earnings towards analyst expectations. Frank and Rego (2006) extend Schrand and Wong (2003) by examining a broader sample of firms and modeling discretionary changes in the valuation allowance. Their findings suggest that firms use the valuation allowance to smooth earnings towards analyst expectations. In sum, extant research is consistent with firms opportunistically revising their valuation allowance to meet or beat analyst expectations.

The contingent tax liability represents a firm's estimate of potential tax adjustments that may arise from a tax return examination (Mills and Newberry 2002). SFAS No. 5 provides firms with considerable discretion in estimating the likelihood, timing, and amount of the contingent tax liability (FASB 1975). Gupta and Laux (2007) use financial statement disclosures to investigate whether firms reverse contingent tax liability estimates to meet or beat analysts' quarterly expectations. Their findings suggest that firms reverse portions their contingent tax liability to meet or beat analyst expectations. Likewise, Blouin and Tuna (2007) provide evidence that is consistent with firms using the contingent tax liability to smooth earnings. Collectively, research that investigates total tax expense and its components suggests that firms opportunistically reduce tax expense, and thus ETR, to meet or beat analyst expectations.

The use of ETR in managing earnings supports the traditional view that earnings created by a change in ETR are transitory (Abarbanell and Bushee 1997, 1998; Lev and Thiagarajan 1993). Lev and Thiagarajan (1993) note that analysts consider non-statutory ETR changes to be purely transitory. Consistent with this notion, they find a negative association between earnings

generated by a change in ETR and returns. Likewise, Abarbanell and Bushee (1997) find that

ETR-related earnings are less persistent for future earnings changes than aggregate earnings.[8]

However, recent research provides evidence that is consistent with ETR-related earnings

containing information about future earnings. Specifically, Schmidt (2006) decomposes ETR

changes into permanent and transitory components and finds that annual earnings generated by

both components persist into the following year. Likewise, Bauman and Shaw (2005) find

evidence that suggests quarterly earnings generated by a change in the annual ETR estimate

persist into the following quarter.

  While ETR-related earnings contain information about future earnings, evidence suggests

market participants are skeptical of earnings generated by a decrease in ETR. Gleason and Mills

(2008) examine the market response to firms that appear to opportunistically manage ETR. They

find that the market penalizes firms that meet or beat analyst expectations because of a fourth

quarter decrease in ETR and conclude that the market views a decrease in ETR as a signal of

earnings management.

  Though Gleason and Mills (2008) suggest that the market penalizes firms that

opportunistically manage ETR, prior research suggests that financial statement users have a

difficult time interpreting ETR changes in general. Schmidt (2006) finds that investors

underestimate the persistence of ETR-related earnings. He speculates that because it is difficult

to identify and interpret the transitory and permanent components of ETR changes, market

participants generally fail to utilize effectively the information contained in ETR changes when

predicting future earnings. Furthermore, Bauman and Shaw (2005) find that analysts do not fully

use the information in ETR-related earnings when firms report large decreases in ETR.

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[8] Guenther and Jones (2006) note that early evidence on the value-relevance of ETR-related earnings is inconclusive
because of the research design choices made by Lev and Thiagarajan (1993) and Abarbanell and Bushee (1997).

Collectively these findings suggest that the information asymmetry surrounding ETR changes prevents market participants from correctly estimating the implications of ETR-related earnings.

2.2 Hypothesis Development

Firms have private information about the source of an ETR decrease that can help market participants better estimate the implications of ETR-related earnings. Bagnoli and Watts (2007) develop a theoretical model of firms' decision to voluntarily provide supplemental information about the permanent and transitory components of various financial statements items (e.g., tax expense). The model predicts that firms with larger performance "surprises" are more likely to provide supplemental information about a financial statement item to help market participants interpret the surprise (Bagnoli and Watts 2007). Thus, I expect that firms with larger ETR-related earnings will be more likely to explain the ETR decrease that generated those earnings. My first hypothesis is (all hypotheses are stated in the alternative):

H1: Firms with larger ETR-related earnings are more likely to explain a decrease in ETR.

Financial statement analysis texts suggest that financial analysts should examine whether a firm's ETR is sustainable or the product of a one-time tax credit (e.g. Palepu, Healy, and Bernard (2005, 5-12). However, prior research indicates that market participants view revisions of annual ETR estimates to be transitory and punish firms for transitory ETR-related earnings (Gleason and Mills 2008; Schmidt 2006). These findings suggest that information asymmetry may be exacerbated when a firm's ETR decrease is permanent because market participants, on average, view ETR decreases as transitory. Bagnoli and Watts' (2007) theory predicts that firms will provide supplemental information when an event or strategy shift occurs that results in a

permanent (or sustainable) change in firm performance.[9,10] In the context of ETR decreases,

Bagnoli and Watts (2007) suggest that firms will be more likely to issue an ETR-related

explanation when an event results in a permanent decrease in ETR. Therefore, my second

hypothesis is:

> **H2: Firms that experience a permanent decrease in ETR are more likely to provide**
>
> **an ETR-related explanation.**

Voluntary disclosure theory predicts that the cost of disclosure influences firms' decision

to disclose supplementary information (Bagnoli and Watts 2007; Verrecchia 1983, 2001). Prior

research suggests that some firms opportunistically reduce their ETR estimate during the fourth

quarter to meet or beat analysts' forecasted earnings (Dhaliwal et al. 2004). Schipper (1989)

asserts that earnings management is successful only if financial statement users cannot see

through (or undo) the earnings management. To the extent a firm opportunistically reduces its

ETR, providing an ETR-related explanation is costly because disclosure may allow market

participants to detect earnings management.[11] Thus, I predict firms that opportunistically reduce

their ETR estimate will be less likely to issue an ETR-related explanation. My third hypothesis

is:

> **H3: Firms that opportunistically reduce their ETR are less likely to provide an**
>
> **ETR-related explanation.**

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[9] Following financial statement analysis texts, Bagnoli and Watts (2007) use the term 'change in business strategy' to represent regulatory changes or internal changes such as the introduction of a new product line. In the context of ETR decreases, examples of a 'change in business strategy' include new tax planning, a shift in operations to low-tax jurisdictions, or a tax law change.

[10] Prior research does not directly investigate the relation between the persistence of an earnings component and supplemental disclosures. The closest evidence is Miller's (2002) finding that firms with sustainable earnings increases are more likely to provide long-term forecasts relative to firms with temporary earnings increases.

[11] Using discretionary accruals as a proxy for earnings management, Jo and Kim (2007) find that disclosure frequency is negatively associated with earnings management during seasoned equity offerings. They interpret their results as evidence that disclosure frequency reduces earnings management. However, causality could go in the other direction as well. Thus, it is an empirical question whether earnings management influences the decision to voluntarily disclose information.

A variety of costs suppress voluntary disclosure, but Verrecchia (2001) asserts the costs of disclosing proprietary information are the most compelling. Prior research finds evidence consistent with proprietary competitive costs deterring full disclosure (e.g., Bamber and Cheon 1998; Botosan and Stanford 2005; Guo et al. 2004; Harris 1998; Jones 2007; Wang 2007). ETR decreases can also be the result of proprietary tax planning strategies (Schmidt 2006).[12] Firms that engage in significant tax planning activities have strong incentives to limit tax-related disclosures that could increase political and regulatory scrutiny.[13] For example, the IRS has stated that it will review tax reserve information firms disclose under Financial Accounting Standards Board Interpretation No. 48 (FIN 48) (Leone 2007a). In addition, U.S. Senate investigators are using FIN 48 disclosures to identify firms engaged in aggressive tax planning and are requesting details about firms' tax transactions (Leone 2007b). Given the scrutiny that ETR-related explanations may bring, I predict that firms that engage in significant tax planning activities will be less likely to provide ETR-related explanations. My fourth hypothesis is:

H4: Firms that engage in significant tax planning activities are less likely to explain an ETR decrease.

The economic framework that surrounds voluntary disclosure decisions decomposes the overall decision to disclose into two separate decisions (Hirst et al. 2008; King et al. 1990; Wiedman 2000). H1 through H4 investigate the first stage of the disclosure decision process, the decision to voluntarily disclose information. Once firms decide to provide a disclosure, they must choose its characteristics or content. For example, Baginski et al. (2004) provide evidence

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[12] Schmidt (2006) notes that many firms reduce their ETR through strategic tax-planning activities such as transfer pricing, transferring intangibles offshore, and structuring low-tax contract manufacturing operations.
[13] In addition to the high cost of disclosure, firms that engage in significant tax planning may not provide additional disclosure because theory suggests market participants are less suspicious of silence when proprietary costs are high (Verrecchia 1983). Prior research suggests financial statement users can identify firms that engage in significant tax planning (Ayers et al. 2007, 2008).

that the content of supplemental disclosures accompanying management earnings forecasts is a deliberate choice. Regarding the content of supplemental disclosures, Bagnoli and Watts (2007) predict that firms make strategic supplemental disclosures to maximize market value. Specifically, they predict firms that report good (bad) news about an item are more likely to provide information indicating the surprise is permanent (transitory). This suggests that firms with an ETR decrease are more likely to provide permanent explanations than firms with an ETR increase. Accordingly, my fifth hypothesis is:

H5: Firms with a decrease in ETR are more likely to provide a permanent ETR-related explanation.

CHAPTER 3

SAMPLE SELECTION AND RESEARCH DESIGN

3.1 Sample Selection

I collect annual earnings announcement press releases from PR Newswire and Business Wire for fiscal years 2003 and 2004.[14] I focus on the 2003 and 2004 period because it is after Regulation Fair Disclosure became effective, but before the American Jobs Creation Act of 2004 allowed firms to repatriate permanently reinvested earnings at a temporarily reduced rate. Thus, my sample period provides a representative post-Regulation FD time period to examine firms' ETR-related disclosure choices.

I restrict my sample to firm-years with a fourth quarter change in annual ETR because these firms have the strongest incentive to provide ETR-related explanations in their annual earnings announcement. To avoid difficulty in interpreting negative ETRs, I require firm-year observations to have both positive annual pre-tax book income and positive annual tax expense (Dhaliwal et al. 2004; Gleason and Mills 2008). Finally, firm-year observations must have sufficient data for hypothesis testing.

I identify 200 earnings announcements that contain an ETR-related explanation and 2,308 that do not. To test H1 through H4, I restrict my sample to firms with an ETR decrease, which results in a sample of 157 earnings announcements that contain an explanation of an ETR

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[14] I exclude flow-through entities such as mutual funds, trusts, REITs, and limited partnerships because these entities have different reporting requirements relative to other firms (Schmidt 2006).

decrease and 1,454 that do not. To test H5, I use the full sample of 200 earnings announcements that contain an ETR-related explanation.

3.2 Research Design: Determinants of ETR-Related Explanations

I test H1 through H4 using the following logistic regression model that estimates the probability that a firm explains an ETR decrease in its annual earnings announcement:

$$Pr(Expl) = \alpha + \beta_1 RETREarn_{i,t} + \beta_2 PermChg_{i,t} + \beta_3 EarnMgmt_{i,t} + \beta_4 TaxPlan_{i,t}$$
$$+ \beta_5 InstOwn_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Size_{i,t} + \beta_8 Yr2003_t + \varepsilon_{i,t} \tag{1}$$

where all variables are defined in Table 3.1 and discussed below. The dependent variable (*Expl*) in equation (1) captures a firm's decision to explain an ETR decrease that occurs during the fourth quarter.

To investigate whether the magnitude of ETR-related earnings affects the probability of explaining an ETR decrease, I calculate the earnings created by a fourth quarter ETR decrease as follows:[15]

$$ETREarn_{i,t} = Annual\ PTBI_{i,t} \times \left(ETRQ3_{i,t} - ETRQ4_{i,t} \right) \tag{2}$$

Annual PTBI is annual pre-tax book income for year *t* (Annual Data 170).[16] *ETRQ3* (*ETRQ4*) is the year-to-date annual ETR estimate at the end of the third (fourth) quarter. Specifically, *ETRQ3* (*ETRQ4*) is the accumulated quarterly tax expense (Quarterly Data 6) through the third (fourth) quarter divided by accumulated quarterly pre-tax book income (Quarterly Data 23) through the third (fourth) quarter. I scale *ETREarn* by market value of equity at the end of the year (Annual Data 25 x Annual Data 199). I rank *ETREarn* (*RETREarn*)

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[15] In supplemental analysis, I test H1 through H4 using a sample of both ETR increases and decreases. In that context, I rank the absolute value of earnings generated by an ETR change because H1 predicts firms are likely to provide supplementary information when actual performance deviates from expectations. Inferences, discussed in detail below, remain the same.
[16] Unless otherwise noted, all data items are from Compustat.

to reduce the influence of outliers because descriptive statistics in Table 2 show the mean of

ETREarn is just below the 75th percentile, which suggests *ETREarn* is highly skewed.[17] H1

predicts that firms with larger ETR-related earnings are more likely to explain their ETR

changes. Thus, I expect a positive coefficient for *RETREarn*.

H2 predicts firms that experience a permanent decrease in ETR are more likely to provide

an ETR-related explanation. To identify whether an ETR decrease is permanent, I calculate the

following ratio:

$$Persistence_{i,t} = \frac{ETRQ3_{i,t} - ETRQ4_{i,t+1}}{ETRQ3_{i,t} - ETRQ4_{i,t}} \qquad (3)$$

The numerator in *Persistence* is annual ETR at the end of year *t+1* relative to the annual

ETR estimate at the end of the third quarter for year *t*. The denominator is the fourth quarter

ETR change for year *t*. *Persistence* captures whether a fourth quarter shock to annual ETR

persists into year *t+1*. For example, a value greater than or equal to one for *Persistence* indicates

that the fourth quarter ETR change in year *t* did not reverse in year *t+1*. I set *PermChg* equal to

one when *Persistence* is greater than or equal to one, and zero otherwise. H2 predicts a positive

coefficient for *PermChg*.

H3 predicts firms that opportunistically reduce ETR are less likely to provide an ETR-

related explanation. To investigate this hypothesis, I include an indicator variable for

opportunistic management of ETR (*EarnMgmt*). I classify firms as opportunistically managing

ETR if a fourth quarter decrease in ETR allows a firm to meet or beat analyst expectations and

the firm beats analysts' earnings expectations by less than one cent.

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[17] Inferences remain the same when *ETREarn* is substituted for *RETREarn* in equation (1).

To determine whether a firm requires a fourth quarter decrease in ETR to meet or beat analyst expectations, I calculate earnings per share based on the annual ETR estimate at the end of the third quarter as follows:

$$Unmanaged_{i,t} = \frac{Annual\ PTBI_{i,t} \times (1 - ETRQ3_{i,t})}{Common\ Shares_{i,t}} \tag{4}$$

where *Common Shares* is the common shares used to calculate basic EPS (Annual Data 54). I compare *Unmanaged* to the last I/B/E/S consensus forecast (*Forecast*) before the earnings announcement to determine whether earnings based on the annual ETR estimate at the end of the third quarter fail to meet analyst expectations (Gleason and Mills 2008). To observe the final outcome of a firm's earnings, I calculate the firm's analyst forecast error (*AFE*) by subtracting *Forecast* from actual earnings reported by I/B/E/S (Gleason and Mills 2008).[18]

I set *EarnMgmt* equal to one if *Unmanaged* is less than *Forecast* and *AFE* is greater than or equal to zero and less than or equal to one cent, and zero otherwise. I limit *AFE* to one cent because prior research suggests that firms that just meet or beat earnings benchmarks opportunistically manage earnings (e.g., Ayers et al. 2006; Burgstahler and Dichev 1997; Burgstahler and Eames 2006; Degeorge et al. 1999; Phillips et al. 2003). H3 predicts a negative coefficient for *EarnMgmt*.

To examine whether firms that engage in significant tax planning are less likely to explain an ETR change, I include an indicator variable to identify firms that engage in significant tax planning (*TaxPlan*). Dyreng et al. (2008) contend that firms with successful tax planning strategies are able to sustain a low tax rate over multiple years. Following Dyreng et al. (2008), I

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[18] I use the I/B/E/S unadjusted file to avoid misclassification created by I/B/E/S split adjustments (e.g., Payne and Thomas 2003).

identify firms that are substantial tax planners using accumulated cash ETR, calculated as

follows:

$$CashETR_{i,t} = \frac{\sum_{n=t-4}^{t} Cash\ Taxes\ Paid_{i,t}}{\sum_{n=t-4}^{t}(Annual\ PTBI_{i,t} - Special\ Items_{i,t})} \qquad (5)$$

The numerator, *Cash Taxes Paid*, is cash taxes paid (Annual Data 317) from the cash

flow statement for firm *i* summed over the five year period from *t-4* through *t*. If *Cash Taxes*

Paid is missing for a particular year, I set it equal to current tax expense (Annual Data 16 – Data

50) for that year. The denominator is the difference between *Annual PTBI* and *Special Items*

(Annual Data 17) accumulated for firm *i* over the five year period from *t-4* through *t*. *CashETR*

captures the effects of tax planning strategies that defer or permanently avoid taxable income.

Using taxes actually paid to calculate *CashETR* addresses some of the known limitations of using

current tax expense or total tax expense to evaluate tax planning effectiveness, such as ignoring

the tax benefits associated with stock options.[19] I set *TaxPlan* equal to one if *CashETR* is less

than or equal to 20 percent (Dyreng et al. 2008). H4 predicts firms that engage in significant tax

planning will be less likely to explain a change in ETR. Therefore, I expect a negative

coefficient for *TaxPlan*.

In addition to my variables of interest, equation (1) controls for other factors associated

with voluntary disclosure. Institutional investors with large investments in a firm are likely to

demand additional information. Consistent with this notion, Ajinkya et al. (2005) find firms with

large institutional ownership are more likely to issue management earnings forecasts. I include

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[19] In a one period setting, using taxes actually paid creates measurement error because it captures payments that are not applicable to income generated in the current period (e.g., estimated tax payments). However, because I aggregate both cash taxes paid and pre-tax book income over a five year period, it is more likely that the income to which the tax payments relate will appear in the denominator (Dyreng et al. 2008).

the percentage of shares held by institutional investors (*InstOwn*) to control for firms'

institutional environment. I expect a positive association between *Expl* and *InstOwn*.

I also control for growth (*Growth*) by including firms' book-to-market ratio at the end of

year *t*. Prior research posits that rapidly growing firms have higher proprietary costs (Ajinkya et

al. 2005; Bamber and Cheon 1998). However, prior research also predicts and finds that rapidly

growing firms are more likely to conduct conference calls to provide additional information to

investors (Frankel et al. 1999). Because prior evidence is mixed, I do not make a prediction

about the relation between *Growth* and *Expl*. I include the natural logarithm of market value of

equity to control for firm size (*Size*) because prior research documents that larger firms make

more complete disclosures (Botosan 1997).[20] I expect a positive association between *Size* and

Expl. Finally, I include a year indicator variable (*Yr2003*) to control for macro-economic events

because Panel A of Table 4.1 documents the majority of ETR-related explanations are made in

2004.

3.3 Research Design: Content of ETR-Related Explanations

To test H5, I focus on the set of firms that provide an ETR-related explanation because

these firms have decided the benefit of explaining an ETR change exceeds the cost. I read each

earnings announcement and code the explanations firms provide for their ETR change as

temporary or permanent. A temporary explanation refers to causal factors that are not likely to

persist such as the reversal of a valuation allowance, a one-time tax credit, or an audit settlement.

A permanent explanation refers to factors that are likely to permanently change ETR such as a

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[20] An alternate and highly correlated proxy for firm size is financial analyst following. Inferences remain unchanged
when I substitute analyst following for *Size*.

tax law change or a change in mix of revenue earned in high-tax jurisdictions.[21] If the main cause of an ETR change is not clearly temporary or permanent, I do not classify the observation on this dimension because misclassification introduces noise and reduces the power of my test. This additional restriction results in 180 earnings announcements where the cause of the ETR-change is clearly identifiable. Appendix A provides examples of ETR-related explanations.

To test H5, I estimate the following logistic regression to model the probability that a firm indicates its ETR change is permanent:

$$\Pr(Permanent) = \alpha + \beta_1 ETRDecrease_{i,t} + \beta_2 PermChg_{i,t} + \beta_3 Yr2003_t + \varepsilon_{i,t} \tag{6}$$

where all variables are defined in Table 3.1 and discussed below. The dependent variable (*Permanent*) in equation (6) captures a firm's decision to indicate that a fourth quarter ETR change is permanent. To investigate H5, I include an indicator variable (*ETRDecrease*) equal to one for firms that decrease ETR during the fourth quarter, and zero otherwise. H5 predicts firms that report good news are more likely to provide information that suggests performance is permanent. Therefore, I expect a positive coefficient for *ETRDecrease*.

In addition to my variable of interest, equation (6) controls for the underlying persistence of an ETR change (*PermChg*). I set *PermChg* equal to one when *Persistence* (discussed earlier) is greater than or equal to one, and zero otherwise. To the extent firms credibly convey their beliefs about the persistence of an ETR change, I expect a positive coefficient for *PermChg*. Finally, I include a year indicator variable (*Yr2003*) to control for macro-economic events because Panel A of Table 4.1 documents the majority of ETR-related explanations are made in 2004.

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[21] Schmidt (2006) notes the multi-jurisdictional components of ETR, foreign tax rate differentials and state taxes, likely reflect long-term strategic tax planning activities. Likewise, Guenther and Jones (2006) hypothesize that a change in the percentage of income earned in foreign countries is likely the result of strategic planning.

TABLE 3.1
Variable Definitions

Dependent Variables

Expl   = 1 if firm *i* explains a fourth quarter change in annual ETR in its annual earnings announcement in year *t*; zero otherwise.

Permanent   = 1 if firm *i*'s ETR-related explanation in year *t* indicates the change in ETR is permanent; zero otherwise.

Variables of Interest

ETREarn   = Earnings generated by a change in the effective tax rate from the third quarter to the fourth quarter for firm *i* in year *t*. Earnings generated by a change in *ETR* is defined as annual pre-tax book income (Annual Data 170) multiplied by ($ETRQ3$ - $ETRQ4$) scaled by market value of equity at the end of the fiscal year (Annual Data 25 x Data 199). $ETRQ3$ ($ETRQ4$) is accumulated total income tax expense through three (four) quarters (Quarterly Data 6) divided by accumulated pre-tax book income (Quarterly Data 23).

PermChg   = 1 if *Persistence* is greater than or equal to one; zero otherwise. *Persistence* is the ratio of ($ETRQ3_t$ - $ETR\ Q4_{t+1}$) divided by ($ETRQ3_t$ - $ETR\ Q4_t$). $ETRQ3$ ($ETRQ4$) is accumulated total income tax expense through three (four) quarters (Quarterly Data 6) divided by accumulated pre-tax book income (Quarterly Data 23).

EarnMgmt   = 1 if firm *i* requires a decrease in annual ETR during the fourth quarter to meet or beat analyst expectations; zero otherwise. A firm is classified as requiring a change in ETR to meet or beat analyst expectations if (1) actual I/B/E/S annual earnings meet or exceed analyst expectations by less than one cent, (2) unmanaged earnings are less than analyst expectations, and (3) the firm decreases its ETR during the fourth quarter. Analyst expectations are defined as the last mean I/B/E/S consensus forecast before the annual earnings announcement date. Unmanaged earnings are defined as annual pre-tax book income (Annual Data Item 170) multiplied by (1-$ETRQ3$) divided by common shares to calculate basic EPS (Annual Data 54). $ETRQ3$ is accumulated total income tax expense through three quarters (Quarterly Data 6) divided by accumulated pre-tax book income (Quarterly Data 23).

TaxPlan   = 1 if *CashETR* is less than or equal to 20 percent; zero otherwise. *CashETR* is defined as cash taxes paid (Annual Data 317) divided by pre-tax book income (Annual Data 170) less special items (Annual Data 17) each summed over five years from *t-4* to *t*. I set cash taxes paid equal to current tax expense (Annual Data 16 – Data 50) in years where cash taxes paid is missing.

ETRDecrease = 1 if $ETRQ4$ is less than $ETRQ3$; zero otherwise. $ETRQ4$ ($ETRQ3$) is accumulated total income tax expense through four (three) quarters (Quarterly Data 6) divided by accumulated pre-tax book income (Quarterly Data 23).

Control Variables

InstOwn = Percentage of shares held by institutional shareholders of firm i at the end of year t, obtained from Thomson Financial.

Growth = Firm i's book-to-market ratio for year t, where the book-to-market ratio is book value of equity (Annual Data 60) divided by market value of equity (Annual Data 25 * Annual Data 199), both measured at the end of year t.

Size = Size of firm i at the end of year t, where size is the natural logarithm of market value of equity (Annual Data 25 * Annual Data 199) measured at the end of year t.

Yr2003 = 1 if the firm-year observation takes place in 2003; zero otherwise.

CHAPTER 4

DESCRIPTIVE STATISTICS AND RESULTS

4.1 Descriptive Statistics

Table 4.1 summarizes the incidence of ETR-related explanations for firms with a fourth

quarter change in ETR. In aggregate, 8 percent of firms with a fourth quarter ETR change issue

earnings announcements that contain ETR-related explanations. To examine whether firm-years

with an ETR decrease have a different disclosure pattern compared to those with an increase, I

partition my sample based on the sign of the ETR change. I find a higher percentage of firms

choose to explain a decrease in ETR (9.8 percent) than choose to explain an increase (4.8

percent). Furthermore, I find the direction of an ETR change is significantly associated with the

presence of an ETR-related explanation (*p-value* = 0.00, two-tailed).   This evidence is consistent

with firms understanding that market participants are skeptical of ETR decreases (Gleason and

Mills 2008; Lev and Thiagarajan 1993) and providing supplemental information in an attempt to

reduce uncertainty. Finally, Table 4.1 shows there is an association between ETR-related

explanations and the sample years, which underscores the importance of controlling for year-

specific effects in my analysis.

While the percentage of firms that choose to explain a decrease in ETR is small (9.8

percent), it is consistent with past research that documents limited tax-related disclosure. For

example, Gleason and Mills (2002) examine whether the annual reports of firms involved in an

IRS audit contain mandatory disclosures of the related tax contingency. They find that 27

percent of the reports in their sample mention a tax contingency, but only 8 percent provide the detailed information required by GAAP. Blouin and Tuna (2007) calculate firms' contingent tax liabilities using available financial statement data and examine whether firms disclose the existence of large contingent tax liabilities in the 10-K. Using a random sample of 152 10-Ks issued by 25 firms from 1999 to 2004, they find that approximately 16 percent of the 10-Ks disclose the presence of a contingent tax liability. Thus, it appears the incidence of ETR-related explanations is similar to that of other tax-related disclosures.

Table 4.2 reports the empirical distribution of independent variables for the ETR decrease sample used to test H1 through H4.[22] Consistent with expectations, firms that provide ETR-related explanations generate larger earnings (*ETREarn*) from ETR decreases and engage in less opportunistic earnings management (*EarnMgmt*) and tax planning (*TaxPlan*) than firms that do not explain an ETR decrease. This evidence provides univariate support for H1, H3, and H4. However, inconsistent with H2, the proportion of firms with a persistent ETR decrease (*PermChg*) is not statistically different for firms that explain an ETR change relative to those that do not. Finally, firms that have a larger percentage of shares held by institutional shareholders (*InstOwn*), have more growth opportunities (*Growth*), and are larger (*Size*) issue more ETR-related explanations. This evidence underscores the importance of controlling for these factors in my analysis.

4.2 Results: Determinants of ETR-Related Explanations

Table 4.3 presents results from estimating the logistic regression. Because some firms appear in my sample twice, I use Huber-White robust standard errors (Rogers 1993) to correct

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[22] Significance levels are one-tailed for tests with directional predictions and two-tailed for tests without directional predictions.

for correlation within a cluster of related observations.[23] I estimate the model first for the ETR

decrease sample and then repeat my analysis for the aggregate sample of ETR-related disclosures

(i.e., sample of both increases and decreases in ETR). To assess the performance of equation (1),

I estimate the area under the Receiver Operator Characteristic (ROC) Curve.[24] Figure 4.1 shows

that the area under the ROC Curve is approximately 0.76, which indicates equation (1) is well-

specified.

Consistent with H1, I find a positive and significant association between *RETREarn* and

the probability of explaining an ETR decrease (*p-value* = 0.00, one-tailed test). This result

suggests firms whose ETR decrease creates larger earnings are more likely to provide

supplemental information to help market participants understand the implications of a decrease

in ETR on firm value. The marginal effect indicates that, holding all other variables at their

mean values, a one standard deviation increase in *RETREarn* (centered around the mean) is

associated with a 96 percent increase (i.e., from 4.8 percent to 9.4 percent) in the probability that

a firm will explain a decrease in ETR.

Contrary to H2, the coefficient on *PermChg* is not significantly different from zero (*p-*

value = 0.77, one-tailed test). Thus, the permanence of an ETR decrease is not associated with

the probability the firm explains a decrease in ETR. As discussed in the next subsection,

alternative proxies for permanent ETR decreases yield similar results. Although puzzling, this

result suggests one reason why prior research concluded market participants have difficulty

interpreting the transitory and permanent components of ETR changes is because firms do not

disclose information sufficient to correctly interpret ETR changes.

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[23] Rogers (1993) standard errors are Huber-White standard errors (White 1980) adjusted to account for possible
correlation within a cluster of related observations and are robust to heteroskedasticity. Petersen (2007) finds that
Rogers (1993) standard errors are unbiased in the presence of both permanent and temporary firm effects.
[24] The ROC Curve allows researchers to test Type I and Type II error continuously. An area under the ROC Curve
of 0.50 represents a model that does not have discriminatory power above that of chance (Agresti 2002).

I also find a negative and significant coefficient for *EarnMgmt* (*p-value* = 0.03, one-tailed test), which supports H3. This finding suggests firms that opportunistically reduce their ETR to meet or beat analyst expectations are less likely to explain a decrease in ETR, consistent with an effort to hide earnings management. The marginal effect shows that opportunistic reductions in ETR are associated with a 46 percent decrease (i.e., from 7.2 percent to 3.9 percent) in the probability that a firm will explain a decrease in ETR.

Consistent with H4, I find a negative and significant coefficient for *TaxPlan* (*p-value* = 0.01, one-tailed). This result implies firms engaged in significant tax planning are less likely to explain an ETR decrease, presumably because they want avoid political and regulatory scrutiny. Tax planning reduces the likelihood a firm will explain an ETR decrease by 35 percent (i.e., from 8.0 percent to 5.2 percent). Further, results suggest that larger firms (*Size*) and firms with a higher percentage of institutional ownership (*InstOwn*) are more likely to explain a decrease in ETR. In addition, rapidly growing firms (*Growth*) are more likely to provide an ETR-related explanation because financial statement users are likely to be uncertain about firms' evolving tax situations. The rightmost column of Table 4.3 shows that inferences remain similar when I estimate equation (1) using the aggregate sample (i.e., both increases and decreases in ETR). Specifically, firms with larger (absolute) ETR-related earnings are more likely to explain an ETR change, while firms that opportunistically reduce ETR and firms that engage in significant tax planning are less likely to explain an ETR change.

4.3 Results: Content of ETR-Related Explanations

Panel A of Table 4.4 presents descriptive evidence on the temporary and permanent explanations firms provide for an ETR change. Audit settlements and changes in tax reserves are

the most common temporary explanations. A change in the mix of earnings (e.g., high-tax jurisdiction to low-tax jurisdiction or taxable to tax-exempt income) and tax law changes are the most common permanent explanations firms provide for an ETR change.

Table 4.4, Panel B documents that, in aggregate, the number of temporary and permanent explanations are fairly equal. However, once the sample is conditioned on the sign of the change in ETR, a distinct pattern emerges. Specifically, firms that decrease ETR during the fourth quarter provide a higher percentage of permanent explanations (56 percent) than firms with an ETR increase (26 percent). Consistent with expectations, this pattern indicates the type of news influences the content of ETR-related explanations.

Table 4.5 presents the results of my test of H5.[25] Consistent with H5, I find a positive and significant coefficient for *ETRDecrease* (*p-value* = 0.00, one-tailed test). This result implies that, after controlling for the underlying persistence of an ETR change, firms that experience an ETR decrease (i.e., report good news) are more likely to indicate performance is permanent. The marginal effect shows that a reduction in ETR is associated with a 121 percent increase (i.e., from 25.4 percent to 56.1 percent) in the probability that a firm will indicate performance is permanent. Finally, Table 4.5 indicates that the coefficient for *PermChg* is positive and significantly different from zero (*p-value* = 0.02, one-tailed test). This finding suggests ETR-related explanations that indicate performance is permanent are credible.

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[25] Figure 4.2 indicates the area under the ROC curve is 0.68, which indicates equation (6) has strong discriminatory power.

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TABLE 4.1
Incidence of ETR Explanations

	Aggregate Sample	ETR Decrease Sample	ETR Increase Sample	2003	2004
No Explanation	2,308	1,454	854	1,091	1,217
Explanation	200	157	43	56	144
Total	2,508	1,611	897	1,147	1,361
Percentage with Explanation	8.0%	9.8%	4.8%	4.9%	10.6%
Chi-Square Test of Independence		19.25***		27.54***	

*** Indicates significance at the 1% level (two-tailed).

TABLE 4.2
Descriptive Statistics for ETR Decrease Sample

Variable	Significant Difference	Mean	Standard Deviation	Lower Quartile	Median	Upper Quartile
ETREarn						
Aggregate		0.0017	0.0025	0.0003	0.0007	0.0018
Explanation	Expl > None	0.0023	0.0026	0.0006	0.0014	0.0030
No Explanation		0.0016	0.0024	0.0003	0.0007	0.0017
PermChg						
Aggregate		0.5518	0.4975	0.0000	1.0000	1.0000
Explanation	Expl ≈ None	0.4713	0.5008	0.0000	0.0000	1.0000
No Explanation		0.5605	0.4965	0.0000	1.0000	1.0000
EarnMgmt						
Aggregate		0.1037	0.3049	0.0000	0.0000	0.0000
Explanation	Expl < None	0.0701	0.2561	0.0000	0.0000	0.0000
No Explanation		0.1073	0.3096	0.0000	0.0000	0.0000
TaxPlan						
Aggregate		0.3830	0.4863	0.0000	0.0000	1.0000
Explanation	Expl < None	0.3185	0.4674	0.0000	0.0000	1.0000
No Explanation		0.3900	0.4879	0.0000	0.0000	1.0000
InstOwn						
Aggregate		0.6032	0.2764	0.4521	0.6734	0.8168
Explanation	Expl > None	0.6572	0.2317	0.5680	0.7182	0.8315
No Explanation		0.5974	0.2803	0.4343	0.6685	0.8151
Growth						
Aggregate		0.4611	0.2374	0.2899	0.4225	0.5949
Explanation	Expl < None	0.3985	0.1944	0.2539	0.3621	0.5507
No Explanation		0.4679	0.2407	0.2934	0.4316	0.6017
Size						
Aggregate		7.1757	1.6549	6.0042	6.9893	8.2014
Explanation	Expl > None	7.8639	1.7277	6.5046	7.7630	8.9388
No Explanation		7.1014	1.6301	5.9566	6.9394	8.0513

*See Table 3.1 for variable definitions

*I winsorize (reset) all observations at the 1st and 99th percentile.

*The aggregate sample contains 1,611 firm-year observations from 2003 to 2004. The *Explanation* subsample consists of 157 firm-year observations and the *No Explanation* subsample consists of 1,454 firm-year observations.

*Significant differences between the *Explanation and No Explanation* subsamples are based on both *t*-statistics of means and *z*-statistics of Wilcoxon Rank-Sum Tests of medians (one-tailed *p-value* < 0.10 for variables with a directional prediction; two-tailed *p-value* otherwise).

TABLE 4.3
Determinants of ETR-Related Explanations

$$Pr(\,Expl\,) = \alpha + \beta_1 RETREarn_{i,t} + \beta_2 PermChg_{i,t} + \beta_3 EarnMgmt_{i,t} + \beta_4 TaxPlan_{i,t}$$

$$+ \beta_5 InstOwn_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Size_{i,t} + \beta_8 Yr2003_t + \varepsilon_{i,t}$$

Variable	Predicted Sign	ETR Decrease Sample Coefficient [Marginal Effect] (*p-value*)	Aggregate Sample Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-4.4150	-4.7575
		(0.00)	*(0.00)*
RETREarn (H1)	+	2.4640	2.7118
		[0.046]	[0.041]
		(0.00)	*(0.00)*
PermChg (H2)	+	-0.1303	-0.0853
		[-0.008]	[-0.004]
		(0.77)	*(0.71)*
EarnMgmt (H3)	-	-0.6515	-0.4448
		[-0.033]	[-0.019]
		(0.03)	*(0.09)*
TaxPlan (H4)	-	-0.4692	-0.2967
		[-0.028]	[-0.015]
		(0.01)	*(0.04)*
InstOwn	+	0.4998	0.4175
		[0.009]	[0.006]
		(0.07)	*(0.09)*
Growth	?	-1.8284	-1.7536
		[-0.028]	[-0.022]
		(0.00)	*(0.00)*
Size	+	0.2492	0.2301
		[0.026]	[0.020]
		(0.00)	*(0.00)*
Year2003	?	-0.8142	-0.7335
		(0.00)	*(0.00)*
# of Explanations		157	200
# Without Explanation		1,454	2,308
Model X^2		112.79	163.95
		(0.00)	*(0.00)*
Pseudo R^2		24.8%	24.2%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)
* For continuous variables (*RETREarn, InstOwn, Growth,* and *Size*), the marginal effect is the effect of a one standard deviation increase in the independent variable of interest, centered around the mean, on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values). For indicator variables (*PermChg, EarnMgmt,* and *TaxPlan*), the marginal effect is the effect of a one unit change in the independent variable on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values).
* Following Veall and Zimmermann's (1996) suggestion, I report McKelvey and Zavoina's (1975) pseudo R^2.

FIGURE 4.1
Receiver Operator Characteristic (ROC) Curve Diagnostics for Equation (1)

Area under ROC curve = 0.7589
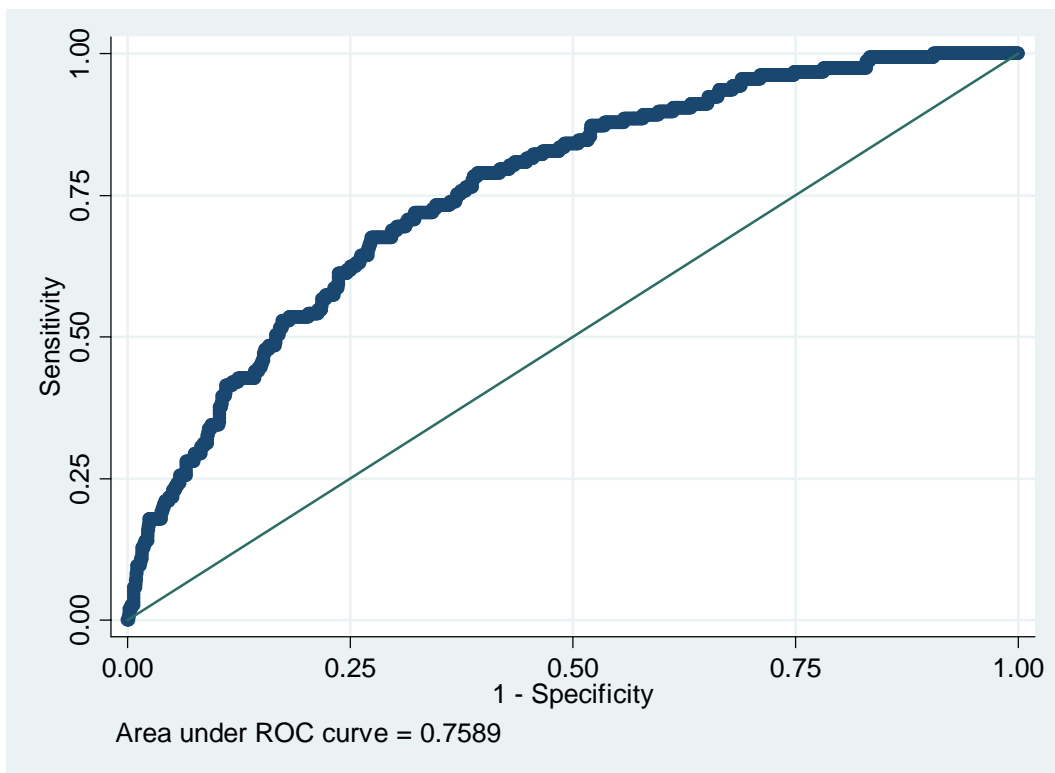
TABLE 4.4
Content Analysis of ETR-Related Explanations[a]

Panel A: Reasons for Changes in ETR

	All Explanations[b] (N = 180)	Explanations of ETR Decreases[b] (N = 141)	Explanations of ETR Increases[b] (N = 39)
Temporary Reasons			
Tax Law Change	3	2	1
State Tax Issues	1	1	0
International Tax Issues	1	0	1
Nonrecurring Item/Unexpected Deduction	15	7	8
Audit Settlement	33	31	2
Net Operating Loss Carryforward	2	2	0
Establish/Adjust Tax Reserves	27	14	13
Tax Credits	9	8	1
Different Book-Tax Treatment	6	0	6
Permanent Reasons			
Change in Mix of Earnings	51	45	6
New Tax Planning	13	13	0
Tax Law Change	18	16	2
State Tax Issues	10	7	3
International Tax Issues	9	9	0
Net Operating Loss Carryforward	2	1	1
Establish/Adjust Tax Reserves	1	1	0
Different Book-Tax Treatment	1	1	0
Panel B: Analysis of Content Across ETR Changes			
Temporary Explanations (Percentage)	91 (50.6%)	62 (44.0%)	29 (74.4%)
Permanent Explanations (Percentage)	89 (49.4%)	79 (56.0%)	10 (25.6%)
Total Explanations (Percentage)	180 (100.0%)	141 (100.0%)	39 (100.0%)

[a] I exclude 20 explanations where the cause of the ETR change is not clear
[b] Some firms provide multiple explanations for an ETR change

TABLE 4.5
Determinants of the Content of ETR-Related Explanations

$$\Pr(Permanent) = \alpha + \beta_1 ETRDecrease_{i,t} + \beta_2 PermChg_{i,t} + \beta_3 Yr2003_t + \varepsilon_{i,t}$$

Variable	Predicted Sign	Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-1.4012
		(0.00)
ETRDecrease (H5)	+	1.3206
		[0.307]
		(0.00)
PermChg	+	0.7421
		[0.183]
		(0.02)
Year2003	?	-0.0560
		(0.87)
# of Permanent Explanations		89
# of Temporary Explanations		91
Model X^2		13.58
		(0.00)
Pseudo R^2		12.0%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)
* The marginal effect is the effect of a one unit change in the independent variable on the probability that an ETR-related explanation indicates the ETR change is permanent (holding all other independent variables at their mean values)
* Following Veall and Zimmermann's (1996) recommendation, I report McKelvey and Zavoina's (1975) pseudo R^2.

FIGURE 4.2
**Receiver Operator Characteristic (ROC) Curve Diagnostics for Equation (6)**

Area under ROC curve = 0.6782
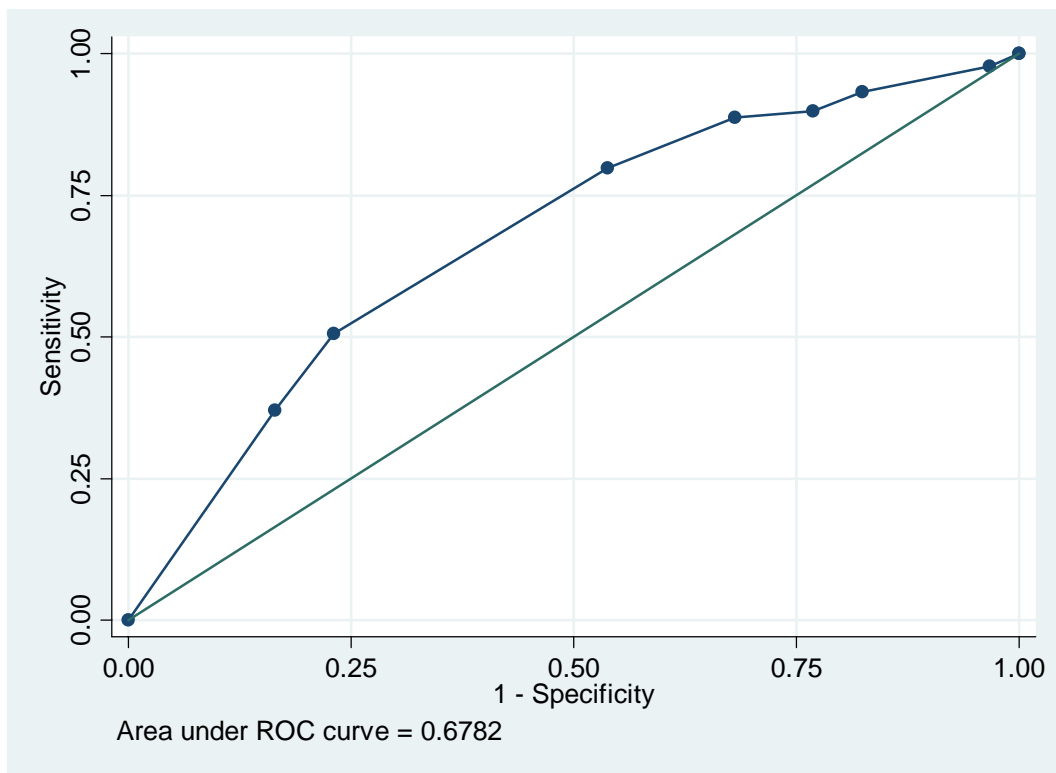
CHAPTER 5

SENSITIVITY ANALYSIS

In this chapter, I present additional analyses to assess the robustness of my inferences. First, I substitute the raw fourth quarter change in ETR for *ETREarn* in model (1) to assess whether *ETREarn* is a proxy for materiality instead of unexpected performance. Second, I investigate whether the lack of association between the permanence of an ETR decrease and disclosure is due to measurement error in the *Persistence* variable. Third, I examine the robustness of my classification of opportunistic earnings management to a variety of specifications identified in prior research. Fourth, I estimate an alternative measure of tax planning. Finally, I investigate whether the association between type of news (e.g., an ETR decrease) and disclosure content is robust to alternative measures of *Persistence* as well as to controlling for the other determinants of a firm's decision to provide supplemental information (e.g., *EarnMgmt*, *TaxPlan*, *InstOwn*, *Growth*, and *Size*).

5.1 Determinants of ETR-Related Explanations: Changes in ETR

H1 predicts that firms with large performance "surprises" will be more likely to provide supplemental information. To test H1, I calculate the magnitude of earnings generated by a decrease in ETR (*ETREarn*). However, it is possible that *ETREarn* proxies for the materiality of a firm's tax expense rather than an unexpected change in ETR. To address this issue, I calculate the magnitude of the fourth quarter change in annual ETR as follows:

$$ETRChg_{i,t} = ETRQ3_{i,t} - ETRQ4_{i,t} \tag{7}$$

I rank *ETRChg* (*RETRChg*) to reduce the influence of outliers because descriptive statistics (untabulated) show the mean of *ETRChg* is above the 75th percentile, which suggests *ETRChg* is highly skewed. Untabulated correlation statistics suggest that *ETREarn* and *ETRChg* are highly correlated ($\rho = 0.91$, Spearman correlation), providing comfort that both variables capture the same construct.

Table 5.1 presents the results of estimating equation (1) with *RETRChg* instead of *RETREarn*. Consistent with H1 and the results presented in Table 4.3, I find a positive and significant association between *RETRChg* and the probability of explaining an ETR decrease (*p-value* = 0.00, one-tailed test). In addition, the rightmost column of Table 5.1 shows that inferences remain similar when I replicate my analysis using the aggregate sample (i.e., both increases and decreases in ETR). In sum, these results suggest firms whose ETR decrease creates larger earnings are more likely to provide supplemental information to help market participants understand the implications of a decrease in ETR on firm value.

5.2 Determinants of ETR-Related Explanations: Alternative Specifications of *Persistence*

To investigate whether the lack of association between the permanence of an ETR decrease and disclosure is due to measurement error in the *Persistence* variable, I examine two separate proxies for future ETR. First, I examine whether my result is sensitive to the annual ETR estimate at the end of the first quarter of year *t+1*. GAAP requires firms to estimate their annual ETR at the beginning of the year and revise their estimate as the year progresses. Thus, the annual ETR estimate at the end of the first quarter of year *t+1* represents a firm's initial

estimate of ETR for year *t+1* (Schmidt 2006) and may be a more suitable proxy for the expected permanence of an ETR change. I modify equation (3) as follows:

$$PersistenceQ1_{i,t} = \frac{ETRQ3_{i,t} - ETRQ1_{i,t+1}}{ETRQ3_{i,t} - ETRQ4_{i,t}}$$

(8)

The numerator in *PersistenceQ1* is a firm's annual ETR estimate at the end of the first quarter of year *t+1* relative to the annual ETR estimate at the end of the third quarter for year *t*. The denominator is the fourth quarter ETR change for year *t*. *PersistenceQ1* captures whether a firm expects its fourth quarter shock to annual ETR persists into year *t+1*. I set *PermChgQ1* equal to one when *PersistenceQ1* is greater than or equal to one, and zero otherwise.

I also examine whether my result is robust to using the annual ETR estimate for year *t+1* at the end of the third quarter in year *t+1*. Prior research suggests firms opportunistically reduce their annual ETR in the fourth quarter (Dhaliwal et al. 2004). Consequently, the *Persistence* ratio may capture opportunistic earnings management as opposed to a persistent change in ETR. Dhaliwal et al. (2004) argue that the ETR estimate at the end of the third quarter is a suitable proxy for unmanaged ETR. To examine whether earnings management adds additional noise to the Persistence ratio, I modify equation (3) as follows:

$$PersistenceQ3_{i,t} = \frac{ETRQ3_{i,t} - ETRQ3_{i,t+1}}{ETRQ3_{i,t} - ETRQ4_{i,t}}$$

(9)

The numerator in *PersistenceQ3* is a firm's annual ETR estimate at the end of the third quarter of year *t+1* relative to the annual ETR estimate at the end of the third quarter for year *t*. The denominator is the fourth quarter ETR change for year *t*. *PersistenceQ3* captures whether a fourth quarter shock to annual ETR persists into year *t+1*. I set *PermChgQ3* equal to one when *PersistenceQ3* is greater than or equal to one, and zero otherwise.

Tables 5.2 and 5.3 present the results of estimating equation (1) after replacing *PermChg* with *PermChgQ1* and *PermChgQ3*, respectively. Table 5.2 indicates the coefficient for *PermChgQ1* is not significantly different from zero (*p-value* = 0.87, one-tailed test). Likewise, Table 5.3 reports the coefficient on *PermChgQ3* is also insignificant (*p-value* = 0.50, one-tailed test). In sum, results are similar to those reported in Table 4.3 and suggest the permanence of a decrease in ETR does not influence a firm's decision to provide an ETR-related explanation.

5.3 Determinants of ETR-Related Explanations: Alternative Specifications of *EarnMgmt*

EarnMgmt is based on the last consensus forecast before the earnings announcement date (Gleason and Mills 2008). However, prior research suggests that the single-most recent analyst forecast is more accurate than the consensus mean forecast (Brown 1991; O'Brien 1988). To investigate whether stale forecasts cause firms to be misclassified as opportunistically managing earnings, I re-estimate *EarnMgmt* using the last available analyst forecast before the earnings announcement date as the earnings benchmark. Table 5.4 reports the results of estimating equation (1) for firms with available analyst forecasts. Consistent with H3, I find a negative and significant relation between *EarnMgmt* and the probability of explaining an ETR decrease (*p-value* = 0.04, one-tailed).

In addition, I examine whether limiting the analyst forecast error to one cent influences my result. Following prior research, I expand the analyst forecast error limit to five cents (Dhaliwal et al. 2004; Gleason and Mills 2008). The coefficient for *EarnMgmt*, reported in Table 5.5, remains negative and significant (*p-value* = 0.01, one-tailed).

Prior research documents an asymmetry around different earnings benchmarks (e.g., analyst forecast), which suggests that firms that just meet or beat earnings benchmarks

opportunistically manage earnings (e.g., Ayers et al. 2006; Burgstahler and Dichev 1997; Burgstahler and Eames 2006; Degeorge et al. 1999; Phillips et al. 2003). However, Durtschi and Easton (2005) note that the asymmetry in analyst forecast errors around zero may be due to analyst optimism/pessimism rather than opportunistic earnings management.

To evaluate whether *EarnMgmt* captures analyst optimism/pessimism instead of earnings management, I classify firms that require a decrease in their fourth quarter ETR to meet or beat analyst expectations as opportunistically managing earnings. Table 5.6 presents the results of this alternative estimate of *EarnMgmt*. Consistent with H3, the coefficient on *EarnMgmt* is negative and significant (*p-value* = 0.03, one-tailed). Collectively, results are similar to those presented in Tables 4.3 and suggest that firms that opportunistically reduce their ETR are less likely to provide an ETR-related explanation.

5.4   Determinants of ETR-Related Explanations: Alternative Specification of *TaxPlan*

Prior research advocates evaluating a firm's tax planning activities over a long period of time and classifies firms as tax planners based on the level of a firm's long-term (e.g., five year) cash ETR (Dyreng et al. 2008). However, such analysis ignores industry-specific patterns in cash ETR. Recent research incorporates industry-level trends and classifies firms as high tax planners if *CashETR* is in the lowest quintile for a given year and industry (two-digit SIC code) (Ayers et al. 2007).

To examine whether my results are robust to industry-level trends, I designate firms as aggressive tax planners if *CashETR* is in the lowest quintile for a given year and industry. Table 5.7 presents the results of this alternative estimate of *TaxPlan*. Consistent with H4 and the main

results presented in Table 4.3, the coefficient on *TaxPlan* remains negative and significant (*p-value* = 0.04, one-tailed test).

5.5 Content of ETR-Related Explanations: Alternative Specifications of *Persistence* and Additional Control Variables

H5 investigates whether, after controlling for the underlying nature of an ETR change, firm performance influences the content of ETR-related explanations. Because *Persistence* is potentially measured with error, I examine whether the results in Table 4.5 are robust to the alternative specifications of *Persistence* discussed in Section 5.2. Tables 5.8 and 5.9 present the results of estimating equation (6) after replacing *PermChg* with *PermChgQ1* and *PermChgQ3*, respectively. Inferences are similar to those reported in Table 4.5. Specifically, results suggest that, after controlling for the underlying persistence of an ETR change, firms that experience an ETR decrease (i.e., report good news) are more likely to indicate that performance is permanent.

Equation (6) controls for the underlying persistence of an ETR change, but does not control for the other factors associate with firms' initial decision to explain an ETR change. To investigate whether firm performance affects the content of ETR-related explanations after controlling for the other determinants of a firm's decision to provide supplemental information, I expand equation (6) as follows:

$$
\begin{aligned}
\Pr(Permanent) = {} & \alpha + \beta_1 RETREarn_{i,t} + \beta_2 ETRDecrease_{i,t} + \beta_3 PermChg_{i,t} \\
& + \beta_4 EarnMgmt_{i,t} + \beta_5 TaxPlan_{i,t} + \beta_6 InstOwn_{i,t} + \beta_7 Growth_{i,t} + \beta_8 Size_{i,t} \\
& + \beta_9 Yr2003_t + \varepsilon_{i,t}
\end{aligned}
\tag{10}
$$

I do not make directional predictions for the additional control variables in equation (10) because prior theoretical and empirical results do not provide guidance about how these factors may influence the content of supplemental information. Accordingly, this analysis is strictly

exploratory. Table 5.10 reports the results of estimating equation (10). Consistent with H5, and the results presented in Table 4.5, the coefficient for *ETRDecrease* is positive and significant (*p-value* = 0.00, one-tailed test). This result implies that firms that experience an ETR decrease (i.e., report good news) are more likely to indicate that performance is permanent.

In addition, the coefficient for *PermChg* remains positive and significant (*p-value* = 0.02, one-tailed test). This finding suggests ETR-related explanations that indicate performance is permanent are credible. Interestingly, the coefficients for *RETREarn* (*p-value* = 0.07, two-tailed test) and *Size* (*p-value* = 0.08, two-tailed test) are negative and marginally significant. This result implies that larger firms and firms with larger ETR-related earnings are less likely to indicate an ETR change is permanent.

TABLE 5.1
Determinants of ETR-Related Explanations: Substituting *RETRChg*

$$\Pr(\textit{Expl}) = \alpha + \beta_1 RETRChg_{i,t} + \beta_2 PermChg_{i,t} + \beta_3 EarnMgmt_{i,t} + \beta_4 TaxPlan_{i,t}$$

$$+ \beta_5 InstOwn_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Size_{i,t} + \beta_8 Yr2003_t + \varepsilon_{i,t}$$

Variable	Predicted Sign	ETR Decrease Sample Coefficient [Marginal Effect] (*p-value*)	Aggregate Sample Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-4.4780	-4.8396
		(0.00)	*(0.00)*
RETRChg (H1)	+	2.1876	2.4339
		[0.041]	[0.038]
		(0.00)	*(0.00)*
PermChg (H2)	+	-0.1583	-0.1091
		[-0.010]	[-0.006]
		(0.82)	*(0.76)*
EarnMgmt (H3)	-	-0.7270	-0.5210
		[-0.037]	[-0.023]
		(0.02)	*(0.061)*
TaxPlan (H4)	-	-0.5208	-0.3520
		[-0.032]	[-0.018]
		(0.00)	*(0.02)*
InstOwn	+	0.4170	0.3582
		[0.008]	[0.005]
		(0.11)	*(0.12)*
Growth	?	-1.3764	-1.2989
		[-0.021]	[-0.017]
		(0.00)	*(0.00)*
Size	+	0.2686	0.2499
		[0.029]	[0.022]
		(0.00)	*(0.00)*
Year2003	?	-0.8645	-0.7785
		(0.00)	*(0.00)*
# of Explanations		157	200
# Without Explanation		1,454	2,308
Model X^2		107.54	154.52
		(0.00)	*(0.00)*
Pseudo R^2		23.20%	22.30%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)
* For continuous variables (*RETREarn, InstOwn, Growth,* and *Size*), the marginal effect is the effect of a one standard deviation increase in the independent variable of interest, centered around the mean, on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values). For indicator variables (*PermChg, EarnMgmt,* and *TaxPlan*), the marginal effect is the effect of a one unit change in the independent variable on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values).
* Following Veall and Zimmermann's (1996) suggestion, I report McKelvey and Zavoina's (1975) pseudo R^2.

TABLE 5.2
Determinants of ETR-Related Explanations: Substituting *PermChgQ1*

$\Pr(Expl) = \alpha + \beta_1 RETREarn_{i,t} + \beta_2 PermChgQ1_{i,t} + \beta_3 EarnMgmt_{i,t} + \beta_4 TaxPlan_{i,t}$

$+ \beta_5 InstOwn_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Size_{i,t} + \beta_8 Yr2003_t + \varepsilon_{i,t}$

Variable	Predicted Sign	Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-4.4034
		(0.00)
RETREarn (H1)	+	2.4561
		[0.045]
		(0.00)
PermChgQ1 (H2)	+	-0.2184
		[-0.013]
		(0.87)
EarnMgmt (H3)	-	-0.6303
		[-0.032]
		(0.03)
TaxPlan (H4)	-	-0.4763
		[-0.029]
		(0.01)
InstOwn	+	0.4945
		[0.009]
		(0.07)
Growth	?	-1.8346
		[-0.028]
		(0.00)
Size	+	0.2498
		[0.026]
		(0.00)
Year2003	?	-0.8163
		(0.00)
# of Explanations		157
# Without Explanation		1,454
Model X^2		113.11
		(0.00)
Pseudo R^2		24.9%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)
* For continuous variables (*RETREarn, InstOwn, Growth,* and *Size*), the marginal effect is the effect of a one standard deviation increase in the independent variable of interest, centered around the mean, on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values). For indicator variables (*PermChg, EarnMgmt,* and *TaxPlan*), the marginal effect is the effect of a one unit change in the independent variable on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values).
* Following Veall and Zimmermann's (1996) suggestion, I report McKelvey and Zavoina's (1975) pseudo R^2.

TABLE 5.3
Determinants of ETR-Related Explanations: Substituting *PermChgQ3*

$$\Pr(Expl) = \alpha + \beta_1 RETREarn_{i,t} + \beta_2 PermChgQ3_{i,t} + \beta_3 EarnMgmt_{i,t} + \beta_4 TaxPlan_{i,t}$$

$$+ \beta_5 InstOwn_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Size_{i,t} + \beta_8 Yr2003_t + \varepsilon_{i,t}$$

Variable	Predicted Sign	Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-4.4987
		(0.00)
RETREarn (H1)	+	2.5097
		[0.046]
		(0.00)
PermChgQ3 (H2)	+	0.0007
		[0.000]
		(0.50)
EarnMgmt (H3)	-	-0.6560
		[-0.033]
		(0.03)
TaxPlan (H4)	-	-0.4667
		[-0.028]
		(0.01)
InstOwn	+	0.5054
		[0.009]
		(0.07)
Growth	?	-1.8414
		[-0.028]
		(0.00)
Size	+	0.2482
		[0.026]
		(0.00)
Year2003	?	-0.8180
		(0.00)
# of Explanations		157
# Without Explanation		1,454
Model X^2		112.90
		(0.00)
Pseudo R^2		24.8%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)
* For continuous variables (*RETREarn, InstOwn, Growth,* and *Size*), the marginal effect is the effect of a one standard deviation increase in the independent variable of interest, centered around the mean, on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values). For indicator variables (*PermChg, EarnMgmt,* and *TaxPlan*), the marginal effect is the effect of a one unit change in the independent variable on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values).
* Following Veall and Zimmermann's (1996) suggestion, I report McKelvey and Zavoina's (1975) pseudo R^2.

TABLE 5.4

Determinants of ETR-Related Explanations: Alternative Specification of *EarnMgmt*

$$Pr(\,Expl\,) = \alpha + \beta_1 RETREarn_{i,t} + \beta_2 PermChg_{i,t} + \beta_3 EarnMgmt_{i,t} + \beta_4 TaxPlan_{i,t}$$

$$+ \beta_5 InstOwn_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Size_{i,t} + \beta_8 Yr2003_t + \varepsilon_{i,t}$$

Variable	Predicted Sign	Last Available Analyst Forecast Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-4.3655
		(0.00)
RETREarn (H1)	+	2.4883
		[0.047]
		(0.00)
PermChg (H2)	+	-0.1335
		[-0.009]
		(0.77)
EarnMgmt (H3)	-	-0.5545
		[-0.030]
		(0.04)
TaxPlan (H4)	-	-0.4616
		[-0.028]
		(0.01)
InstOwn	+	0.5019
		[0.009]
		(0.07)
Growth	?	-1.8263
		[-0.028]
		(0.00)
Size	+	0.2413
		[0.026]
		(0.00)
Year2003	?	-0.8305
		(0.00)
# of Explanations		157
# Without Explanation		1,454
Model X^2		111.34
		(0.00)
Pseudo R^2		24.4%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)
* For continuous variables (*RETREarn, InstOwn, Growth,* and *Size*), the marginal effect is the effect of a one standard deviation increase in the independent variable of interest, centered around the mean, on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values). For indicator variables (*PermChg, EarnMgmt,* and *TaxPlan*), the marginal effect is the effect of a one unit change in the independent variable on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values).
* Following Veall and Zimmermann's (1996) suggestion, I report McKelvey and Zavoina's (1975) pseudo R^2.

TABLE 5.5

Determinants of ETR-Related Explanations: Alternative Specification of *EarnMgmt*

$$Pr(\,Expl\,) = \alpha + \beta_1 RETREarn_{i,t} + \beta_2 PermChg_{i,t} + \beta_3 EarnMgmt_{i,t} + \beta_4 TaxPlan_{i,t}$$

$$+ \beta_5 InstOwn_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Size_{i,t} + \beta_8 Yr2003_t + \varepsilon_{i,t}$$

		$.00 \le AFE \le .05$
Variable	Predicted Sign	Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-4.4110
		(0.00)
RETREarn (H1)	+	2.4898
		[0.046]
		(0.00)
PermChg (H2)	+	-0.1340
		[-0.008]
		(0.77)
EarnMgmt (H3)	-	-0.6660
		[-0.035]
		(0.01)
TaxPlan (H4)	-	-0.4411
		[-0.027]
		(0.01)
InstOwn	+	0.4982
		[0.009]
		(0.07)
Growth	?	-1.8711
		[-0.028]
		(0.00)
Size	+	0.2549
		[0.027]
		(0.00)
Year2003	?	-0.8042
		(0.00)
# of Explanations		157
# Without Explanation		1,454
Model X^2		112.87
		(0.00)
Pseudo R^2		25.2%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)
* For continuous variables (*RETREarn, InstOwn, Growth,* and *Size*), the marginal effect is the effect of a one standard deviation increase in the independent variable of interest, centered around the mean, on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values). For indicator variables (*PermChg, EarnMgmt,* and *TaxPlan*), the marginal effect is the effect of a one unit change in the independent variable on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values).
* Following Veall and Zimmermann's (1996) suggestion, I report McKelvey and Zavoina's (1975) pseudo R^2.

TABLE 5.6

Determinants of ETR-Related Explanations: Alternative Specification of *EarnMgmt*

$$Pr(\,Expl\,) = \alpha + \beta_1 RETREarn_{i,t} + \beta_2 PermChg_{i,t} + \beta_3 EarnMgmt_{i,t} + \beta_4 TaxPlan_{i,t}$$

$$+ \beta_5 InstOwn_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Size_{i,t} + \beta_8 Yr2003_t + \varepsilon_{i,t}$$

Variable	Predicted Sign	No Forecast Error Limit Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-4.4622
		(0.00)
RETREarn (H1)	+	2.5452
		[0.047]
		(0.00)
PermChg (H2)	+	-0.1242
		[-0.008]
		(0.76)
EarnMgmt (H3)	-	-0.3887
		[-0.023]
		(0.03)
TaxPlan (H4)	-	-0.4616
		[-0.028]
		(0.01)
InstOwn	+	0.5150
		[0.009]
		(0.07)
Growth	?	-1.8177
		[-0.028]
		(0.00)
Size	+	0.2515
		[0.027]
		(0.00)
Year2003	?	-0.7990
		(0.00)
# of Explanations		157
# Without Explanation		1,454
Model X^2		113.28
		(0.00)
Pseudo R^2		24.4%

* See Table 3.1 for variable definitions

* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)

* For continuous variables (*RETREarn, InstOwn, Growth,* and *Size*), the marginal effect is the effect of a one standard deviation increase in the independent variable of interest, centered around the mean, on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values). For indicator variables (*PermChg, EarnMgmt,* and *TaxPlan*), the marginal effect is the effect of a one unit change in the independent variable on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values).

* Following Veall and Zimmermann's (1996) suggestion, I report McKelvey and Zavoina's (1975) pseudo R^2.

TABLE 5.7

Determinants of ETR-Related Explanations: Alternative Specification of *TaxPlan*

$$Pr(\,Expl\,) = \alpha + \beta_1 RETREarn_{i,t} + \beta_2 PermChg_{i,t} + \beta_3 EarnMgmt_{i,t} + \beta_4 TaxPlan_{i,t}$$

$$+ \beta_5 InstOwn_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Size_{i,t} + \beta_8 Yr2003_t + \varepsilon_{i,t}$$

Variable	Predicted Sign	Lowest quintile of *CashETR* for a given year and industry Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-4.4407
		(0.00)
RETREarn (H1)	+	2.4073
		[0.045]
		(0.00)
PermChg (H2)	+	-0.1416
		[-0.009]
		(0.79)
EarnMgmt (H3)	-	-0.6444
		[-0.033]
		(0.03)
TaxPlan (H4)	-	-0.4359
		[-0.025]
		(0.04)
InstOwn	+	0.4641
		[0.008]
		(0.09)
Growth	?	-1.8074
		[-0.027]
		(0.00)
Size	+	0.2452
		[0.026]
		(0.00)
Year2003	?	-0.7946
		(0.00)
# of Explanations		157
# Without Explanation		1,454
Model X^2		112.27
		(0.00)
Pseudo R^2		24.4%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)
* For continuous variables (*RETREarn, InstOwn, Growth,* and *Size*), the marginal effect is the effect of a one standard deviation increase in the independent variable of interest, centered around the mean, on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values). For indicator variables (*PermChg, EarnMgmt,* and *TaxPlan*), the marginal effect is the effect of a one unit change in the independent variable on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values).
* Following Veall and Zimmermann's (1996) suggestion, I report McKelvey and Zavoina's (1975) pseudo R^2.

TABLE 5.8
Determinants of the Content of ETR-Related Explanations:
Substituting *PermChgQ1*

$$\Pr(Permanent) = \alpha + \beta_1 ETRDecrease_{i,t} + \beta_2 PermChgQ1_{i,t} + \beta_3 Yr2003_t + \varepsilon_{i,t}$$

Variable	Predicted Sign	Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-1.5722
		(0.00)
ETRDecrease (H5)	+	1.5718
		[0.356]
		(0.00)
PermChgQ1	+	1.1550
		[0.278]
		(0.00)
Year2003	?	-0.1250
		(0.72)
# of Permanent Explanations		89
# of Temporary Explanations		91
Model X^2		15.55
		(0.00)
Pseudo R^2		15.6%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations
per firm (Rogers 1993)
* The marginal effect is the effect of a one unit change in the independent variable on the
probability that an ETR-related explanation indicates the ETR change is permanent (holding
 all other independent variables at their mean values)
* Following Veall and Zimmermann's (1996) recommendation, I report McKelvey and
Zavoina's (1975) pseudo R^2.

TABLE 5.9
Determinants of the Content of ETR-Related Explanations:
Substituting *PermChgQ3*

$$\Pr(Permanent) = \alpha + \beta_1 ETRDecrease_{i,t} + \beta_2 PermChgQ3_{i,t} + \beta_3 Yr2003_t + \varepsilon_{i,t}$$

Variable	Predicted Sign	Coefficient [Marginal Effect] (*p-value*)
Intercept	?	-1.3791
		(0.00)
ETRDecrease (H5)	+	1.2161
		[0.285]
		(0.00)
PermChgQ3	+	1.0150
		[0.248]
		(0.00)
Year2003	?	-0.0557
		(0.87)
# of Permanent Explanations		89
# of Temporary Explanations		91
Model X^2		17.32
		(0.00)
Pseudo R^2		14.7%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)
* The marginal effect is the effect of a one unit change in the independent variable on the probability that an ETR-related explanation indicates the ETR change is permanent (holding all other independent variables at their mean values)
* Following Veall and Zimmermann's (1996) recommendation, I report McKelvey and Zavoina's (1975) pseudo R^2.

TABLE 5.10
Determinants of the Content of ETR-Related Explanations: Additional Control Variables

$$\text{Pr}(Permanent) = \alpha + \beta_1 ETRDecrease_{i,t} + \beta_2 PermChg_{i,t} + \beta_3 RETREarn_{i,t} + \beta_4 EarnMgmt_{i,t}$$
$$+ \beta_5 TaxPlan_{i,t} + \beta_6 InstOwn_{i,t} + \beta_7 Growth_{i,t} + \beta_8 Size_{i,t} + \beta_9 Yr2003_t + \varepsilon_{i,t}$$

Variable	Predicted Sign	Coefficient [Marginal Effect] (p-value)
Intercept	?	0.6444
		(0.57)
ETRDecrease (H5)	+	1.5129
		[0.344]
		(0.00)
PermChg	+	0.6548
		[0.162]
		(0.02)
RETRChg	?	-1.3016
		[-0.078]
		(0.07)
EarnMgmt	?	-0.0748
		[-0.019]
		(0.91)
TaxPlan	?	0.3869
		[0.096]
		(0.29)
InstOwn	?	-0.2027
		[-0.012]
		(0.76)
Growth	?	-0.0079
		[0.000]
		(0.99)
Size	?	-0.1676
		[-0.076]
		(0.08)
Year2003	?	-0.0173
		(0.96)
# of Permanent Explanations		89
# of Temporary Explanations		91
Model X^2		20.09
		(0.00)
Pseudo R^2		17.4%

* See Table 3.1 for variable definitions
* I use Rogers standard errors to correct for serial correlation among multiple observations per firm (Rogers 1993)
* For continuous variables (*RETREarn, InstOwn, Growth,* and *Size*), the marginal effect is the effect of a one standard deviation increase in the independent variable of interest, centered around the mean, on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values). For indicator variables (*PermChg, EarnMgmt,* and *TaxPlan*), the marginal effect is the effect of a one unit change in the independent variable on the probability a firm will provide an ETR-related explanation (holding all other independent variables at their mean values).
* Following Veall and Zimmermann's (1996) suggestion, I report McKelvey and Zavoina's (1975) pseudo R^2.

CHAPTER 6

CONCLUSION

This study investigates the determinants and content of voluntary explanations firms

provide for a fourth quarter decrease in their ETR. Prior research suggests market participants

generally fail to fully impound the information in ETR changes because it is difficult to identify

and interpret the transitory and permanent components of ETR changes (Bauman and Shaw

2005; Schmidt 2006). In such a situation, theory predicts firms will disclose supplemental

information to help market participants' determine how earnings components affect firm value

(Bagnoli and Watts 2007). However, the decision to disclose additional information will vary

with the costs of disclosure (Bagnoli and Watts 2007; Verrecchia 1983, 2001).

Using a hand-collected sample of earnings announcements, I find that approximately 10

percent of the firms with an ETR decrease provide ETR-related explanations in their annual

earnings announcements. Based on economic theory (Bagnoli and Watts 2007), I predict the

probability a firm explains an ETR decrease is higher for firms with larger ETR-related earnings

and firms with a permanent decrease in ETR. Because theory predicts the cost of disclosure

influences the decision to provide supplemental information (Bagnoli and Watts 2007), I also

predict firms that opportunistically reduce ETR to meet analyst expectations and firms that

engage in significant tax planning will be less likely to explain an ETR decrease.

As predicted, I find that firms with larger earnings generated by a decrease in ETR are

more likely to provide an ETR-related explanation. This evidence is consistent with firms

providing ETR-related explanations to reduce information asymmetry when a decrease in ETR generates larger earnings. Contrary to expectations, I find no significant association between the permanence of an ETR decrease and the probability of explaining a decrease in ETR. This result suggests that firms are not disclosing information sufficient to correctly interpret ETR changes, consistent with prior research that concludes market participants have difficulty interpreting the transitory and permanent components of ETR changes. I also find firms that are likely to have opportunistically managed ETR or engaged in significant tax planning are less likely to provide explanations for ETR changes. These results are consistent with firms disclosing less information in settings where the costs of reducing the information asymmetry between the firm and investors (e.g., when managing earnings) or regulators (e.g., when engaging in tax planning) are particularly high.

I also examine the second-stage of the disclosure process, the content of ETR-related explanations, to investigate whether firm performance influences the content of explanations. Based on voluntary disclosure theory (Bagnoli and Watts 2007), I predict and find that firms with an ETR decrease (i.e., good news) are more likely to provide an explanation that indicates performance is permanent. This result suggests that firms understand market participants are skeptical of decreases in ETR (Gleason and Mills 2008) and use ETR-related explanations in an attempt to enhance market participants' perception of ETR-related earnings.

This study makes several contributions. I contribute to the literature investigating market participants' use of tax-related information (e.g., Hanlon 2005; Schmidt 2006) by providing evidence on those settings in which firms are more or less likely to provide information to help market participants' price ETR-related earnings more accurately. This study also contributes to the voluntary disclosure literature. Prior research that investigates the extent to which

proprietary information costs deter voluntary disclosure relies on broad proxies of proprietary information (e.g., Ajinkya et al. 2005). Likewise, the limited research that investigates the association between voluntary disclosure and earnings management relies on discretionary accrual models (Jo and Kim 2007) that contain significant measurement error. By using more direct proxies for proprietary costs (tax planning) and earnings management, I develop more powerful tests that extend both lines of research.

This study also extends research on the relation between aggregate earnings quality and disclosure (Francis et al. 2008) by examining whether the persistence of a component of earnings influences the decision to disclose additional information. Contrary to expectations, I find that the permanence of an ETR decrease is not associated with the probability a firm will provide supplemental information. However, a content analysis of ETR-related explanations suggests the permanence of an ETR change influences the type of explanations firms provide. Finally, I complement research that examines the content of voluntary disclosures (e.g., Baginski et al. 2004) by investigating whether firm performance influences the content of ETR-related explanations. I find that, once a firm decides to provide an ETR-related explanation, firms with good news (i.e., an ETR decrease) are more likely to indicate performance is permanent.

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APPENDIX A

Examples of ETR-Related Explanations

Example of a Temporary Explanation

Coca-Cola Company, 4th Quarter 2003:

"The reported effective tax rate for the fourth quarter was 17.5 percent….the effective tax rate was below the previously anticipated rate of 22 percent because of the **favorable resolution of various tax matters during the quarter (approximately $50 million)**, partially offset by additional taxes primarily related to the repatriation of funds. The lower than anticipated tax rate benefited the Company by approximately $0.01 per share in the quarter."

Example of a Permanent Explanation

Willis Group Holdings Limited, 4th Quarter 2003

"Through September 30, 2003, the Company provided for a tax rate of 35 percent; however due to the **actual geographic mix of our results**, the full year's effective tax rate in 2003 declined to 34 percent."