FIN 48 and tax compliance

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ABSTRACT: We examine the effects of Financial Accounting Standards Board (FASB) Interpretation No. 48, *Accounting for Uncertainty in Income Taxes* (FIN 48) on the strategic interaction between publicly-traded corporate taxpayers and the government. Contrary to conjectures in the popular press on the effects of FIN 48, we find that FIN 48 can increase expected payoffs of aggressive taxpayers, does not necessarily overstate a taxpayer's expected tax liability associated with uncertain tax positions, and does not always deter taxpayers from adopting aggressive tax positions even when those positions have a less than 50 percent chance of being sustained on the technical merits.

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I. INTRODUCTION

Financial Accounting Standards Board (FASB) Interpretation No. 48, *Accounting for Uncertainty in Income Taxes* (FIN 48), is the most significant change in financial accounting for income taxes over the past decade. This interpretation clarifies the accounting for uncertainty in income tax benefits recognized in a firm's financial statements in accordance with FASB Statement No. 109, *Accounting for Income Taxes*. Specifically, FIN 48 requires that taxpayers disclose a liability for uncertain tax positions and dictates how that liability should be measured. We investigate how the strategic interaction between publicly-traded corporate taxpayers and the government changes as a result of this new accounting standard.

Shareholders and creditors previously had limited or no information about the uncertainty associated with current and future cash payments corporations made to the taxing authority. This uncertainty arises because of the difficulty in applying facts and circumstances to ambiguities in the tax law. Although FIN 48 was intended to provide financial statement users with relevant information, the government will also have access to this public information. This disclosure provides the government with a signal about the taxpayer's level of uncertainty about its tax filing positions. We explicitly model this uncertainty and explore the effects that the mandated disclosure has on the strategic interaction between the taxpayer and the government.

Our paper makes two important contributions. First, we contribute to tax compliance theory by modeling strategic tax compliance with tax law ambiguity. Prior research [Graetz, Reinganum, and Wilde (1986), Sansing (1993), and Mills and Sansing (2002)] uses discrete tax audit outcomes, in which a transaction has a particular "correct" tax treatment, the taxpayer knows what it is, and the tax authority can discover it via a costly audit. In those models, there are no pure strategy equilibria—if the IRS chooses a strategy of "audit all aggressive reports," only taxpayers who would prevail on audit would report aggressively, and so it would not be optimal for the IRS to pursue such a strategy. We characterize reports as conservative or aggressive, but we do not model tax evasion per se because the tax law and taxpayer's facts and circumstances permit different interpretations. By permitting a positive payoff to some audited, aggressive reports, we acknowledge that tax law uncertainty yields favorable outcomes to aggressive taxpayers some of the time.

Second, we contribute to accounting research by providing a theoretical foundation for testable hypotheses on the implications of FIN 48. This standard has generated broad interest and concern across the business and academic community, as well as investors and regulators. Research by Blouin, Gleason, Mills and Sikes (2007) examines activity in the tax reserves in the periods leading up to the adoption of FIN 48. Frischmann, Shevlin, and Wilson (2007) examine the stock price reaction for firms associated with key event dates related to the drafting of the current FIN 48 standards. While both of these studies examine periods leading up to the adoption of FIN 48, we believe our model may help to guide important future work during the post-adoption period.

Specifically, our model provides three important insights, all of which are contrary to conjectures made by the business community and popular press about FIN 48. First, we show that mandated disclosure of the firm's uncertainty in its tax filing positions need not put the taxpayer at a disadvantage. In fact, we show that taxpayers with favorable facts have *highe*r expected payoffs from aggressive reporting after FIN 48. Second, we show that the amount of the disclosed liability is not necessarily an overstatement of the expected cash payment, which is consistent with how most people think about FIN 48 liabilities. The direction of the misstatement depends on the distribution of the expected tax benefits the taxpayer expects to retain upon audit as well as the taxpayer's expectation of the probability of being audited, which is reflected in the equilibrium audit strategy. Finally, our model shows that FIN 48 only deters aggressive tax reporting when the taxpayer has less than a 50 percent chance of prevailing on the technical merits of the case. Even then, whether taxpayers adjust their reporting strategies post-FIN 48 depends on the strength of the taxpayer's facts and the government's cost of conducting an audit.

In section 2, we model the strategic interaction between the taxpayer and government pre-FIN 48. In Section 3, we model the recognition and measurement process of FIN 48 and the strategic interaction between the taxpayer and the government post-FIN 48. In Section 4, we explore the effect of FIN 48 of the strategic interaction by comparing the results from the previous two sections. Section 5 concludes. All proofs are in Appendices A and B.

II. PRE-FIN 48 MODEL AND EQUILIBRIUM STRATEGIES

Pre-FIN 48 Model

We begin by characterizing the corporate income tax filing and settlement process. First, the taxpayer engages in a business transaction and observes all relevant facts and circumstances related to the transaction. After the taxpayer applies the tax law to the transaction, it decides on a particular tax treatment or tax filing position. This treatment is reported on a tax return filed with the government. Upon filing a tax report with the government, the taxpayer has expectations about the outcome of a dispute and the probability of such a dispute arising. These expectations are based on the strength of conclusions drawn from the original analysis conducted in determining the tax filing position and the taxpayer's belief about the probability of being audited. In addition, the taxpayer recognizes in its financial statements some or all of the benefit in its financial statements of filing an aggressive report on its tax return, but the implied contingent liability is not transparent to the government.

The government observes only the tax report and decides whether to audit the report. If the report is audited, the outcome of the dispute could result in the taxpayer retaining all, some, or none of the tax benefit originally claimed. This latter assumption is an innovation to the strategic tax compliance in that it introduces tax law uncertainty into the model. Figure 1 summarizes the sequence of play.

[INSERT FIGURE 1 ABOUT HERE]

We first model the relation between the taxpayer and the government prior to the FASB issuing FIN 48. There are two players: the taxpayer (T) and the government (G). The taxpayer engages in a transaction and privately observes all relevant facts and supporting documentation with regard to the transaction. In addition, the taxpayer privately conducts research for purposes of applying technical tax law to its facts and circumstances and evaluating various tax filing positions.

We simplify the tax filing positions under the tax law so that there are only two possible tax treatments for a transaction. For example, does a merger qualify as a tax-free reorganization? Does the expenditure qualify for the research and experimentation credit?

Does the foreign tax paid qualify as an "income tax" for foreign tax credit purposes? We consider discrete tax disputes to be those in which rejection of the taxpayer's filing position implies a definitive alternative tax treatment. On the other hand, there is nothing to prevent the taxpayer and the IRS agreeing to split the difference during the audit and settlement process, even though the dispute itself is discrete. For example, a single, $50 million expenditure either qualifies for a credit or it doesn't, as a matter of law. But upon audit, the IRS and the taxpayer could compromise, e.g. "$30 million qualifies and $20 million doesn't."

The taxpayer chooses a report *r*, $r \in \{A, C\}$, where A denotes an aggressive report and C denotes a conservative report. The tax savings associated with the aggressive report is normalized to one; no tax savings are associated with the conservative report. The taxpayer has private information regarding the strength of the position related to how its particular facts fit within the applicable law, regulations, court cases and other authority. For tractability, we represent this knowledge by x, which is the expected value of the tax savings associated with an aggressive report that will be retained upon audit, where x is the realization of a random variable drawn from a uniform [0, 1] distribution. Defining x in this manner allows us to map x into payoffs for both the taxpayer and the government. The expected benefit x takes into account IRS practices regarding settling appeals and court judgments. We do not model the appeals and settlement processes, but assume that when the government audits aggressive reports, the taxpayer retains some expected benefit x that is less than or equal to the tax savings claimed on the originally filed aggressive report.

The government can observe whether the report is aggressive or conservative, but cannot observe the strength of the underlying tax filing position without conducting an audit. For example, the government can observe whether a taxpayer claimed an R&D credit, but it cannot observe the strength of the taxpayers' facts that support the R&D credit. After observing an aggressive report, the government chooses to audit such a report with probability α.

Filing a conservative report gives the taxpayer a payoff of 0. Filing an aggressive report gives the taxpayer a payoff of 1 if the report is not audited and an expected payoff of $x - \pi(1-x)$ if the report is audited, where π denotes the expected tax penalty rate $\pi \in (0,1]$.[1]

If no audit is conducted, the government's payoff is -1 from an aggressive report and 0 from a conservative report. If it conducts an audit, the government's payoff is $\pi(1-x) - x - c$ from an aggressive report, and $-c$ from a conservative report, where $c \in (0,1]$ denotes the cost to the government of conducting an audit. This payoff differs from some tax compliance models in that the government does not recover all the tax on audit, because the aggressive position does not represent evasion. Instead, audit outcomes vary because they depend on the strength of taxpayers' filing position.

Figure 2 summarizes the expected payoffs to the taxpayer and the government for both aggressive and conservative reports.

[INSERT FIGURE 2 ABOUT HERE]

[1] We impose an upper bound on the penalty rate of 100 percent to reflect the U.S. tax law, in which the penalty for negligence is 20 percent (IRC §6662) and the penalty for fraud is 75 percent (IRC §6663). Puting an upper bound on the penalty rules out implausible cases in which taxpayers with very strong facts are intimidated into filing conservative reports by the presence of a draconian penalty regime.

Pre-FIN 48 Equilibria

An equilibrium is a strategy for the government and a strategy for each type x of taxpayer, where each taxpayer's strategy is a best response to the government's strategy and the government's strategy is a best response given the set of taxpayer strategies. Three types of equilibria can arise. First, if auditing is sufficiently costly, all taxpayers file aggressive reports and the government conducts no audits. Second, if auditing is sufficiently cheap, the government audits all aggressive reports. Taxpayers with a type x above a certain cutoff value file aggressive reports even when they know they will be audited for sure, while all other taxpayers file conservative reports. In other words, taxpayers who have private information that their facts will present a strong case file aggressive reports. Finally, for intermediate cost levels, the government chooses a mixed strategy by auditing aggressive reports with a certain probability α; again, taxpayers with a type x above a certain cutoff value file aggressive reports, while all other taxpayers file conservative reports. The cutoff value is lower in the mixed strategy equilibrium than it is when the government audits all aggressive reports. The government will never audit a conservative report because audits are costly and no additional tax is collected, so the payoff from auditing a conservative report is –c.

We characterize the formal solution to the model in Proposition 1.

PROPOSITION 1:

(a) If $c \geq \frac{1+\pi}{2}$,

(i) G audits no reports and

(ii) all T choose r = A;

(b) if $c \leq \frac{1}{2}$,

(i) G audits no conservative reports,

(ii) G audits all aggressive reports,

(iii) each T chooses r = A if $x > \frac{\pi}{1+\pi}$ and chooses r = C if $x \leq \frac{\pi}{1+\pi}$;

(c) if $\frac{1}{2} < c < \frac{1+\pi}{2}$,

(i) G audits no conservative reports,

(ii) G audits aggressive reports with probability $\alpha = \frac{1}{2c}$,

(iii) each T chooses r = A if $x \geq 1 - \frac{2c}{1+\pi}$, and chooses r = C if $x < 1 - \frac{2c}{1+\pi}$.

The behavior by taxpayers is consistent with penalties being a deterrent to filing an aggressive report because the cutoff value for x is increasing in π. The behavior of the government is consistent with audit costs being a deterrent to auditing aggressive reports because α is decreasing in c. Under the mixed strategy equilibrium, the taxpayer's cutoff value for x is decreasing in c, consistent with the idea that as audit costs increase for the government, taxpayers become more willing to file aggressive reports. In contrast to previous tax compliance models, Proposition 1(b) is an equilibrium outcome in our model because our model features tax law ambiguity. Therefore, some taxpayers will file aggressively even when they will be audited for sure. Note that more taxpayers file aggressively (the cutoff value is lower) when the government adopts a mixed strategy, auditing aggressive reports with a certain probability α.

III. POST-FIN 48 MODEL AND EQUILIBRIUM STRATEGIES

Post-FIN 48 Model

Building on our pre-FIN 48 tax compliance model, we now incorporate features of FIN 48 to examine the effects of this accounting standard on the strategic interaction between the taxpayer and the government. Under FIN 48, when a taxpayer files an aggressive report with the government, the taxpayer recognizes the 'as filed' tax benefit in their financial reports, with some offsetting liability to acknowledge the fact that the 'as filed' tax position may be challenged by the tax authority. When the taxpayer recognizes a tax benefit and then records an offsetting liability, we refer to the tax benefits as being 'unrecognized'.[2] The amount of the recorded FIN 48 liability is determined under a two-step process: recognition and measurement.

The recognition process requires that the taxpayer determine whether the tax position is more likely than not to be sustained upon audit based solely on the technical merits. For any tax position that 'passes' the recognition stage (i.e., is more than 50 percent likely to be sustained), the measurement stage determines what portion of the tax benefit, if any, should be unrecognized and recorded as a tax liability. Specifically, the taxpayer must recognize a liability to offset the recognized tax benefit, such that the remaining tax benefit recognized in the financial statements is the largest tax benefit that cumulatively is greater than 50 percent likely to be sustained on audit. For tax positions that 'fail' the recognition process (i.e., is less than or equal to 50 percent likely to be sustained), the measurement process is no longer relevant and the entire tax benefit is unrecognized.

[2] Hence, this is the reason that firms report their FIN 48 liability with the label "unrecognized tax benefit".

To further reflect FIN 48 considerations in our model, we include two functions: p(x) and m(x). We let the function p(x) be the probability of prevailing on audit solely on the technical merits of the position. Including p(x) allows us to model the recognition process under FIN 48. We let the function m(x) represent the *median* tax benefit retained upon audit. Including m(x) allows us to model the measurement process under FIN 48.

The function p(x) relates the taxpayer's private information about the facts and circumstances of the underlying tax position to an estimate of the probability of the position being sustained on its merits. The function p(x) is common knowledge to the taxpayer and the government, although x is privately observed by the taxpayer. This function is common knowledge because if the government had unfettered access to all the taxpayers facts and knew x, it would come to the same conclusion as the taxpayer about the probability of the position being sustained.

We further assume that $p(x) \leq x$. This assumption means that the taxpayer expects to retain more benefit during an audit than it would expect to win on the merits of the transaction by going to court. We believe that this assumption realistically incorporates several real-world features. Although the government has greater aggregate resources than any one taxpayer, it has more limited resources to spend on any individual case. The government is budget-constrained and cannot litigate every case.[3] This is consistent with anecdotal evidence from IRS examiners who frequently complain that "legitimate cases are 'given away' at Appeals."

The function p(x) further has the property $p'(x) > 0$. This property implies a positive correlation between the tax benefit the taxpayer expects to retain upon an audit,

[3] This constraint in turn is optimal because the socially efficient level of tax enforcement activities equates the marginal social value of raising revenue (and not the value of the revenue itself) with the marginal social cost of raising revenues (Slemrod 2004).

the probability the taxpayer would win on technical merits, and the strength of the underlying tax position. That is, if a taxpayer's facts align with the requirements to claim the tax benefit, then they expect to win in court.

The function m(x) relates the taxpayer's private information about the facts and circumstances of the underlying tax position to an estimate of the distribution of tax benefits retained at the audit stage. We make no assumption about whether m(x) is greater or less than x; medians can be above or below means. The function m(x) is common knowledge to the taxpayer and the government. Even though the tax issue we illustrate (e.g., whether a merger is nontaxable) is discrete in nature, we recognize that tax disputes are often resolved at the audit stage via some type of compromise result. Therefore, the distribution of tax benefits retained at the audit stage can be anywhere between zero and one, and so the median tax benefit retained can also be any value between zero and one. We assume that m(x) is continuous, m(0) = 0 and m(1) = 1. We also assume that $m'(x) > 0$ for all m(x) < 1. These properties are consistent with the mean and median converging at the end points of the x distribution. Finally, we make no assumption about the relation between m(x) and p(x), except, if x is high enough that m(x) = 1, we assume that p(x) > ½.

In summary, the mean and median settlement outcomes and probability of prevailing on the technical merits are all linked, so we let x be the mean, m(x) be the median, and p(x) be the probability of prevailing on the technical merits. We make x the main random variable, and m(x) and p(x) are expressed as functions of x.[4] The expected

[4] By modeling the two-step process under FIN 48 in this manner, x is mapped into the payoffs for the taxpayer and the government. The function p(x) can be expressed as a function of x because both the decision of a court and the expected audit settlement between the taxpayer and the government depend on the underlying facts and law.

value of the tax benefit retained upon audit, x, is privately observed by the taxpayer because x is based on the taxpayer's knowledge of the strength of the underlying fact pattern and supporting documentation. The functions p(x) and m(x) are common knowledge because they are based on administrative practices, knowledge of relevant tax law, and prior dealings between the taxpayer and the government.

In addition to new measurement rules modeled above, FIN 48 requires taxpayers to disclose the liability, L, for the unrecognized tax benefit. This disclosure provides a new signal that the government can use in developing its audit strategy.

We incorporate L into our post-FIN 48 model to represent the FIN 48 liability recorded in the financial statements after applying this two-step process. We model L as a signal that reveals information about the taxpayer's private information, x, where $L \in [0,1]$. L = 0 corresponds to two situations. First, L = 0 when a taxpayer files a conservative report because the taxpayer did not record a tax benefit in our model, and therefore, a tax benefit cannot be unrecognized. Second, L = 0 when a taxpayer files an aggressive report for which the tax position has a greater than 50 percent chance of being sustained based on the technical merits, and the median tax benefit retained on audit is one. Recall that the government can observe whether the report is conservative or aggressive, so it can distinguish these two cases of L = 0. If the median tax benefit retained on audit is 1, this is another way of saying that the entire tax benefit is the largest amount that is greater than 50 percent likely to be sustained on audit (i.e., the measurement process).

A strictly positive L is recognized only when r = A. When $0 < L < 1$, a taxpayer has filed an aggressive report for which the tax position has a greater than 50 percent chance of being sustained on the technical merits, but the median tax benefit retained on audit is less than one. The liability, L, recorded is the difference between the 'as filed' tax benefit of one and the median tax benefit retained on audit. When $L = 1$, a taxpayer has filed an aggressive report for which the tax position has less than or equal to a 50 percent chance of being sustained on the technical merits. In this situation, the tax position fails the recognition process and so the entire tax benefit is unrecognized. Because the function m(x) is common knowledge, when $0 < L < 1$, $L = 1 - \mathrm{m}(x)$ and thus the FIN 48 disclosure fully reveals x.

We introduce two terms to define the range of $x \in [0,1]$ over which each FIN 48 disclosure (i.e., $L = 0$, $0 < L < 1$, $L = 1$) will result for taxpayers filing aggressive reports. We define x_H to be the smallest value of x for which the median settlement $\mathrm{m}(x) = 1$, and we assume that $\mathrm{p}(x_H) > \frac{1}{2}$.[5] Therefore, when $x \geq x_H$, the taxpayer does not record a reserve against tax benefits recognized in the financial statements and reports $L = 0$. This is because the tax position passes the recognition process under FIN 48 and the median tax benefit retained on audit is the entire tax benefit. We define x_L as the value of x for which $\mathrm{p}(x_L) = \frac{1}{2}$, which in turn implies $x_L > \frac{1}{2}$ because $x > \mathrm{p}(x)$. Further, because we assume that $\pi < 1$, $\frac{\pi}{1+\pi}$ has a maximum value of $\frac{1}{2}$, which implies $x_L > \frac{\pi}{1+\pi}$.

Therefore, when $x \leq x_L$, the taxpayer fully reserves against tax benefits recognized in the financial statements and reports $L = 1$. This is because the tax position fails the

[5] This assumption rules out implausible cases in which the median tax benefit is one [i.e., m(x) = 1] but the taxpayer recognizes no tax benefit [i.e., because p(x) ≤ ½]. The FASB Board Meeting Minutes of November 22, 2005 indicate that "technically meritorious positions [i.e., p(x) > ½] would have a distribution where the mass of valuation points is well above 50.1 percent and that there is a low probability that many of the points would be below 50 percent of the value of the position as filed."

recognition process under FIN 48. When $x_L < x < x_H$, the taxpayer records a partial reserve against tax benefits recognized in the financial reports and reports $L = 1 - m(x)$. This is because the tax position passes the recognition process under FIN 48 because $p(x) > ½$, but the median benefit retained on audit $m(x)$ is less than one. We depict the possible realizations of x and associated value of L in Figure 3.

[INSERT FIGURE 3 ABOUT HERE]

Post-FIN 48 Equilibria

We consider the equilibria that can occur under 3 cases: i) $x \geq x_H$, ii) $x_L < x < x_H$, and iii) $x \leq x_L$. In our post-FIN 48 model, the government observes the taxpayer's report on the tax return, r (that shows C = conservative or A = aggressive), and the FIN 48 liability, L, disclosed in the financial reports. The additional information contained in L can be used by the government to form expectations about the taxpayer's private information, x. We assume that taxpayer disclosures of L are truthful due to the oversight of independent auditors and regulators such as the SEC. That is, because we focus on the strategic tax compliance game, we do not consider financial reporting incentives directly in this paper.

Equilibrium when $x \geq x_H$

When $x \geq x_H$, taxpayers that file aggressive reports record $L = 0$. When the government observes an aggressive report and $L = 0$, it knows that x lies in the interval $[x_H, 1]$, and it uses this information when choosing its audit strategy. The taxpayer, in turn, knows that the government will use this information, and chooses its reporting strategy accordingly. Taxpayers that file a conservative report, r = C, do not recognize a liability because they claimed no tax benefit, so $L = 0$ for all r = C. As before, the government audits no conservative reports. We characterize the formal solution to the case in which $x \geq x_H$ in Proposition 2.

PROPOSITION 2: When $x \geq x_H$, $L = 0$ when r = A and $L = 0$ when r = C.

(a) If $c \geq \frac{(1-x_H)(1+\pi)}{2}$, then

(i) G audits no reports, and

(ii) all T choose r = A;

(b) If $c < \frac{(1-x_H)(1+\pi)}{2}$,

(i) G audits no conservative reports,

(ii) G audits all aggressive reports, and

(iii) all T choose r = A.

For high levels of c, taxpayers file aggressively and the government does not audit. For low values of c, taxpayers file aggressively even though the government audits all aggressive reports.

Equilibrium when $x_L < x < x_H$

When $x_L < x < x_H$ taxpayers that file aggressive reports record $0 < L < 1$, where $L = 1 - \mathrm{m}(x)$. Therefore, when the government observes L, the taxpayer's private information, x, is fully revealed to the government because the government knows m(x). In this setting, both the taxpayer and the government are in a full information environment. As in the earlier cases, the taxpayer reports aggressively when $x \geq \frac{\pi}{1+\pi}$, because aggressive reporting is optimal when x is sufficiently high even if the government audits all aggressive reports. The government will audit aggressive reports when the cost of an audit is sufficiently low. We characterize the formal solution to the case in which $x_L < x < x_H$ in Proposition 3.

PROPOSITION 3: When $x_L < x < x_H$, L = 1–m(x) when r = A and L = 0 when r = C.

(a) If $\frac{\pi}{1+\pi} < x < \frac{1+\pi-c}{1+\pi}$,

(i) G audits no conservative reports,

(ii) G audits all aggressive reports, and

(iii) T chooses r = A.

(b) If $x \geq \frac{1+\pi-c}{1+\pi}$,

(i) G audits no reports, and

(ii) T chooses r = A.

In this equilibrium, FIN 48 has no effect on aggressive reporting. This result is inconsistent with the general perception that the requirement to disclose L will reduce taxpayer reporting aggressiveness. However, when the FIN 48 disclosure reveals x, the government can condition its audit decision on the true value of x, which implies that the government will audit whenever $c \leq (1-x)(1+\pi)$. Low values of c increase the x range over which the government is willing to audit aggressive reports. Thus, while FIN 48 may have no effect on taxpayer reporting choices, it has the effect of reserving the government's costly audit resources for cases where taxpayer's facts are the weakest.

Equilibrium when $x \leq x_L$

When $x \leq x_L$, taxpayers that file aggressive reports record L = 1. When the government observes an aggressive report and L = 1, it can infer that x lies in the interval $[0, x_L]$, and it uses this information when choosing its audit strategy. The taxpayer, in turn, knows that the government will use this information, and chooses its reporting strategy accordingly. We characterize the formal solution to the case in which $x \le x_L$ in Proposition 4.

PROPOSITION 4: When $x \le x_L$, $L = 1$ when r = A and $L = 0$ when r = C.

(a) If $c \ge \frac{(2 - x_L)(1+\pi)}{2}$,

(i) G audits no reports and,

(ii) all T choose r = A;

(b) if $c \le \frac{1 + (1 - x_L)(1+\pi)}{2}$,

(i) G audits no conservative reports,

(ii) G audits all aggressive reports,

(iii) each T chooses r = A if $x > \frac{\pi}{1+\pi}$ and chooses r = C if $x \le \frac{\pi}{1+\pi}$;

(c) if $\frac{1 + (1 - x_L)(1+\pi)}{2} < c < \frac{(2 - x_L)(1+\pi)}{2}$,

(i) G audits no conservative reports,

(ii) G audits aggressive reports with probability $\alpha = \frac{1}{2c - (1+\pi)(1 - x_L)}$,

(iii) each T chooses r = A if $x > 2 - x_L - \frac{2c}{1+\pi}$, and chooses r = C if

$$x \le 2 - x_L - \frac{2c}{1+\pi}.$$

Recall that x_L is defined as the value of x for which p(x_L) = $\frac{1}{2}$, which in turn implies $x_L > \frac{1}{2}$ because $x >$p(x). The condition $x_L > \frac{1}{2}$ implies that x must be relatively high to achieve a more likely than not probability of prevailing solely on the technical merits of the position. In other words, it is difficult to reach the minimum threshold for recognition of a tax benefit, and so many taxpayers that still file aggressively must disclose a liability $L = 1$. FIN 48 forces aggressive taxpayers to reveal they have bad facts via $L = 1$. In response, taxpayers report more conservatively (except for the most extreme high and low values of c, for which there is no change), and the government is more likely audit aggressive reports (again, except for extreme high and low values of c for which there is no change).

IV. EFFECTS OF FIN 48

In this section, we investigate three widespread conjectures regarding the effects of FIN 48. The first conjecture is that FIN 48 necessarily hurts taxpayers by giving the government a "road map" to a taxpayer's controversial tax return filing positions. In discussing the FIN 48 during an SEC speech, Chester Spatt, Chief Economist and Director of the Office of Economic Analysis of the SEC, stated that "providing publicly more information about the taxpayer's position on salient tax issues may provide a "roadmap" for the tax authority that may undercut the firm's bargaining power in the associated tax disputes." The second conjecture is that the liability recorded under the recognition and measurement process of FIN 48 is necessarily an greater than the expected value of the additional tax to be paid because the FIN 48 liability is not conditional upon audit (i.e., it assumes that the government will audit a particular tax return filing position). The final conjecture is that FIN 48 will cause taxpayers to report less aggressively. Our model illustrates that these conjectures are not necessarily valid.

We first consider the conjecture that FIN 48 harms taxpayers and show that only taxpayers with weak facts are generally harmed by FIN 48. We show this formally in Proposition 5.

PROPOSITION 5: The taxpayer's expected payoff in the post-FIN 48 regime relative to the pre-FIN 48 regime will:

(a) weakly increase when $x \geq x_H$;

(b) weakly decrease when $x \leq x_L$;

(c) if $x_L < x < x_H$, there exists a $c^* = (1+\pi)(1-x)$ for which the taxpayer's expected payoff weakly decreases for all $c < c^*$ and weakly increases for all $c \geq c^*$.

Proposition 5(a) addresses the case in which the FIN 48 disclosure is $L = 0$, which reveals that $x \geq x_H$ for aggressive reports. The proof demonstrates that the government audits weakly less frequently than it did pre-FIN 48, and there is no change in the taxpayer's reporting strategy; therefore, the taxpayer's expected payoff increases.

Proposition 5(b) addresses the case in which the FIN 48 disclosure is $L = 1$, which reveals that $x \leq x_L$ for aggressive reports. The proof shows that either the taxpayer reports less aggressively post-FIN 48 or the government audits weakly more frequently than it did pre-FIN 48, or both. Therefore, the taxpayer's expected payoff decreases.

Proposition 5(c) addresses the case in which the FIN 48 disclosure is $L = 1-\text{m}(x)$, which fully reveals x. Here, the government can condition its audit strategy on x because the government knows the expected tax benefit that the taxpayer expects to retain. The taxpayer's payoff could either increase or decrease due to FIN 48, depending on the values of c and x.

We next consider the conjecture that FIN 48 liabilities are necessarily overstated because the determination of L does not depend on the probability of audit. Recall that x is the expected value of the tax benefit associated with an aggressive report that will be retained upon audit, α is the probability of being audited, and L is the difference between the 'as filed' tax benefit of 1 and the median tax benefit retained on audit. Therefore, the expected tax liability is $\alpha(1-x)$; however, the 'disclosed' FIN 48 liability, L, is either one, zero, or $1 - m(x)$. A FIN 48 liability is *overstated* when the disclosed liability exceeds the expected liability, is *understated* when the expected liability exceeds the disclosed liability, and is correctly stated when the two are equal.

When $L = 0$, the disclosed liability is correctly stated when $\alpha = 0$ and is understated otherwise. When $L = 1$, the disclosed liability is overstated. There are two factors that determine whether the disclosed liability is overstated or understated when $L = 1 - m(x)$: the distribution of expected tax benefit retained upon audit and the probability of audit. We explore both factors in turn.

We address the implications of the distribution of the expected tax benefit retained on audit by comparing the expected liability, $1 - x$, to the disclosed liability, $1 - m(x)$, conditional upon audit (i.e., when $\alpha = 1$). These two liabilities can differ because the median retained tax benefit, $m(x)$, can be higher or lower than the mean retained tax benefit, x.

To illustrate, suppose the distribution of x features a mass point at 1 with probability 20 percent (i.e., taxpayers retain the entire tax benefit 20 percent of the time), and a uniform distribution of x between 0 and 1 with probability 80 percent. Then the mean retained benefit is (.20*1.0) + (.80*0.5) = 0.6, while the median retained benefit is

0.625. In this case, the reported liability, 0.375, is understated. If instead the distribution of x features a mass point at 0 with probability 20 percent (i.e., I will retain none of the tax benefit 20 percent of the time), and a uniform distribution of x between 0 and 1 with probability 80 percent, the expected retained tax benefit is 0.4 while the median retained tax benefit is 0.375. In this case, the reported liability, 0.625, is overstated. In sum, the disclosed liability could either understate the expected liability or overstate the expected liability, depending on the underlying distribution of retained tax benefits.

We next address the implications of the probability of an audit by comparing the expected liability, $\alpha(1-x)$ to the disclosed liability, 1 – m(x). The expected liability conditional upon audit, 1 - x, decreases when $\alpha < 1$. However, $\alpha < 1$, does not change the amount of the disclosed liability because FIN 48 does not incorporate audit probabilities into the measurement process. Thus, when the disclosed liability, 1–m(x), exceeds the expected liability conditional upon audit, $1-x$, $\alpha < 1$ exacerbates the amount by which the disclosed liability is overstated. However, when the expected liability conditional upon audit, $1-x$, exceeds the disclosed liability, 1– m(x), $\alpha < 1$ results in a disclosed liability that could be higher, lower, or equal to the expected liability, depending on the equilibrium value of α.

The final conjecture that we consider is that FIN 48 will cause taxpayers to report less aggressively. The results of our model show that taxpayers only change their reporting strategy after FIN 48 when they have sufficiently weak facts. However, even when taxpayers have weak facts, FIN 48 does not necessarily make all taxpayers file more conservatively. Specifically, Table 3 in Appendix B shows that FIN 48 only changes the reporting strategies of some taxpayers for whom $L = 1$. Our model shows that less aggressive reporting post-FIN 48 only occurs when the FIN 48 disclosure is $L = 1$, and then only for certain taxpayers.

V. CONCLUSION

We investigate how the strategic interaction between the taxpayer and the government change as a result of a new accounting standard for publicly-traded companies, FIN 48, which requires these taxpayers to disclose liabilities for uncertain tax positions. This alone represents an interesting contribution to disclosure and tax compliance models by recognizing uncertainty that has always existed in real world problems but never (to our knowledge) explicitly modeled.

Our model provides three interesting insights that could not be gleaned from a cursory examination of these issues. First, we show that taxpayers are not necessarily harmed by FIN 48. In fact, we find that taxpayers with strong facts have higher expected payoffs post-FIN 48 than pre-FIN 48. Second, we find that the liability disclosed under FIN 48 may be overstated or understated relative to the expected outcome. International Financial Reporting Standards (IFRS) differ from U.S. Generally Accepted Accounting Principles (GAAP) regarding uncertain tax positions. IFRS generally uses an expected value approach, which contrasts with the two-step recognition and measurement process under GAAP. Our model suggests that FIN 48 does not necessarily provide shareholders (or the government) with relevant information, because it is clear from our analysis that the expected cash payment need not equal the reported liability under FIN 48. Finally, we show that FIN 48 does not necessarily induce more conservative taxpayer reporting. The results of our model show that only certain taxpayers with weak facts file more conservatively after FIN 48.

In the present manuscript, we impose certain simplifying assumptions. Critical among these is truthful reporting of the FIN 48 liability, because we assume that independent auditors assure such reporting. Financial reporting for income taxes, including determination of the tax reserves, is a highly scrutinized part of the financial statements auditors and regulators in the post Sarbanes-Oxley period. Therefore, we believe these assumptions to be valid during the time period in which FIN 48 is being implemented. Future work may consider incentives and constraints for taxpayers to falsify their disclosures.

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Appendix A, Proofs to Propositions 1-5

PROOF OF PROPOSITION 1 (Pre-FIN 48)

(a)(i) Not auditing a conservative report is a dominant strategy for the government because $c > 0$. The government will audit an aggressive report if $E[\pi(1-x)-x-c] > -1$. Given that all taxpayers report aggressively, E[x|r = A] = ½. The government's expected payoff from auditing an aggressive report is $\frac{\pi-1-2c}{2} \le -1$ when $c \ge \frac{1+\pi}{2}$. Therefore, the government does not audit any reports.

(a)(ii) Given that the government does not audit any reports, every x-type prefers r = A to r = C.

(b)(i) Not auditing a conservative report is a dominant strategy for the government because $c > 0$.

(b)(ii) The government will audit an aggressive report if $\mathrm{E}[\pi(1-x)-x-c] > -1$. Given that only taxpayers with $x \ge \frac{\pi}{1+\pi}$ report aggressively, $\mathrm{E}[x / r = \mathrm{A}] = \frac{1+2\pi}{2+2\pi}$. Therefore, the government's expected payoff from auditing an aggressive report is

$\frac{\pi}{2+2\pi} - \frac{1+2\pi}{2+2\pi} - c \ge -1$ when $c \le \frac{1}{2}$. Therefore, the government audits all aggressive reports.

(b)(iii) A taxpayer of type x will choose $r = A$ if and only if the expected payoff is greater than zero, the payoff from choosing $r = C$. Given that the government audits all aggressive reports, the expected payoff from an aggressive report is $x - \pi(1-x) \ge 0$ for all $x \ge \frac{\pi}{1+\pi}$. Therefore, taxpayers for whom $x \ge \frac{\pi}{1+\pi}$ choose $r = A$, and other taxpayers choose $r = C$.

(c)(i) Same argument as in (b)(i).

(c)(ii) Given that only taxpayers with $x \geq 1 - \frac{2c}{1+\pi}$ report aggressively,

$\mathrm{E}[x / r = \mathrm{A}] = 1 - \frac{c}{1+\pi}$. The government is indifferent between auditing and not auditing aggressive reports because $\mathrm{E}[\pi(1-x) - x - c] = -1$. Therefore, the government's strategy of auditing aggressive reports with probability $\alpha = \frac{1}{2c}$ is a best response. Because $c > \frac{1}{2}$, α is bounded above by one. Because $c < \frac{1+\pi}{2}$, α is bounded below by zero, as penalties increase to infinity.

(c)(iii) A taxpayer of type *x* will choose *r* = A if and only if the expected payoff is greater than zero, the payoff from choosing *r* = C. Given that the government audits aggressive reports with probability $\alpha = \frac{1}{2c}$, the expected payoff from an aggressive report is $\frac{x - \pi(1-x)}{2c} + \frac{2c-1}{2c} \geq 0$ for all $x \geq 1 - \frac{2c}{1+\pi}$. Because $c < \frac{1+\pi}{2}$, the cutoff-value for x is greater than zero. QED

PROOF OF PROPOSITION 2 (Post-FIN 48: $x \geq x_H$)

(a)(i) Not auditing a conservative report is a dominant strategy for the government because $c > 0$. The government will audit an aggressive report if $\mathrm{E}[\pi(1-x)-x-c] > -1$. Given all taxpayers for whom $x \geq x_H$ report aggressively, the government's expected payoff from auditing an aggressive report is $\frac{\pi(1-x_H)-(1+x_H)-2c}{2} \leq -1$ because $c \geq \frac{(1-x_H)(1+\pi)}{2}$, and $E[x \mid x \geq x_H] = \frac{1+x_H}{2}$. Therefore, the government does not audit any reports.

(a)(ii) Given the government audits no reports, every x-type prefers r = A to r = C.

(b)(i) Not auditing a conservative report is a dominant strategy for the government because $c > 0$.

(b)(ii) The government will audit an aggressive report if $\mathrm{E}[\pi(1-x)-x-c] > -1$. Given all taxpayers for whom $x \geq x_H$ report aggressively, the government's expected payoff from auditing an aggressive report is $\frac{\pi(1-x_H)-(1+x_H)-2c}{2} \geq -1$ because $c \leq \frac{(1-x_H)(1+\pi)}{2}$, and $E[x \mid x \geq x_H] = \frac{1+x_H}{2}$. Therefore, the government audits all aggressive reports.

(b)(iii) A taxpayer of type x will choose r = A if and only if the expected payoff is greater than zero, the payoff from choosing r = C. Given that the government audits all aggressive reports, the expected payoff from an aggressive report is $x - \pi(1-x) \geq 0$ for all $x \geq \frac{\pi}{1+\pi}$. Because $x_H \geq \frac{\pi}{1+\pi}$, all taxpayers for whom $L = 0$ choose r = A. QED

PROOF OF PROPOSITION 3 (Post-FIN 48: $x_L < x < x_H$)

(a)(i) Not auditing a conservative report is a dominant strategy for the government because $0 > -c$.

(a)(ii) The government will audit an aggressive report if $\pi(1-x)-x-c \geq -1$. Auditing all aggressive reports is a best response by the government because $x < \frac{1+\pi-c}{1+\pi}$.

(a)(iii) A taxpayer of type-x will choose r = A if and only if the expected payoff is greater than zero, the payoff from choosing r = C. Given that the government audits all aggressive reports, the expected payoff from an aggressive report is $x-\pi(1-x) \geq 0$ for all $x \geq \frac{\pi}{1+\pi}$. Therefore, taxpayers choose r = A.

(b)(i) Not auditing a conservative report is a dominant strategy for the government because $0 > -c$. The government will audit an aggressive report if $\pi(1-x)-x-c \geq -1$. Not auditing any aggressive reports is a best response by the government because $x \geq \frac{1+\pi-c}{1+\pi}$.

(b)(ii) Given that the government does not audit any reports, T prefers r = A to r = C.
QED

PROOF OF PROPOSITION 4 (Post-FIN 48: $x \le x_L$)

(a)(i) Not auditing a conservative report is a dominant strategy for the government because $0 > -c$. The government will audit an aggressive report if $E[\pi(1-x) - x - c] > -1$. Because all taxpayers for whom $L = 1$ report aggressively, the government's expected payoff from auditing an aggressive report is

$$\frac{\pi(2-x_L) - x_L - 2c}{2} \le -1 \text{ because } c \ge \frac{(2-x_L)(1+\pi)}{2}, \text{ and } E[x \mid x \le x_L] = \frac{x_L}{2}.$$

Therefore, the government does not audit any reports.

(a)(ii) Given that the government does not audit any reports, every x-type prefers $r = A$ to $r = C$.

(b)(i) Same as proof to (a)(i).

(b)(ii) The government will audit an aggressive report if $E[\pi(1-x) - x - c] > -1$. Given that only taxpayers with $x \ge \frac{\pi}{1+\pi}$ report aggressively, $E[x \mid r = A] = \frac{\pi + x_L(1+\pi)}{2+2\pi}$.

Therefore, the government's expected payoff from auditing an aggressive report is

$$\frac{\pi - x_L(1+\pi)}{2} - c \ge -1 \text{ because } c < \frac{1+(1-x_L)(1+\pi)}{2},$$ therefore, the government audits all aggressive reports.

(b)(iii) A taxpayer of type x will choose $r = A$ if and only if the expected payoff is greater than zero, the payoff from choosing $r = C$. Given that the government audits all aggressive reports, the expected payoff from an aggressive report is $x - \pi(1-x) \ge 0$ for all $x \ge \frac{\pi}{1+\pi}$. Therefore, taxpayers for whom $x \ge \frac{\pi}{1+\pi}$ choose $r = A$, and other taxpayers choose $r = C$.

(c)(i) Same argument as in (b)(i).

(c)(ii) Given that only taxpayers with $x \geq 2 - x_L - \frac{2c}{1+\pi}$ report aggressively,

$E[x \mid r = A] = 1 - \frac{c}{1+\pi}$. The government is indifferent between auditing and not auditing aggressive reports because $E[\pi(1-x) - x - c] = -1$. Therefore, the government's strategy of auditing aggressive reports with probability $\alpha = \frac{1}{2c - (1+\pi)(1-x_L)}$ is a best response. Because $c > \frac{1 + (1-x_L)(1+\pi)}{2}$, α is between zero and one.

(c)(iii) A taxpayer of type *x* will choose *r* = *A* if and only if the expected payoff is greater than zero, the payoff from choosing *r* = *C*. Given that the government audits aggressive reports with probability $\alpha = \frac{1}{2c - (1+\pi)(1-x_L)}$, the expected payoff from an aggressive report is $\frac{2c - (1+\pi)(2 - x - x_L)}{2c - (1+\pi)(1-x_L)} \geq 0$ for all $x \geq 2 - x_L - \frac{2c}{1+\pi}$. Because $c < \frac{(1+\pi)(2-x_L)}{2}$, the cutoff-value for *x* is greater than zero. QED

PROOF OF PROPOSITION 5 (Pre-FIN 48 versus Post-FIN48)

(a) Table 1 in Appendix B shows that the taxpayer always chooses r = A when $x \geq x_H$. $L = 0$ because x_H is defined to be the smallest value of x for which m(x) = 1 and L = 1 – m(x). Table 1 illustrates that the government audits weakly less frequently under FIN 48 than it did before FIN 48. The taxpayer's expected payoff increases because it achieves the highest payoff when the government does not audit.

(b) The taxpayer reports L = 1 when $x \leq x_L$ because x_L is defined as the value of x for which p(x) = $\frac{1}{2}$, and when p(x) is ≤ $\frac{1}{2}$ then the entire amount of the tax benefit must be reserved under FIN48. Table 3, Panels A and B in Appendix B shows that the government audits weakly more frequently post-FIN 48 than it did pre-FIN 48. Table 3, also shows that for every value of x for which the taxpayer chooses r = A post-FIN 48, it chooses r = A pre-FIN 48. However, there are values of x for which chooses r = A pre-FIN 48 but r = C post-FIN 48. Thus, the more frequent reports of r = C post-FIN48 imply that the taxpayer's payoff is smaller post-FIN 48.

(c) If $x_L < x < x_H$, the taxpayer reports $L = 1 - m(x)$, which reveals x to the government. Table 2, Panels A, B, and C in Appendix B show that when $x_L < x < x_H$, all taxpayers choose r = A for all values of c both pre and post-FIN 48. There are three cases to consider. First, if $c \geq (1 - x_L)(1 + \pi)$, the government audits weakly less frequently post-FIN 48 than it did pre-FIN 48. Second, if $c \leq (1 - x_H)(1 + \pi)$, the government audits weakly more frequently post-FIN 48 than it did pre-FIN 48. Finally, if $(1 - x_H)(1 + \pi) < c < (1 - x_L)(1 + \pi)$, there exists a c* for which the government audits weakly less frequently post-FIN 48 than it did pre-FIN 48 if $x \geq \frac{1 + \pi - c^*}{1 + \pi}$ and the government audits weakly more frequently post-FIN 48 than it did pre-FIN 48 if

$x < \frac{1+\pi-c^*}{1+\pi}$. QED

Appendix B
Comparison of the Pre-FIN 48 regime to the Post-FIN 48 regime (Proposition 5)

The rows reflect the taxpayer's reporting strategy (*r*) pre and post-FIN 48, and the frequency with which the government audits an aggressive report (α) pre and post-FIN 48. Pre-FIN 48 equilibria are from Proposition 1.

Table 1

Comparison of the Pre-FIN 48 regime to the Post-FIN 48 regime when $x \geq x_H$ (Proposition 2)

	$c \leq \frac{(1-x_H)(1+\pi)}{2}$	$\frac{(1-x_H)(1+\pi)}{2} \leq c \leq \frac{1}{2}$	$\frac{1}{2} \leq c \leq \frac{1+\pi}{2}$	$c \geq \frac{1+\pi}{2}$
r pre	r=A for all x	r=A for all x	r=A for all x	r=A for all x
r post	r=A for all x	r=A for all x	r=A for all x	r=A for all x
α pre	$\alpha = 1$	$\alpha = 1$	$\alpha = \frac{1}{2c}$	$\alpha = 0$
α post	$\alpha = 1$	$\alpha = 0$	$\alpha = 0$	$\alpha = 0$

When the taxpayer has good facts and every value of x exceeds the critical threshold of $\frac{\pi}{1+\pi}$, FIN 48 has no effect on taxpayer reporting strategies, but induces the government to audit less aggressively. Here, the disclosure of no liability under FIN 48 is a signal to the government that the taxpayer has strong facts, so an audit will cost more than the government expects to collect except for very low values of *c*.

Table 2 Panel A

Comparison of the Pre-FIN 48 regime to the Post-FIN 48 regime when $x_L < x < x_H$ (Proposition 3)

Case: L = 1- m(x), $\frac{1}{2} \le (1-x_H)(1+\pi)$

	$c \le \frac{1}{2}$	$\frac{1}{2} \le c \le (1-x_H)(1+\pi)$	$(1-x_H)(1+\pi) \le c \le (1-x_L)(1+\pi)$	$(1-x_L)(1+\pi) \le c \le \frac{1+\pi}{2}$	$c \ge \frac{1+\pi}{2}$
r pre	r=A for all x	r=A for all x	r=A for all x	r=A for all x	r=A for all x
r post	r=A for all x	r=A for all x	r=A for all x	r=A for all x	r=A for all x
α pre	$\alpha = 1$	$\alpha = \frac{1}{2c}$	$\alpha = \frac{1}{2c}$	$\alpha = \frac{1}{2c}$	$\alpha = 0$
α post	$\alpha = 1$	$\alpha = 1$	audit iff $x < \frac{1+\pi-c}{1+\pi}$	$\alpha = 0$	$\alpha = 0$

In this case, FIN 48 has no effect on the taxpayer's reporting strategy. FIN 48 has no effect on the government's audit strategy when $c \le \frac{1}{2}$ or when $c \ge \frac{1+\pi}{2}$, induces the government to audit strictly more aggressively when $\frac{1}{2} \le c \le (1-x_H)(1+\pi)$ and strictly less aggressively when $(1-x_L)(1+\pi) \le c \le \frac{1+\pi}{2}$. Finally, when $(1-x_H)(1+\pi) \le c \le (1-x_L)(1+\pi)$, the government audits strictly more aggressively when $x < \frac{1+\pi-c}{1+\pi}$ and strictly less aggressively when $x \ge \frac{1+\pi-c}{1+\pi}$.

Table 2 Panel B

Comparison of the Pre-FIN 48 regime to the Post-FIN 48 regime when $x_L < x < x_H$ (Proposition 3)

Case: L = 1 - m(x), $(1-x_H)(1+\pi) \le \frac{1}{2} \le (1-x_L)(1+\pi)$

	$c \le (1-x_H)(1+\pi)$	$(1-x_H)(1+\pi) \le c \le \frac{1}{2}$	$\frac{1}{2} \le c \le (1-x_L)(1+\pi)$	$(1-x_L)(1+\pi) \le c \le \frac{1+\pi}{2}$	$c \ge \frac{1+\pi}{2}$
r pre	r=A for all x	r=A for all x	r=A for all x	r=A for all x	r=A for all x
r post	r=A for all x	r=A for all x	r=A for all x	r=A for all x	r=A for all x
α pre	α = 1	α = 1	$\alpha = \frac{1}{2c}$	$\alpha = \frac{1}{2c}$	α = 0
α post	α = 1	audit iff $x < \frac{1+\pi-c}{1+\pi}$	audit iff $x < \frac{1+\pi-c}{1+\pi}$	α = 0	α = 0

In this case, FIN 48 has no effect on the taxpayer's reporting strategy. FIN 48 has no effect on the government's audit strategy when $c \le (1-x_H)(1+\pi)$ or $c \ge \frac{1+\pi}{2}$, and induces the government to audit strictly less aggressively when $(1-x_L)(1+\pi) \le c \le \frac{1+\pi}{2}$ and weakly less aggressively when $(1-x_H)(1+\pi) \le c \le \frac{1}{2}$. Finally, when $\frac{1}{2} \le c \le (1-x_L)(1+\pi)$, the government audits strictly more aggressively when $x < \frac{1+\pi-c}{1+\pi}$ and strictly less aggressively when $x > \frac{1+\pi-c}{1+\pi}$.

Table 2 Panel C

Comparison of the Pre-FIN 48 regime to the Post-FIN 48 regime when $x_L < x < x_H$ (Proposition 3)

Case: L = 1 - m*(x)*, $\frac{1}{2} \geq (1-x_L)(1+\pi)$

	$c \leq (1-x_H)(1+\pi)$	$(1-x_H)(1+\pi) \leq c \leq (1-x_L)(1+\pi)$	$(1-x_L)(1+\pi) \leq c \leq \frac{1}{2}$	$\frac{1}{2} \leq c \leq \frac{1+\pi}{2}$	$c \geq \frac{1+\pi}{2}$
r pre	r=A for all x	r=A for all x	r=A for all x	r=A for all x	r=A for all x
r post	r=A for all x	r=A for all x	r=A for all x	r=A for all x	r=A for all x
α pre	α = 1	α = 1	α = 1	$\alpha = \frac{1}{2c}$	α = 0
α post	α = 1	audit iff $x < \frac{1+\pi-c}{1+\pi}$	α = 0	α = 0	α = 0

In this case, FIN 48 has no effect on the taxpayer's reporting strategy. FIN 48 has no effect on the government's audit strategy when $c \leq (1-x_H)(1+\pi)$ or when $c \geq \frac{1+\pi}{2}$, and induces the government to audit strictly less aggressively when $c \geq (1-x_L)(1+\pi)$ and weakly less aggressively when $(1-x_H)(1+\pi) \leq c \leq (1-x_L)(1+\pi)$.

Table 3 Panel A

Comparison of the Pre-FIN 48 regime to the Post-FIN 48 regime when $x \le x_L$ (Proposition 4)

Case: $x_L \le \frac{1}{1+\pi}$

	$c \le \frac{1}{2}$	$\frac{1}{2} \le c \le \frac{1+\pi}{2}$	$\frac{1+\pi}{2} \le c \le \frac{1+(1-x_L)(1+\pi)}{2}$	$\frac{1+(1-x_L)(1+\pi)}{2} \le c \le \frac{(2-x_L)(1+\pi)}{2}$	$c \ge \frac{(2-x_L)(1+\pi)}{2}$
r pre	r=A iff $x \ge \frac{\pi}{1+\pi}$	r=A iff $x \ge 1-\frac{2c}{1+\pi}$	r=A for all x	r=A for all x	r=A for all x
r post	r=A iff $x \ge \frac{\pi}{1+\pi}$	r=A iff $x \ge \frac{\pi}{1+\pi}$	r=A iff $x \ge \frac{\pi}{1+\pi}$	r=A iff $x \ge 2-x_L-\frac{2c}{1+\pi}$	r=A for all x
α pre	$\alpha = 1$	$\alpha = \frac{1}{2c}$	$\alpha = 0$	$\alpha = 0$	$\alpha = 0$
α post	$\alpha = 1$	$\alpha = 1$	$\alpha = 1$	$\alpha = \frac{1}{2c-(1+\pi)(1-x_L)}$	$\alpha = 0$

FIN 48 forces taxpayers to reveal they have bad facts via $L = 1$. In response, taxpayers report more conservatively (except for the most extreme values of c where there is no change), and the government is more likely audit aggressive reports (again, except for extreme values of c for which there is no change.)

Table 3 Panel B

Comparison of the Pre-FIN 48 regime to the Post-FIN 48 regime when $x \le x_L$ (Proposition 4)

Case: $x_L > \dfrac{1}{1+\pi}$

	$c \le \frac{1}{2}$	$\frac{1}{2} \le c \le \frac{1+(1-x_L)(1+\pi)}{2}$	$\frac{1+(1-x_L)(1+\pi)}{2} \le c \le \frac{1+\pi}{2}$	$\frac{1+\pi}{2} \le c \le \frac{(2-x_L)(1+\pi)}{2}$	$c \ge \frac{(2-x_L)(1+\pi)}{2}$
r pre	r=A iff $x \ge \frac{\pi}{1+\pi}$	r=A iff $x \ge 1-\frac{2c}{1+\pi}$	r=A iff $x \ge 1-\frac{2c}{1+\pi}$	r=A for all x	r=A for all x
r post	r=A iff $x \ge \frac{\pi}{1+\pi}$	r=A iff $x \ge \frac{\pi}{1+\pi}$	r=A iff $x \ge 2-x_L-\frac{2c}{1+\pi}$	r=A iff $x \ge 2-x_L-\frac{2c}{1+\pi}$	r=A for all x
α pre	$\alpha = 1$	$\alpha = \frac{1}{2c}$	$\alpha = \frac{1}{2c}$	$\alpha = 0$	$\alpha = 0$
α post	$\alpha = 1$	$\alpha = 1$	$\alpha = \frac{1}{2c-(1+\pi)(1-x_L)}$	$\alpha = \frac{1}{2c-(1+\pi)(1-x_L)}$	$\alpha = 0$

FIN 48 forces taxpayers to publicly reveal they have bad facts via $L = 1$. In response, taxpayers report more conservatively (except for the most extreme values of c where there is no change), and the government is more likely to audit aggressive reports (again, except for extreme values of c for which there is no change.) Although Panel A and Panel B have the same qualitative effects, the exact audit probabilities and frequency of aggressive reports varies for the different cutoff ranges for the cost of audit, c.

Figure 1

Timeline summarizing the sequence of play between the Taxpayer (T) and the Government (G)

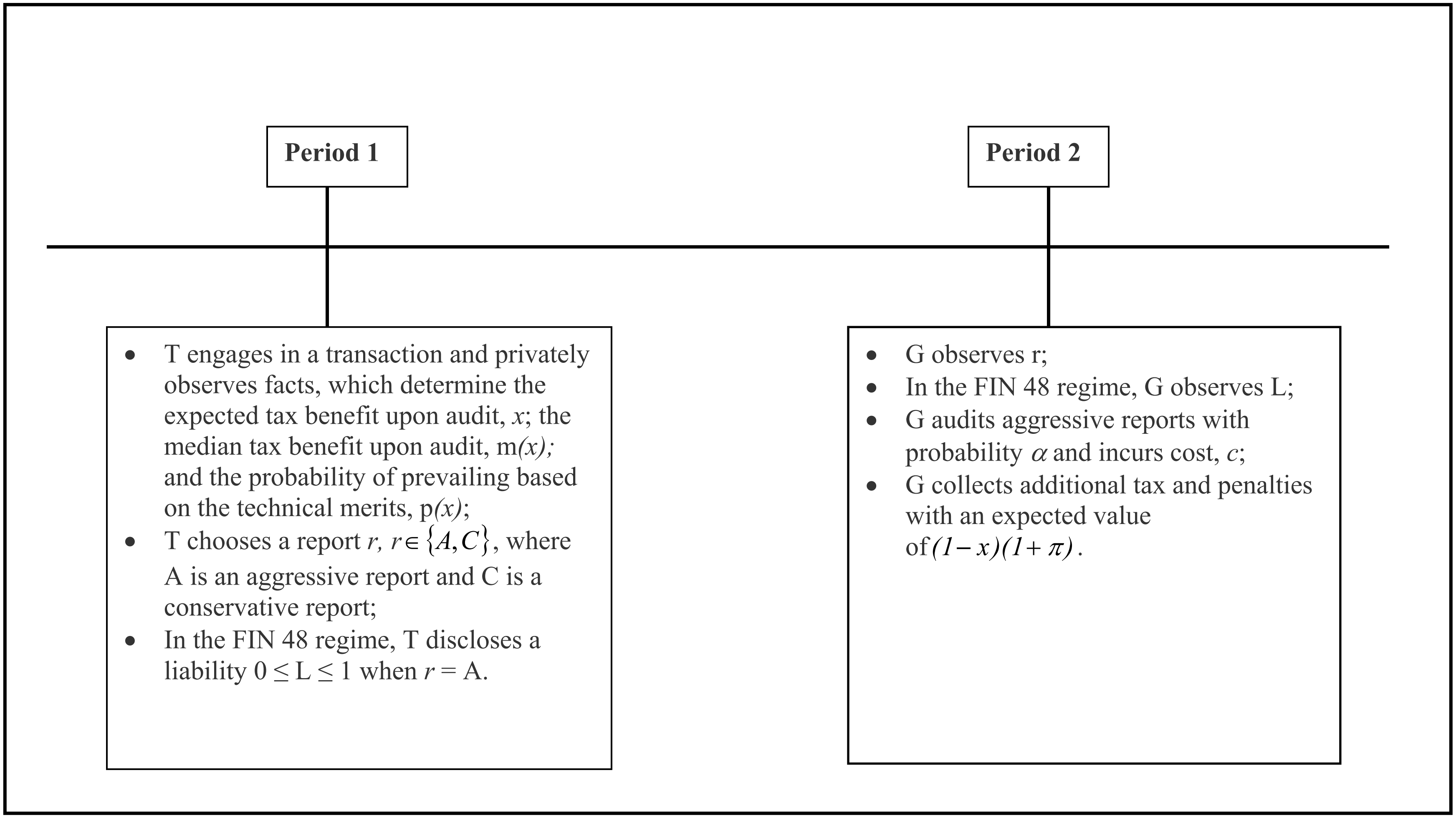


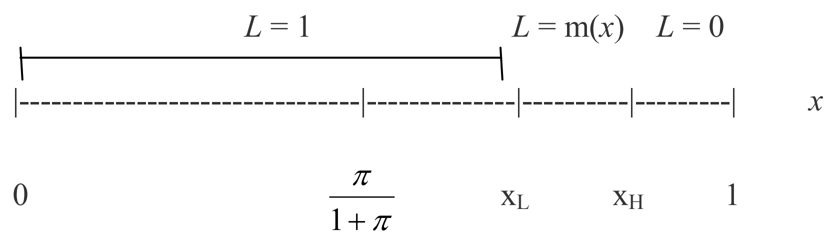
Figure 2

Payoff Matrix for the Taxpayer and the Government

Payoff Matrix [T, G]	Audit	No Audit
Aggressive (r = A)	$x-\pi(1-x),\ \pi(1-x)-x-c$	1, –1
Conservative (r = C)	$0,\ -c$	0, 0

Figure 3

Possible Realizations of the Expected Tax Benefit, *x*, and the Associated Values of the Disclosed Unrecognized Tax Benefit under FIN 48, *L*



The penalty rate is π. The median retained benefit on audit is *m(x)*.