How do IRS resources affect the tax enforcement process?

Michelle Nessa
Michigan State University
nessa@broad.msu.edu

Casey Schwab
Indiana University
cmschwab@indiana.edu

Bridget Stomberg
University of Georgia
stomberg@uga.edu

Erin Towery*
University of Georgia
etowery@uga.edu

September 2016

* Corresponding author: Physical address: Tull School of Accounting, University of Georgia, 232 Brooks Hall, 310 Herty Drive, Athens, GA, 30602, USA. Telephone number: 706-542-3620.

How do IRS resources affect the tax enforcement process?

Abstract: This study investigates how Internal Revenue Service (IRS) resources affect the IRS enforcement process for publicly traded corporations. Using confidential IRS audit data, we examine the effect of IRS resources on audit rates, the incidence and magnitude of proposed deficiencies, and settlement outcomes. We find that IRS resources are positively associated with audit rates and both the likelihood and magnitude of proposed deficiencies but negatively associated with the portion of proposed deficiencies collected. These findings suggest that the IRS targets fewer positions when resources are more limited but that the targeted positions are those supported by weaker taxpayer facts. These results further our understanding of the strategic game between tax authorities and corporate taxpayers and have important implications for policy makers and shareholders, particularly in light of recent IRS budget cuts.

I. INTRODUCTION

"Over the last fifty years, none of us has ever witnessed anything like what has happened to the IRS appropriations over the last five years and the impact these appropriations reductions are having on our tax system." – Seven former IRS Commissioners (Hoffman 2015)

Recent cuts to the Internal Revenue Service's (IRS) budget have reduced its resources by 18 percent and resulted in 13,000 (14 percent) fewer employees, 10,000 (20 percent) fewer enforcement staff, and the lowest level of individual and business audits in a decade (Marr and Murray 2016). These cuts have occurred despite the importance of income taxes to the financial health of the federal government and despite the fact that the IRS' responsibilities continue to grow.[1] Numerous media articles provide anecdotal evidence of the negative repercussions that have already occurred and speculate about potential future consequences (e.g., Rubin 2015; Russell 2015). In this study, we use confidential IRS data to examine the effect of IRS resources on each stage of the enforcement process including: (1) the rate of audit, (2) the incidence and magnitude of proposed deficiencies conditional on audit, and (3) the percentage of proposed deficiencies collected by the IRS. In doing so, we provide the first large sample evidence on how IRS resources affect each stage of the enforcement process and estimate the economic impact of IRS resources on corporate tax collections.

While prior research documents a negative association between audit probabilities and corporate tax avoidance (Hoopes, Mescall and Pittman 2012), there is limited evidence regarding how IRS resources affect enforcement outcomes. Although conventional wisdom might suggest greater resources are associated with better enforcement outcomes, this need not be the case for at least two reasons. First, the IRS has implemented tools intended to help detect potential noncompliance, including mandatory electronic tax return filing, Form 8886 (which requires firms to disclose abusive tax avoidance transactions), Schedule M-3 (which requires firms to

---

[1] The IRS collected 93 percent of total federal government receipts in 2014 (GAO 2015).

provide detailed information about specific book-tax differences), and Schedule UTP (which requires firms to describe federal uncertain tax positions underlying financial statement tax reserves). These diagnostic tools might allow the IRS to collect the same amount of revenue with fewer resources. Second, House Appropriations Committee Chairman Rogers suggested the rationale for recent IRS budget cuts was an effort to streamline "inefficient" operations (Bedard 2014). This characterization reflects the belief that lower IRS resources will not hamper — and could potentially enhance — the enforcement process.

We focus our analysis on how IRS resources affect IRS enforcement after the tax return is filed.[2] The IRS faces a number of decisions when allocating enforcement resources, including the number of returns to audit, the scope of the audits (which influences the incidence and magnitude of proposed deficiencies), and the level of resources dedicated to collecting proposed deficiencies. Moreover, resources consumed in early stages of the enforcement process affect resources available for later stages. As such, it is unclear how the level of IRS resources affects each stage of the enforcement process or whether any changes in collections stem from agents examining a different number of returns and/or altering the resources devoted to uncovering, investigating, and challenging potential noncompliance.

To test the effect of IRS resources on enforcement, we use confidential corporate audit examination data for audits conducted from 2002 through 2014 of tax return years from 2000 through 2010.[3] We obtain data on IRS resources from the IRS Annual Data Book. Our primary measures of IRS resources are the IRS' total enforcement budget and the number of revenue

---

[2] We examine the impact of IRS resources on the enforcement process *conditional* on the taxpayer's original filing position. Our primary analyses do not incorporate the potential deterrence effect that could result from the existence and perceived rigor of the IRS enforcement process. Although the deterrence effect is not the focus of our study, we examine whether taxpayers' initial filing positions vary with IRS resources in Section V.

[3] We limit the sample to returns through the 2010 tax year to allow sufficient time for tax return examinations to be completed.

agents. When examining the probability of IRS audit, we scale each measure by the number of returns filed. When examining later stages in the enforcement process that are contingent on a firm being audited, we scale each measure by the number of returns audited.

We conduct our primary analyses in three stages. First, we examine the impact of IRS resources on the probability of audit. Using a sample of 31,549 tax return years, we find a positive association between IRS resources and the probability of audit. A one standard deviation reduction in the IRS enforcement budget is associated with a 2.3 percent reduction in the probability of audit relative to the base rate. Second, we examine the impact of IRS resources on the incidence and magnitude of proposed deficiencies. We find a positive association between IRS resources and both the incidence and magnitude of proposed deficiencies within a sample of 11,899 audited tax return years. A one standard deviation reduction in the IRS enforcement budget is associated with an 11.1 percent decrease in the magnitude of proposed deficiencies relative to the mean level of proposed deficiencies. On average, this translates to a $497,100 reduction in the level of proposed deficiencies per audited return in our sample and an aggregate reduction in proposed deficiencies across our sample of almost $6 billion. These results are consistent with lower levels of IRS resources weakening the initial stages of the enforcement process, with the IRS auditing fewer returns and proposing fewer and smaller deficiencies.

Finally, we examine the impact of IRS resources on negotiated settlement outcomes. We measure settlement outcomes as the proportion of proposed deficiencies collected by the IRS (the settlement ratio). A higher (lower) settlement ratio indicates better outcomes for the IRS (taxpayer). Using a sample of 5,840 audited tax return years with a proposed deficiency, we find a negative association between IRS resources and settlement ratios. A one standard deviation reduction in the IRS enforcement budget is associated with a 1.7 percentage point increase in the

3

proportion of proposed deficiencies retained by the IRS, which translates to an average increase of $179,000 in settlement collections among our sample of return years with proposed deficiencies. This result is consistent with the IRS targeting weaker taxpayer positions when it has fewer resources. We further decompose total settlements into settlements collected following the initial examination and settlements collected following an appeal. Our results suggest that the IRS collects a larger portion of proposed deficiencies after the initial examination stage when it is has fewer resources. We find no effect of IRS resources on collections after appeals.

To gauge the economic significance of our results, we aggregate the decrease in proposed deficiencies and the increase in settlement ratios and estimate that a one standard deviation reduction in the total IRS enforcement budget during our sample period (i.e., $14.2 billion, or 21 percent of the total IRS enforcement budget during this time) is associated with an overall loss of nearly $3.3 billion in collections for the *public corporations in our sample*.[4] This estimate is a lower bound that understates the tax revenues lost as a result of IRS budget cuts because: (i) our sample captures only a subset of corporations and therefore only a small subset of all taxpayers, (ii) the estimate does not account for the fact that the IRS audits fewer returns when resources are limited, and (iii) our sample does not include all public corporation tax returns audited between 2002 and 2014.[5] Extrapolating these figures to all large corporations, we estimate that an additional $14.2 billion in IRS enforcement resources could have increased collections from large corporations by $28.7 billion during our sample period. This estimated 2:1 return on enforcement is also a conservative estimate because it does not include additional collections that could result from audits of small corporations, individuals, or foreign entities and does not

---

[4] Appendix B outlines these calculations.
[5] Although we limit our sample to tax return years 2000 through 2010, other return years could have been audited between 2002 and 2014. During our sample period, total corporate returns represent about 2.7% of all returns filed and 2.3% of all returns audited. Total corporate income tax collections comprise roughly 19% of all income tax collections and 12% of all IRS receipts (IRS Annual Data Book).

account for a reduction in the number of returns audited.[6]

Our study contributes to multiple literatures. First, we build on the stream of research examining the interaction between corporate taxpayers and the tax authority. Studies in this area often focus on taxpayer strategy in deciding which positions to claim (e.g., Mills, Robinson and Sansing 2010; De Simone, Sansing and Seidman 2013; Ayers, Seidman and Towery 2015) or on the determinants of proposed deficiencies (Mills 1998; Mills and Sansing 2000). Nearly all models of taxpayer-tax authority interaction assume noncompliance detected by the tax authority necessarily results in additional tax payments (Slemrod, Blumenthal and Christian (2001) is a notable exception). In contrast, we conduct a comprehensive examination of how IRS resources affect each stage in the enforcement process, including the outcomes of negotiations between corporate taxpayers and the IRS *after* noncompliance is alleged. These negotiations are a significant aspect of the interaction between taxpayers and the tax authority and have important implications for government collections and taxpayer cash flows (and, thus, shareholder value).

Second, we contribute to the growing literature on the determinants of tax avoidance. In contrast to tax avoidance studies examining how forces internal to the firm (i.e., firm- and manager-specific characteristics) affect corporate tax behavior, we contribute to the literature examining how forces external to the firm impact corporate tax avoidance. Specifically, we identify IRS resources as a significant determinant of tax avoidance outcomes.[7]

This study is also important to Congress, tax authorities, and taxpayers because our

---

[6] The IRS estimated a return on investment of 4.2 for its examination activities and 9.1 for its total enforcement activities during the 2013 fiscal year (GAO 2014). Thus, our estimate of a 2:1 return on investment for large corporate taxpayers appears reasonable.

[7] See Shackelford and Shevlin (2001), Maydew (2001), and Hanlon and Heitzman (2010) for examples of studies examining the impact of firm- and manager-specific characteristics on corporate tax avoidance. Examples of studies examining the impact of external forces (e.g., political, institutional, regulatory and media forces) on corporate tax avoidance include: Mills, Nutter and Schwab (2013), Ayers, Call and Schwab (2016), Chen, Powers and Stomberg (2016), Dhaliwal, Goodman, Hoffman and Schwab (2016), Dyreng, Hoopes and Wilde (2016), and Edwards, Schwab and Shevlin (2016).

results inform the ongoing political debate about IRS funding. Although we provide evidence that settlement ratios are higher when the IRS has fewer resources, we also report a reduction in the rate of audit and in the incidence and magnitude of proposed deficiencies. Our estimates collectively suggest that a reduction in IRS resources is associated with a net loss in revenue collected via the corporate tax enforcement process. Taxpayers should also be aware of IRS resources during the tax enforcement process because the IRS proposes fewer adjustments when it has fewer resources but sustains a larger proportion of those proposed adjustments.

II. BACKGROUND & HYPOTHESIS DEVELOPMENT

Overview of the IRS Business Enforcement Process

One of the primary responsibilities of the IRS is collecting income taxes from individuals and business entities. The Large Business and International Division (LB&I) of the IRS is responsible for ensuring tax compliance of corporations and partnerships with assets greater than $10 million.[8] Although many LB&I taxpayers are audited every year, the IRS audits only 14 percent of total tax returns filed by C corporations each year (IRS Form 1120), on average, according to the IRS' Audit Information Management System database. The IRS selects returns for audit based on a number of factors including suspected participation in an abusive transaction and computer-based scores of the potential for a change in tax liability.

As part of the examination, IRS agents issue a Notice of Proposed Assessment (NOPA) if they believe a taxpayer has misreported taxable income. Revenue agents propose deficiencies in

---

[8] The IRS classifies LB&I taxpayers as either Coordinated Industry Cases (CIC) or Industry Cases (IC) based on a point system that includes factors such as firm size, complexity, and extent of foreign operations. See Ayers et al. (2015) and the Internal Revenue Manual for additional detail on the point system. Some CIC and IC cases are also eligible for the Compliance Assurance Process (CAP), in which revenue agents work with taxpayers to resolve issues prior to filing a return. Beck and Lisowsky (2014) provides a comprehensive discussion of CAP and find evidence consistent with taxpayers resolving uncertainty in a timelier manner when participating in the program.

approximately 40 percent of C corporation tax return audits.[9] Taxpayers who disagree with proposed deficiencies first request a conference with the examination agent's manager and can further appeal disputed amounts to the IRS Office of Appeals, which is independent of the IRS Collection office. Any issues that remain unresolved after administrative appeal can be litigated in the U.S. Tax Court, the U.S. Court of Federal Claims, or a U.S. District Court.

Prior research has examined the strategic interaction between taxpayers and the tax authority. Existing studies consider how the probability of audit affects taxpayers' initial filing positions (Slemrod et al. 2001; Hoopes et al. 2012; Ayers et al. 2015) and how financial reporting regimes (Mills et al. 2010) and CAP participation (De Simone et al. 2013) affect the strength of claimed tax positions. Our study furthers our understanding of taxpayer-tax authority interactions and the enforcement role of the IRS by investigating how IRS resources affect various stages of the enforcement process *after* the return is filed.

IRS Resources

Understanding how IRS resources affect the enforcement process is important, especially given reductions in the IRS budget beginning in 2010, which have resulted in fewer employees, fewer enforcement staff, and fewer individual and business audits (Marr and Murray 2016). These budget reductions have occurred despite a 4 percent increase in the number of returns filed since 2010 and other increased IRS responsibilities related to the implementation of the Foreign Account Tax Compliance Act and the Affordable Care Act (Marr and Murray 2016). Increasing the IRS' responsibilities without similarly increasing its resources could prove costly. The IRS collected over $17 trillion of income taxes during our sample period, which represents a substantial portion of all Internal Revenue collections and makes income tax enforcement a meaningful part of the IRS' overall focus (IRS Annual Data Book, Table 6).

---

[9] We obtain these figures from the IRS' Audit Information Management System database.

The IRS Oversight Board, created in 1997, is tasked with reviewing and approving the annual IRS budget request submitted to the Department of the Treasury. The budget is ultimately set by Congress. For the 2015 fiscal year, the IRS Oversight Board recommended a budget of $13.6 billion and President Obama requested $12.5 billion, but Congress ultimately approved a budget of only $11 billion.[10] Many felt the cuts were politically motivated in response to allegations that the IRS scrutinized conservative political groups' applications for tax-exempt entity status more so than other groups and in an attempt to hinder the IRS' implementation of the Affordable Care Act. Hal Rogers, Chairman of the House Appropriations Committee, justified the cuts as part of a focus to target "poor-performing" and "inefficient" agencies. He went on to say that the reduced funding level would allow the IRS to "perform its core duties" (Bade 2015), which suggests he believes the budget cuts should not adversely impact collections.

It is possible that the IRS' budget and number of revenue agents have less of an effect on income tax enforcement than one might expect. Over the last 15 years, the IRS has enhanced the tools it uses to detect potential noncompliance. For example, a joint IRS and Department of Treasury work group created the Schedule M-3 in 2003 to require greater disaggregation of firms' book-tax differences. The increased quantity and standardization of book-tax difference disclosures was intended to enable the IRS to better analyze book-tax differences for compliance risks while simultaneously reducing the likelihood that the IRS will pursue a return based on an incorrect assumption about aggressive tax reporting (Boynton and Mills 2004). Other initiatives include the creation and implementation of: (1) the Modernized e-File system and mandatory electronic tax return filing for certain corporations, (2) the Compliance Assurance Process (CAP), which facilitates resolution of questionable issues prior to the return filing, (3) Forms 8886 and 8918, which require a taxpayer and material advisors to the taxpayer to disclose

---

[10] These figures represent the IRS' total operating budget, of which enforcement is only a portion.

reportable transactions, and (4) Schedule UTP, which requires additional disclosures related to a taxpayer's uncertain tax positions. These initiatives are intended to reduce the time and costs of identifying and resolving uncertain and/or more aggressive tax positions and could enable the IRS to maintain the level of tax collections despite resource reductions.[11] Thus, the effect of reductions in IRS financial resources and revenue agents on tax collections is unclear.

We examine how IRS resources affect each stage of the corporate tax enforcement process: audit rates, proposed deficiencies, and settlement ratios (i.e., the portion of proposed deficiencies retained by the IRS). Because the IRS' budget is fixed for any fiscal year, resource allocation is a zero sum game: resources consumed in earlier stages reduce resources available for later stages.[12] Thus, the level of IRS resources can affect one or more of the stages of the enforcement process. Below we provide four examples of potential IRS responses to reduced resources to illustrate how resource allocation decisions can affect each stage of the enforcement process and how the decisions made in preliminary stages affect subsequent stages. Although these examples represent only a subset of the possible scenarios, we have selected outcomes that we consider most plausible assuming the IRS strategically allocates resources available for enforcement actions to maximize collections.[13] More specifically, we discuss only those scenarios in which the IRS maintains or reduces resources allocated to each stage of the enforcement process in response to a reduction in enforcement resources. We focus on scenarios in which the IRS has fewer rather than more resources because our study is motivated in part by

---

[11] The Treasury Inspector General for Tax Administration (TIGTA) concluded the Modernized e-File system and mandatory electronic filing: (1) reduced the time and costs associated with processing tax returns, (2) decreased the amount of time needed to complete audits, and (3) increased deficiencies proposed during audits (TIGTA 2011).
[12] Based on conversations with the IRS, we assume that the portion of the IRS enforcement budget allocated to corporate tax enforcement is relatively consistent throughout our sample period. Therefore, a reduction in total IRS resources should result in a decrease in resources allocated to corporate tax enforcement.
[13] Assuming the IRS can increase, decrease, or maintain its resource allocation when determining the rate of audit, determining the magnitude of proposed deficiencies, and negotiating settlement outcomes, there are 27 possible outcomes (3x3x3).

the recent cuts to the IRS's budget. These scenarios are summarized in Figure 1.

Scenarios 1 and 2: Maintain audit rates

When faced with fewer resources, the IRS could find it optimal to maintain the audit rate to preserve a credible threat of audit, which is an important element of a voluntary tax compliance system (Allingham and Sandmo 1972). Doing so would result in fewer resources available per audited return. In response, the IRS could maintain the level of resources allocated to determining the incidence and magnitude of proposed deficiencies. This would leave the IRS with fewer resources to collect the proposed deficiencies. If the IRS selects this option (Scenario 1 in Figure 1), we will observe (1) no association between the level of IRS resources and the rate of audit, (2) no association between the level of IRS resources and the incidence or magnitude of proposed deficiencies, and (3) a positive association between the level of IRS resources and the settlement ratio. Alternatively, the IRS could reduce the resources allocated to proposing deficiencies by targeting taxpayer positions suspected to be the weakest and most likely to yield the greatest collections. This would leave the IRS with resources to ultimately collect the proposed deficiencies. If the IRS selects this option (Scenario 2), we will observe: (1) no association between the level of IRS resources and the audit rate, (2) a positive association between the level of IRS resources and the incidence and magnitude of proposed deficiencies, and (3) a negative association between the level of IRS resources and the settlement ratio.

Scenarios 3 and 4: Decrease audit rates

When faced with fewer resources, the IRS could find it optimal to audit fewer returns to preserve resources available for subsequent stages and maintain the level of resources allocated to each audited return. In doing so, the IRS could maintain the resources allocated to determining the incidence and magnitude of proposed deficiencies and to ultimately collect the proposed

deficiencies. If the IRS selects this option (Scenario 3), we will observe: (1) a positive association between the level of IRS resources and the probability of audit, (2) no association with the incidence or magnitude of proposed deficiencies, and (3) no association with the settlement ratio. Alternatively, the IRS can reduce the resources allocated to proposing deficiencies by targeting taxpayer positions suspected to be the weakest and most likely to yield the greatest collections. This would leave the IRS with resources to ultimately collect the proposed deficiencies. If the IRS selects this option (Scenario 4), we will observe: (1) a positive association between the level of IRS resources and the audit rate, (2) a positive association between the level or IRS resources and the incidence and magnitude of proposed deficiencies, and (3) a negative association between the level of IRS resources and the settlement ratio.

Although these four scenarios represent only a sample of the potential IRS responses to a reduction in resources, these examples illustrate that the relation between IRS resources and each stage of the enforcement process is unclear *ex ante* and therefore an empirical question. Because the effect of IRS resources on each stage of the process is unclear, we test the following hypotheses, stated in the null form.

H1a: IRS resources are not associated with the probability of audit.

H1b: IRS resources are not associated with the incidence of proposed deficiencies.

H1c: IRS resources are not associated with the magnitude of proposed deficiencies.

H1d: IRS resources are not associated with the proportion of deficiencies collected.

III. RESEARCH DESIGN

Sample

To examine the impact of IRS resources on the enforcement process, we construct a

11

distinct sample for each stage of the process—the audit selection stage, the proposed deficiency stage, and the settlement stage.[14] To construct our initial sample, we use employer identification numbers to merge public financial statement data from the Compustat Fundamentals Annual database with three confidential IRS datasets: (i) the IRS Business Return Transaction File (BRTF) that contains corporate income tax return data; (ii) the IRS Audit Information Management System (AIMS) that contains proposed tax deficiencies, and (iii) the IRS Enforcement Revenue Information System (ERIS) that contains deficiencies collected by the IRS. We restrict the sample to publicly traded firms so that we can include a more comprehensive set of control variables than we could if the sample included both public and private firms.[15] Table 1 summarizes our sample construction.

We use data for corporate audits conducted from 2002 through 2014 on a sample of tax returns for the 2000 through 2010 tax years. We end with 2010 tax years to allow sufficient time for returns to be selected for audit and move through the audit process.[16] We acknowledge this causes the sample to include more returns filed in earlier years because returns filed in recent years are less likely to have completed the entire enforcement process (Hanlon, Mills and Slemrod 2007). We impose four sample restrictions. First, consistent with prior tax research (e.g., Lisowsky 2010), we exclude observations in the Finance, Insurance and Real Estate (SIC codes 6000-6999) and Utilities (SIC codes 4900-4999) industries. Second, we exclude observations with insufficient data for our empirical tests. Third, we remove observations with

---

[14] The settlement stage includes settlements collected both after the initial examination and after appeals.

[15] Mills (1998) includes both public and private firms and derives control variables from IRS tax return data. As a result of limited data availability, she estimates a parsimonious regression model with limited control variables. Due to changes in required tax return forms and the construction of IRS databases, we cannot consistently construct the control variables from Mills (1998) across our entire sample period. As a result, we limit our sample to public corporations with Compustat data necessary to compute a more comprehensive set of firm-level controls. This is similar to more recent studies that link IRS data to public corporations (e.g., Lisowsky 2010; Lisowsky, Robinson and Schmidt 2013). We further investigate the potential effects of this research design choice in Section V.

[16] Gleason and Mills (2011) estimate an average time of 4.6 years to settle an IRS audit.

inconsistent data between the AIMS and ERIS datasets. Finally, we exclude firms in the CIC program when examining the effect of IRS resources on audit probability because these firms are under continual audit by the IRS. These criteria yield a sample of 31,549 return year observations that we use to examine the impact of IRS resources on audit probability.

Because the probability of a proposed deficiency is conditional on being audited, we exclude return years that are not audited when examining the impact of IRS resources on the incidence and magnitude of proposed deficiencies. We include the CIC return year observations for this analysis and all subsequent analyses. This yields a sample of 11,899 return year observations audited by the IRS. Similarly, because settlements are conditional on receiving a proposed deficiency, we exclude return years for which the IRS does not propose a deficiency when examining the impact of resources on total settlements and settlements reached following the initial examination. This yields a sample of 5,840 return year observations with a proposed deficiency. Finally, because an appeals settlement is conditional on taxpayers disputing some or all of the proposed deficiency, we retain only return years that have an unsettled deficiency amount following the initial examination when examining the impact of IRS resources on settlements following an appeal. This yields a sample of 710 return year observations with unagreed deficiency amounts.

Regression Analysis

Audit Rates

We estimate the following model to examine the effect of IRS resources on the probability of audit.

$$IRSAudit_{i,t} = \alpha_0 + \alpha_1 * IRSResources_{t+k} + \alpha_2 * BTD_{i,t} + \alpha_3 * PaidPreparer_{i,t} \quad (1)$$
$$+ \alpha_4 * Haven_{i,t} + \alpha_5 * Foreign_{i,t} + \alpha_6 * Size_{i,t} + \alpha_7 * Leverage_{i,t}$$
$$+ \alpha_8 * ROA_{i,t} + \alpha_9 * R\&D_{i,t} + \alpha_{10} * BigN_{i,t} + \alpha_{11} * NOL_{i,t}$$
$$+ \alpha_{12} * LagETR_{i,t} + \alpha_{13} * EquityEarnings_{i,t} + \alpha_{14} * Mezz_{i,t}$$
$$+ \alpha_{15} * Litigation_{i,t} + \alpha_{16} * PTDA_{i,t} + \varepsilon$$

We estimate equation (1) using a linear probability model (LPM) rather than a logistic regression to avoid biased coefficients or standard errors and allow for easy interpretation of coefficients (e.g., Hanlon and Hoopes 2014). We confirm in untabulated analysis that the sign and economic magnitude of estimated coefficients are similar when using a logistic regression. In equation (1), *t* is the tax return year. For parsimony, we assume audits are initiated in the year after the return is filed, *t+k,* and measure IRS resources in that year.[17] *IRSAudit* is an indicator variable equal to one if the IRS audits the return and zero otherwise. *IRSResources* equals either the ratio of IRS enforcement expenditures in 2014 inflation-adjusted dollars to total returns filed (*Enforce_Filed*) or the ratio of the number of IRS revenue agents employed during the year to total returns filed (*RevAgents_Filed*). These data are reported in the IRS Annual Data Book. A limitation of these measures is that they include expenditures and agents across all branches of the IRS (e.g., resources allocated to individual income tax enforcement). We would ideally like to measure expenditures and agents allocated specifically to corporate tax compliance but such data are not available.[18]

IRS enforcement expenditures include amounts allocated to collections, examinations,

---

[17] In our sample, the median number of days between return filing and audit initiation is 361 days. Thus, for a calendar year taxpayer that files its 2010 return on the extended due date of September 15, 2011, the audit would begin September 10, 2012. We therefore measure IRS resources for the fiscal year beginning October 1, 2011 and ending September 30, 2012, which is the fiscal year that includes the median expected audit start date. We do not measure resources in the fiscal year the audit was actually initiated because not all observations are audited. However, results are robust to measuring IRS resources in the year the audit began for returns that are audited.

[18] Most of the publicly available information related to the IRS budget provides figures for total enforcement in aggregate and does not provide breakouts by division. We contacted a manager at the IRS to ascertain whether the information is available. The manager did not know of a source of breakdown by division but suggested that the LB&I portion of the total enforcement budget ranges from approximately 12.5 to 17 percent of the total enforcement budget. This suggestion is in line with information published related to the IRS 2014 fiscal year obligations showing the LB&I budget was approximately 17.2 percent of the total enforcement budget (GAO 2015). We use these estimates in a sensitivity analysis reported in Section V.

Chief Counsel, and tax fraud investigations. Enforcement expenditures affect not just the number of employees the IRS can recruit and retain but also the level of regular wages, the availability of overtime pay, and the training available to employees. IRS revenue agents are those employees tasked with auditing tax returns. A positive (negative) coefficient on *IRSResources* is consistent with the probability of audit increasing (decreasing) in the level of IRS resources.

We control for factors that could potentially affect the IRS enforcement process. We include *BTD* because Mills (1998) documents a positive association between book-tax differences and proposed audit deficiencies. *BTD* equals pretax domestic income (PIDOM) minus federal tax expense (TXFED) divided by 35 percent scaled by total assets (AT).[19] We include *PaidPreparer*, equal to one if a paid preparer signed the tax return and zero otherwise because Klassen, Lisowsky and Mescall (2016) find the identity of the tax return preparer is related to corporate tax aggressiveness. Additionally, to the extent paid preparers negotiate regularly with the IRS on their clients' behalf, they could have better ability to achieve favorable outcomes for the taxpayer.

Our remaining control variables are based on models of tax sheltering proposed by Wilson (2009) and Lisowsky (2010), many of which capture characteristics the IRS considers when attempting to identify aggressive taxpayers (Treasury 1999). *Haven* equals one if a firm reports a subsidiary located in a tax haven jurisdiction and zero otherwise. *Foreign* equals pretax foreign income (PIFO) divided by lagged total assets. *Size* equals the natural log of total assets (AT). *Leverage* equals long-term debt (DLTT) plus debt in current liabilities (DLC) divided by total assets. *ROA* equals pretax income (PI) divided by total assets. *R&D* equals research and development expenses (XRD) divided by lagged total assets. *BigN* equals one if a taxpayer is audited by a Big N auditor and zero otherwise. *NOL* equals one if tax loss carryforwards (TLCF)

---

[19] We report Compustat mnemonics in parentheses throughout the manuscript.

are positive and zero otherwise. *LagETR* equals ETR in *t-1*, where ETR equals total tax expense (TXT) divided by pretax income (PI). *EquityEarnings* equals one if income statement equity in earnings (ESUB) is present and zero otherwise. *Mezz* equals convertible debt and preferred stock (DCPSTK) divided by total assets. *Litigation* equals one if pretax litigation/insurance settlement (SETP) or after-tax litigation/insurance settlement (SETA) is negative and zero otherwise. *PTDA* equals pretax discretionary accruals from the performance-adjusted modified cross-sectional Jones (1991) model (Kothari, Leone and Wasley 2005).

When estimating equation (1) and later models, we winsorize all continuous variables at the 1st and 99th percentiles and report Huber-White robust standard errors clustered by firm to account for heteroscedasticity and serial correlation. All variables are defined in Appendix A.

Proposed Deficiencies

We estimate the following model to examine the effect of IRS resources on both the probability of the IRS proposing a deficiency and the magnitude of the proposed deficiency.

$$
\begin{aligned}
Deficiency_{i,t} = \ & \alpha_0 + \alpha_1 * IRSResources_{t+k} + \alpha_2 * BTD_{i,t} + \alpha_3 * CIC_{i,t} \\
& + \alpha_4 * PaidPreparer_{i,t} + \alpha_5 * Haven_{i,t} + \alpha_6 * Foreign_{i,t} \\
& + \alpha_7 * Size_{i,t} + \alpha_8 * Leverage_{i,t} + \alpha_9 * ROA_{i,t} + \alpha_{10} * R\&D_{i,t} \\
& + \alpha_{11} * BigN_{i,t} + \alpha_{12} * NOL_{i,t} + \alpha_{13} * LagETR_{i,t} \\
& + \alpha_{14} * EquityEarnings_{i,t} + \alpha_{15} * Mezz_{i,t} + \alpha_{16} * Litigation_{i,t} \\
& + \alpha_{17} * PTDA_{i,t} + \varepsilon
\end{aligned}
\tag{2}
$$

Deficiency equals either *PropDefInd* or *PropDef_TaxSavings*. *PropDefInd* captures the incidence of proposed deficiencies and is an indicator variable equal to one if the IRS proposes a deficiency for the year *t* tax return and zero otherwise. We measure *PropDef_TaxSavings* as the deficiency proposed by the IRS scaled by *TaxSavings*, where *TaxSavings* equals pretax income times 35 percent minus total tax payments reported on the corporate tax return.[20] A positive

---

[20] Similar to De Simone, Mills and Stomberg (2015), we truncate *TaxSavings* at zero to avoid negative denominator issues. This effectively results in *PropDef_TaxSavings* being defined only for firms with positive estimated *TaxSavings*.

(negative) coefficient on *IRSResources* is consistent with the probability and/or magnitude of proposed deficiencies increasing (decreasing) in the level of IRS resources. When *PropDefInd* (*ProfDef_TaxSavings)* is the dependent variable, we estimate the regression with LPM (OLS).

In these models, we scale the *IRSResources* measures by total returns examined because proposed deficiencies are contingent on a firm being audited. We measure IRS resources in the year the audit begins.[21] We also include *CIC*, which equals one if a firm is in the CIC program and zero otherwise, as a control variable because the IRS likely has greater knowledge of CIC clients' business operations and tax positions based on prior audits. In this regression, *BTD* controls for the overall level of tax savings claimed on the tax return. Including this control is important if IRS resources affect the magnitude of savings taxpayers claim on originally filed returns. By including this control, we can interpret the effect of IRS resources on the magnitude of proposed deficiencies as attributable to IRS resource availability upon examination (i.e., *ex post* enforcement) and not to potential changes in taxpayer behavior in response to the expected level of IRS resources. All other control variables are as defined above.

Settlement Outcomes

We estimate the following model to examine the effect of IRS resources on settlement outcomes.

$$
\begin{aligned}
\textit{Settlement}_{i,t} = \ & \alpha_0 + \alpha_1 * \textit{IRSResources}_{t+k} + \alpha_2 * \textit{PropDef\_TaxSavings}_{i,t} + \alpha_3 * \textit{BTD}_{i,t} \quad\quad (3) \\
& + \alpha_4 * \textit{CIC}_{i,t} + \alpha_5 * \textit{PaidPreparer}_{i,t} + \alpha_6 * \textit{Haven}_{i,t} + \alpha_7 * \textit{Foreign}_{i,t} \\
& + \alpha_8 * \textit{Size}_{i,t} + \alpha_9 * \textit{Leverage}_{i,t} + \alpha_{10} * \textit{ROA}_{i,t} + \alpha_{11} * \textit{R\&D}_{i,t} + \alpha_{12} * \textit{BigN}_{i,t} \\
& + \alpha_{13} * \textit{NOL}_{i,t} + \alpha_{14} * \textit{LagETR}_{i,t} + \alpha_{15} * \textit{EquityEarnings}_{i,t} + \alpha_{16} * \textit{Mezz}_{i,t} \\
& + \alpha_{17} * \textit{Litigation}_{i,t} + \alpha_{18} * \textit{PTDA}_{i,t} + \varepsilon
\end{aligned}
$$

When estimating equation (3), we set *Settlement* equal to total settlements paid to the

---

[21] For example, assuming the 2010 tax return for the calendar year ending December 31, 2010 is filed on September 15, 2011 and the audit is initiated on September 10, 2012, we measure IRS resources for the fiscal year beginning October 1, 2011 and ending September 30, 2012, which is the fiscal year that includes the median expected audit start date. In our sample, the mean length of audit is 278 days.

IRS scaled by the level of the proposed deficiency (*TotalSettle_PropDef*). This ratio represents the portion of the deficiency proposed by the IRS that the IRS retains. Higher (lower) values of *TotalSettle_PropDef* indicate more favorable outcomes for the IRS (taxpayers). In supplemental analyses, we decompose *TotalSettle_PropDef* into settlements paid during the examination process (*ExamsSettle_PropDef*) and settlements paid during the appeals process (*AppealsSettle_UnagreedDef*). In this model, we scale the *IRSResources* measures by total returns examined because settlements are contingent on a firm being audited. A positive (negative) coefficient on *IRSResources* is consistent with the proportion of proposed deficiencies retained by the IRS increasing (decreasing) in the level of IRS resources. We include *PropDef_TaxSavings* as an additional control because the absolute dollar amount of the proposed deficiencies likely influences the willingness of the IRS or the taxpayer to negotiate. All other variables are as defined above.

IV. RESULTS

Descriptive Statistics and Correlations

Table 2 presents descriptive statistics for our regression variables. Panel A presents descriptive statistics related to the three stages of the enforcement process on which we focus our analysis. Approximately 29 percent of non-CIC return years are audited by the IRS. For the sample of 11,899 audited returns, roughly 49 percent receive a proposed deficiency from the IRS and the average magnitude of the proposed deficiency is almost $5.2 million, which represents approximately 6.8 percent of the tax savings claimed on the originally filed return. On average, taxpayers pay 73 percent of proposed deficiencies.

Panel B presents descriptive statistics about IRS resources. The IRS has an enforcement budget of $23.20 per return filed and less than one revenue agent per 10,000 returns filed, on

18

average. When we scale enforcement resources by audited returns, we estimate an enforcement budget of $3,900 per audited return and one revenue agent for every 100 audited returns.

Panel C presents descriptive statistics for control variables used in our multivariate analysis. The mean value of book-tax differences in our sample is -0.0631, suggesting estimated taxable income exceeds pretax book income, on average. This is perhaps not surprising given the negative average return on assets (-0.0409) we observe in our sample. Approximately 9.2 percent of sample returns are audited as part of the CIC program and are therefore subject to continual audit. Importantly, this means over 90 percent of the sample is not continuously audited, allowing audit rates to vary with the level of IRS resources. Roughly 73 percent of sample returns were signed by a paid preparer and 75 percent of return years are associated with financial statements that were audited by one of the Big N accounting firms.

Finally, Panel D provides more detailed information on our IRS enforcement variables by year. Column (a) shows the annual IRS Enforcement budget in nominal US dollars (in thousands). In column (b) we adjust these amounts for inflation to express them in 2014 constant dollars across the sample period. We use these inflation-adjusted IRS enforcement budgets in our analyses. Column (c) presents the total number of revenue agents per year and column (d) shows total returns filed (in thousands). Both IRS resources and the demands on the IRS (measured using returns filed) vary throughout the sample period and neither component exhibits a monotonic trend. Column (e) shows total IRS enforcement dollars per return filed. We observe variation across the period in which our sample returns are audited (2002-2014) from a low of $20.61 in 2014 to a high of $26.01 in 2010. We also note a steady decline in enforcement dollars per return beginning in 2010. The decline of over $4.00 per return from 2010 to 2014 reflects the recent dramatic cuts to the IRS' budget and underscores the need for empirical evidence on how

IRS resources affect the enforcement process. Column (h) presents enforcement dollars per audited return. This ratio declines sharply in early years and then exhibits a relatively steady decline beginning in 2005. The sole exception is 2009 in which the ratio of enforcement budget to audited returns exhibits a small increase. Column (i) presents the number of revenue agents per audited return.

Table 3 presents correlations. Our measures of resources in the audit selection phase, *Enforce_Filed* and *RevAgents_Filed*, exhibit large, positive correlations ($\rho = 0.93$). Similarly, our measures of IRS resources in the proposed deficiency and settlement phases, *Enforce_Audited* and *RevAgents_Audited*, exhibit large, positive correlations ($\rho = 0.91$). Although our IRS resource measures are positively and significantly related to the probability of audit and both the incidence and magnitude of proposed deficiencies and negatively and significantly related to the settlement ratio, the magnitudes of these correlations are relatively small ($-0.10 \leq \rho \leq 0.10$).

Multivariate Results

Audit Rates

Table 4 presents results from estimating equation (1) with *IRSAudit* as the dependent variable. We find positive and significant coefficients (*p*-values < 0.01) on both measures of *IRSResources* (i.e., total enforcement budget per filed return or total revenue agents per filed return). Relative to the base rate probability of audit in the sample of 28.64 percent, these results suggest a one standard deviation decrease in the enforcement budget (revenue agents) is associated with a 2.3 percent (2.9 percent) decrease in audit probability. Hence, the IRS audits fewer corporate returns when it has fewer resources.

We also find that the probability of audit is higher for larger firms, more profitable firms, firms with higher effective tax rates in the prior year and firms exhibiting larger book-tax

differences. Conversely, the probability of audit is decreasing in leverage, R&D, Big N auditors, NOLs, mezzanine financing and pretax discretionary accruals. Finally, the likelihood of audit is not significantly associated with the extent of foreign income, the presence of a subsidiary in a tax haven, the use of a paid preparer, the level of equity-method investments, and the risk of litigation.

Proposed Deficiencies

Table 5 Panel A presents the results from estimating equation (2) with *PropDefInd* as the dependent variable. Consistent with the IRS being more likely to propose a deficiency when it has greater resources, we find positive and significant coefficients on both measures of *IRSResources* (p-value < 0.01). When using the total enforcement budget scaled by audited returns to measure IRS resources, these results indicate that a one standard deviation increase in IRS resources is associated with a 1.6 percentage point increase in the probability of the IRS proposing a deficiency during audit. This represents a 3.2 percent increase from the base probability of the IRS proposing a deficiency (49.2 percent). Estimates of economic magnitude are similar if we measure resources using the number of revenue agents. Collectively, these results suggest that IRS resources have a significant and economically meaningful impact on the likelihood that the IRS will propose an increase to taxable income upon audit, and that cutting the IRS' budget is likely to lead to a reduction in the incidence of proposed deficiencies.

We also find the probability of receiving a proposed deficiency is higher for returns audited under the CIC program, larger firms, more profitable firms, and firms reporting higher prior year ETRs. Proposed deficiencies are less common for firms with greater leverage, firms with NOLs, firms audited by Big N auditors, and firms with higher pretax discretionary accruals. Firms in the CIC program could be more likely to receive a proposed deficiency because of

21

agents' enhanced knowledge of their uncertain positions acquired through multiple years of audit. Somewhat surprisingly, we estimate the rate of proposed deficiency is negatively associated with *BTD*.[22]

Table 5 Panel B presents the results from estimating equation (2) with *PropDef_TaxSavings* as the dependent variable. Unlike *PropDefInd* which captures the incidence of proposed deficiencies, *PropDef_TaxSavings* captures the magnitude of the proposed deficiency relative to the total tax savings claimed on the originally filed return. We find positive and significant coefficients on both measures of *IRSResources* (p-value < 0.01). Focusing again on the first column where we measure resources using the enforcement budget, our results indicate that a one standard deviation decrease in IRS resources is associated with an 11.1 percent decrease in the ratio of proposed deficiencies to tax savings relative to the mean (0.069).[23] Using the average value of tax savings for sample returns that were audited ($65.13 million), a one standard deviation decrease in the IRS enforcement budget translates into a $497,100 decrease in the average level of proposed deficiencies per return and an aggregate reduction in proposed deficiencies of $5.9 billion for the 11,899 tax returns in our sample. Holding the portion of proposed deficiencies collected by the IRS (i.e., the settlement ratio) constant at the mean of 73 percent, this translates to $4.3 billion in lost collections for our sample returns.[24] These results indicate that the level of IRS resources is a statistically and economically significant determinant of proposed deficiencies.

We also find that the magnitude of proposed deficiencies is higher for firms participating

---

[22] When we estimate equation (2) excluding *ROA*, the rate of proposed deficiency is positively associated with *BTD*.

[23] Because we control for book-tax differences, one measure of the extent of tax avoidance, our results reflect how IRS resources affect enforcement during the audit process and not how they affect taxpayer behavior when claiming positions on originally filed returns. In Section V, we examine the relation between IRS resources and *ex ante* tax avoidance.

[24] See Appendix B for details on all economic significance computations presented in the paper.

in the CIC program, engaging a paid preparer, and reporting higher profits. We find that proposed deficiencies are lower for firms with larger BTDs, more foreign operations, higher leverage, greater mezzanine financing, and the presence of an NOL.

Settlement Outcomes

Table 6 presents the results from estimating equation (3) with *TotalSettle_PropDef* as the dependent variable. Recall that *TotalSettle_PropDef* equals the ratio of the total settlement amount to the original proposed deficiency. As such, *TotalSettle_PropDef* captures the proportion of the deficiency proposed by the IRS that it collects from the taxpayer. We find a negative and significant coefficient on both measures of *IRSResources* (*p*-value < 0.05), which suggests the IRS collects a larger proportion of proposed deficiencies when it has fewer resources.

With respect to control variables, we find a negative and significant coefficient on *PropDef_TaxSavings (p*-value < 0.01*)*. This result likely indicates either that taxpayers are willing to concede relatively small adjustments to taxable income or that revenue agents select a higher starting point for negotiations with the taxpayer relative to their belief of the true amount of required adjustment to taxable income. We also find that settlement ratios are higher for more profitable firms and firms with higher effective tax rates in the prior year. In contrast, we find that settlement ratios are decreasing in taxpayer size.

To interpret the economic impact of IRS resources on settlements, we focus on the first column in Table 6 in which we measure IRS resources using the total enforcement budget scaled by audited returns. Our results suggest that a one standard deviation decrease in IRS resources is associated with a 1.7 percentage point increase in the proportion of proposed deficiencies retained by the IRS. Using the average value of proposed deficiencies for the sample of returns

with settlements ($10.57 million), this implies a $179,440 increase in the level of settlements per return and an aggregate increase in the level of settlements of $1 billion for the 5,840 returns in our sample with settlements. Thus, it appears the IRS collects a greater portion of proposed deficiencies when faced with fewer resources.

The economic interpretation of Table 6 accounts for only one stage of the enforcement process. Recall from Panel B of Table 5 that the IRS also proposes *fewer* deficiencies when resources are limited. Therefore, to estimate the net impact of IRS resources on collections, we must combine the effects of decreasing proposed deficiencies and increasing settlement ratios. We estimate a one standard deviation reduction in the IRS enforcement budget, which we estimate to be $14.2 billion from 2002-2014, results in an overall loss of almost $3.3 billion in collections for the tax returns in our sample (see Appendix B for calculations). Extrapolating these figures to all large corporations, we estimate the IRS could have increased collections by $28.7 billion if given an additional $14.2 billion in resources. This estimate is a lower bound because it does not include additional collections from audits of small corporations, individuals or foreign entities, and it does not reflect the impact of IRS resources on the probability of audit.

In Table 7, we further investigate the relation between IRS resources and settlements by separately examining settlements following the initial examination and those following an appeal. We find a negative and significant association between IRS resources and settlements following the initial examination (Panel A) but find no association between IRS resources and settlements following an appeal (Panel B). Results are similar across both measures of IRS resources. Thus, the increase in settlement collections associated with a decrease in IRS resources comes at the completion of the audit and not after any prolonged appeals process.

Our results indicate that IRS resources are positively associated with rates of audit (Table

4) and the incidence and magnitude of proposed deficiencies (Table 5, Panels A and B), but negatively associated with the proportion of proposed deficiencies collected (Table 6). Collectively, these results are consistent with the IRS adopting a risk-based approach and focusing its resources on tax returns and positions it suspects are supported by the weakest facts when resources are more limited.[25]

V. SUPPLEMENTAL ANALYSES

Ex Ante Enforcement

Results in Panel B of Table 5 indicate that the magnitude of proposed deficiencies as a percentage of originally claimed tax savings is increasing in the level of IRS resources. Our interpretation is that the IRS can devote more time and care to uncovering potential errors when it has greater resources such that the amount of proposed deficiencies increases. Consistent with this interpretation, we find positive associations between the number of hours the IRS spends conducting examinations and both measures of IRS resources (p-values < 0.01, untabulated). An alternative explanation is that taxpayers are less likely to claim questionable or aggressive positions when IRS resources are high because taxpayers anticipate a higher probability of audit and/or more thorough IRS enforcement. Under this alternative explanation, the level of IRS resources affects taxpayers' filing decisions by serving as a deterrence mechanism or a form of *ex ante* enforcement. In other words, the magnitude of originally claimed tax savings could be lower when IRS resources are higher, such that the results in Panel B of Table 5 capture the effect of IRS resources on the denominator (taxpayer behavior) and not the numerator (IRS behavior) as we suggest. We address this possibility in our main analysis by controlling for *BTD,* which is a measure of claimed tax avoidance and is highly correlated with estimated tax savings

---

[25] This conclusion is consistent with 2012 IRS Advisory Council recommendations on how the IRS could refine its risk assessment protocols (McCormally 2014).

(the denominator of *PropDef_TaxSavings*).

To further address this alternative explanation, we re-estimate equation (2) after replacing the dependent variable with the ratio of claimed tax savings to assets. This analysis, tabulated in Table 8, provides evidence on whether firms' tax behavior varies with the level of IRS resources. We measure *IRSResources* in the fiscal year the return is filed because taxpayers can observe that information when they file the return. The ratio of claimed tax savings to assets is increasing in tax avoidance such that a negative coefficient on *IRSResources* would be consistent with taxpayers engaging in less tax avoidance when the IRS has more resources. When *Enforce_Filed* is the measure of *IRSResources*, the coefficient on *IRSResources* is insignificant (coefficient = 0.079; *p*-value = 0.121). When *RevAgents_Filed* is the measure of *IRSResources*, the coefficient on *IRSResources* is also insignificant (coefficient = 0.013; *p*-value = 0.591). In untabulated analysis, we re-estimate equation (2) after replacing the dependent variable with a firm's federal cash effective tax rate, calculated as the total tax liability on Form 1120 scaled by pretax income (PI).[26] This dependent variable is decreasing in tax avoidance such that a positive coefficient on *IRSResources* would be consistent with taxpayers engaging in less tax avoidance when the IRS has more resources. When *Enforce_Filed* is the measure of *IRSResources*, the coefficient on *IRSResources* is insignificant (coefficient = -1.253; *p*-value = 0.121). When *RevAgents_Filed* is the measure of *IRSResources*, the coefficient on *IRSResources* is also insignificant (coefficient = 0.411; *p*-value = 0.591). Collectively, these results provide no evidence that taxpayers are less likely to claim questionable or aggressive positions when IRS resources are high.

Alternative Settlement Specification

In Table 6, we provide evidence that the IRS collects a larger portion of proposed deficiencies when it has fewer resources. Our interpretation of these results is that the IRS

---

[26] Inferences are unchanged if we scale by U.S. pretax income (PIDOM).

focuses on weaker taxpayer positions when its resources are limited. However, the increased settlement ratio reported in Table 6 could be explained by the IRS proposing fewer deficiencies when allocated fewer resources, consistent with our evidence in Table 5 that the level of proposed deficiencies is positively associated with the level of IRS resources. Although we attempt to address this issue in our main analysis by controlling for the ratio of proposed deficiencies to tax savings, we conduct an additional analysis in which we estimate the following regression:

$$LnTotalSettle_{i,t} = \alpha_0 + \alpha_1*LnEnforcementBudget_{t+k} + \alpha_2*LnPropDef_{i,t} + \qquad (3*)$$
$$\alpha 3*LnEnforcementBudget_{t+k}*LnPropDef_{i,t} + \sum \alpha_k*Controls_{i,t} + \varepsilon$$

where *LnTotalSettle* equals the natural log of total settlements (*TotalSettle*), *LnEnforcementBudget* equals the natural log of the IRS enforcement budget, and *LnPropDef* equals the natural log of proposed deficiencies (*PropDef*). Because our coefficient of interest is the interaction of two continuous variables, we mean-center those variables and continue to include the remaining control variables from equation (3). A negative coefficient on the interaction would confirm that the portion of proposed deficiencies the IRS collects decreases in its enforcement budget and would be consistent with our interpretation that the IRS targets weaker taxpayer positions when it has fewer resources. Consistent with expectations, we find a negative and significant coefficient on the *LnEnforcementBudget*LnPropDef* interaction (untabulated).

Measures of IRS Corporate Enforcement

While we focus on the impact of IRS resources on the corporate enforcement process, our primary analyses use measures of IRS resources based on the total IRS enforcement budget and the total number of returns filed or audited. We use the total enforcement budget and total number of returns filed or audited because the resource allocation by division was not publicly

27

available during our sample period.[27] Although the exact corporate enforcement budget is unknown, a manager at the IRS indicated that the LB&I enforcement budget likely ranges from 12.5 to 17 percent of the total enforcement budget. This suggestion is in line with information published related to the IRS 2014 fiscal year showing the LB&I budget was approximately 17.2 percent of the total enforcement budget. Based on this information, we re-estimate our analysis (untabulated) using 17 percent of the total enforcement budget as an estimate of the LB&I enforcement budget and scaling by the total number of corporate returns. Although this measure is intended to better capture corporate enforcement resources, it suffers from two limitations. First, the numerator is an estimate of the total LB&I enforcement budget and our sample includes only a portion of all LB&I taxpayers. Second, the denominator is total corporate returns, which includes both LB&I returns and smaller corporate returns (i.e., those with total assets less than $10 million). Information on the number of large corporate returns filed and audited is not available for each year in our sample period.

When re-estimating equation (1), we use the ratio of the estimated LB&I enforcement budget to the total number of corporate returns filed as a proxy for IRS corporate resources. When re-estimating equations (2) and (3), we use the ratio of the estimated LB&I enforcement budget to the total number of corporate returns audited as a proxy for IRS corporate resources. Using these alternative corporate measures of IRS resources, we find: (1) a positive but insignificant association between IRS resources and the probability of audit (p-value = 0.554), (2) positive and significant associations between IRS resources and the incidence of proposed deficiencies (p-value = 0.070) and the magnitude of proposed deficiencies (p-value = 0.033), and (3) a negative and significant association between IRS resources and settlement ratios (p-value <

_____

[27] The GAO report on the IRS 2016 fiscal year budget provides a break out of LB&I enforcement obligations for the 2014 fiscal year. However, this is the only year for which such data are publicly available.

0.01) that is driven by settlements following the initial IRS examination (*p*-value < 0.01). Aside

from no longer documenting a significant association between the probability of audit and IRS

resources, our inferences are unchanged. Specifically, these results are consistent with our

interpretation that, when IRS resources are more limited, the IRS uses those limited resources to

target positions suspected of being supported by the weakest facts. Estimates based this

alternative specification suggest a one standard deviation increase in the estimated LB&I

enforcement budget is associated with a 1.7:1 return in large corporate collections. This

magnitude is similar to our estimates of a 2:1 return on IRS resources based on our primary

analyses.

The Effects on Private Corporations

In our main analysis, we restrict our sample to publicly traded corporations with data

available in Compustat to calculate a robust set of control variables. We do this to control for

firm-level determinants of audit rates, proposed deficiencies and settlement outcomes given the

variation in macroeconomic conditions during our sample period that could be correlated with

both IRS enforcement resources and taxpayer behavior. In estimating the economic magnitudes

of reductions in IRS resources in Appendix B, we extrapolate results from our sample of large

public corporations to all large corporations, both public and private. This methodology

implicitly assumes that the IRS allocates its resources throughout the enforcement process

similarly for public and private taxpayers and that it does not shift enforcement resources from

public to private taxpayers or vice versa when it has fewer resources. If the IRS shifts resources

from public to private corporate taxpayers when faced with fewer resources, our extrapolated

estimate of the net aggregate decrease in collections in Appendix B could be overstated. In

contrast, if the IRS shifts resources from private to public corporate taxpayers when faced with

29

fewer resources, our extrapolated estimate of the net aggregate decrease in collections in Appendix B could be understated.

To investigate these possibilities, we estimate the probability of audit and the likelihood that the IRS will issue a proposed deficiency as a function of *IRSResources,* an indicator equal to one if the return is filed by a private taxpayer (*Private),* and the interaction between *IRSResources* and *Private*. In untabulated analysis, we estimate a positive coefficient on *IRSResources*Private* when *IRSAudit* is the dependent variable and an insignificant coefficient on *IRSResources*Private* when *PropDefInd* is the dependent variable. Thus, the probability of audit decreases more for private taxpayers when the IRS has fewer resources. Conditional upon audit, however, private corporate taxpayers are no more or less likely to receive a proposed deficiency. Collectively, the fact that audit rates of private firms appear to decline even more than audit rates of public firms when IRS resources decline further suggests that our extrapolated estimates of lost collections presented throughout the paper likely represent a lower bound.

VI. CONCLUSION

We examine how IRS resources affect the tax enforcement process. Using two measures of resources, the IRS' enforcement budget and the number of revenue agents, we find that the IRS reduces its rate of audit and the incidence and magnitude of proposed deficiencies when faced with fewer resources. However, we also find that the IRS retains a greater proportion of the deficiencies it proposes when it has fewer resources. These results are consistent with lower resources forcing the IRS to be strategic in the returns it audits and the positions it challenges during exams by focusing on positions supported by the weakest facts. Despite the IRS' success in retaining more of the deficiencies it proposes when its resources are limited, our estimates indicate an overall net decline in revenue collected through the tax enforcement process as IRS

resources decrease. Our findings support the GAO's assertion that recent cuts to the IRS budget could adversely affect tax collections (GAO 2015) and contradicts assertions that the IRS can continue to perform its core duties with fewer resources.

Our study makes multiple contributions. First, we build on studies examining strategic interactions between taxpayers and the tax authority. Prior research has examined how factors such as audit probability and financial reporting regimes affect the aggressiveness of taxpayers' tax positions and the magnitude of proposed deficiencies. We advance this literature by identifying IRS resources as an important determinant of audit probability and proposed deficiencies and by examining the final outcome of the negotiation process that follows the completion of an IRS exam. Second, we contribute to the literature on the determinants of tax avoidance by identifying IRS resources as a significant external force affecting ultimate tax avoidance outcomes.

Our findings inform policy makers, tax enforcement agencies, and taxpayers. Our empirical estimates of tax revenue potentially lost when the IRS has fewer resources should be of interest to Congress when deciding the amount of resources to allocate to the IRS. Taxpayers should be aware of IRS resources during the tax enforcement process and realize that when the IRS has fewer resources, it proposes fewer adjustments but is better able to sustain the adjustments it does propose.

REFERENCES

Allingham, M., and A. Sandmo. 1972. Income tax evasion: a theoretical analysis. *Journal of Public Economics* 1: 323-338.

Ayers, B., A. Call, and C. Schwab. 2016. Do analysts' cash flow forecasts encourage managers to enhance real cash flows? Evidence from tax planning. Working paper, University of Georgia, Arizona State University and Indiana University.

Ayers, B., J. Seidman, and E. Towery. 2015. Taxpayer behavior under audit certainty. Working paper, University of Georgia and University of Virginia.

Bade, R. 2015. Republicans take aim at IRS budget. *Politico.* Available online at: http://www.politico.com/story/2015/06/gop-irs-budget-118835. Last accessed July 27, 2016.

Beck, P., and P. Lisowsky. 2014. Tax uncertainty and voluntary real-time tax audits. *The Accounting Review* 89(3): 867-901.

Bedard, P. 2014. House budget punishes IRS with 15% cut, halts Obamacare enforcement. Available online at: http://www.washingtonexaminer.com/house-budget-punishes-irs-with-15-cut-halts-obamacare-enforcement/article/2549830. Last accessed August 29, 2016.

Boynton, C., and L. Mills. 2004. The evolving Schedule M-3: a new era of corporate show and tell? *National Tax Journal* 57(3): 757-772.

Chen, S., K. Powers, and B. Stomberg. 2015. Examining the role of the media in influencing corporate tax avoidance and disclosure. Working paper, University of Texas at Austin and University of Georgia.

De Simone, L., L. Mills, and B. Stomberg. 2015. Examining IRS audit outcomes of income mobile firms. Working paper, Stanford University, University of Texas at Austin, and University of Georgia.

De Simone, L., R. Sansing, and J. Seidman. 2013. When are enhanced relationship tax compliance programs mutually beneficial? *The Accounting Review* 88(6): 1971-1991.

Dhaliwal D., T. Goodman, P.J. Hoffman, and C. Schwab. 2016. The incidence, valuation, and management of tax-related reputational costs: Evidence from negative media attention during periods characterized by high scrutiny of corporate tax avoidance. Working paper, University of Arizona, Purdue University and Indiana University.

Dyreng, S., J. Hoopes, and J. Wilde. 2016. Public pressure and corporate tax behavior. *Journal of Accounting Research* 54(1): 147-186.

Edwards, A., C. Schwab, and T. Shevlin. 2016. Financial constraints and cash tax savings. *The Accounting Review* 91(3): 859-881.

GAO. 2014. IRS 2015 budget: Long-term strategy and return on investment data needed to better manage budget uncertainty and set priorities (GAO-14-605).

GAO. 2015. IRS 2016 budget: IRS is scaling back activities and using budget flexibilities to absorb funding cuts (GAO-15-624).

Gleason, C., and L. Mills. 2011. Do auditor-provided tax services improve the estimate of tax reserves? *Contemporary Accounting Research* 28(5): 1484-1509.

Hanlon, M., and S. Heitzman. 2010. A review of tax research. *Journal of Accounting and Economics* 50(2-3):127-178

Hanlon, M., and J. Hoopes. 2014. What do firms do when dividend tax rates change? An examination of alternative payout responses. *Journal of Financial Economics* 114(1): 105-124.

Hanlon, M., L. Mills, and J. Slemrod. 2007. An empirical examination of corporate tax noncompliance. In: Auerbach, A., J. Hines and J. Slemrod (Eds.), *Taxing Corporate Income in the 21ˢᵗ Century*. Cambridge University Press, New York, 171-210.

Hoffman, W. 2015. Former IRS Commissioners call for bigger IRS budget. *Tax Notes*: November 16.

Hoopes, J., D. Mescall, and J. Pittman. 2012. Do IRS audits deter corporate tax avoidance? *The Accounting Review* 87(5): 1603-1639.

Internal Revenue Service. 2000-2014. Annual Databook. Available online at: https://www.irs.gov/uac/soi-tax-stats-prior-year-irs-data-books.

Jones, J. 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 40: 727-759.

Klassen, K., P. Lisowsky, and D. Mescall. 2016. The role of auditors, non-auditors, and internal tax departments in corporate tax aggressiveness. *The Accounting Review* 91(1): 179-205.

Kothari, S.P., A. Leone, and C. Wasley. 2005. Performance matched unexplained accrual measures. *Journal of Accounting and Economics* 39: 163-197.

Lisowsky, P. 2010. Seeking shelter: empirically modeling tax shelters using financial statement information. *The Accounting Review* 85(5): 1693-1720.

Lisowsky, P., L. Robinson, and A. Schmidt. 2013. Do publicly disclosed tax reserves tell us about privately disclosed tax shelter activity? *Journal of Accounting Research* 51(3): 583-629.

Marr, C., and C. Murray. 2016. IRS funding cuts compromise taxpayer service and weaken enforcement. Available online at: http://www.cbpp.org/sites/default/files/atoms/files/6-25-14tax.pdf. Last accessed August 29, 2016.

Maydew, E. 2001. Empirical tax research in accounting: A discussion. *Journal of Accounting and Economics* 31(1-3): 389-403.

McCormally, T. 2014. IRS advisory panel urges changes to risk assessment protocols. *The Tax Adviser* 45(6): 399-401.

Mills, L. 1998. Book-tax differences and Internal Revenue Service adjustments. *Journal of Accounting Research* 36: 343-356.

Mills, L., S. Nutter, and C. Schwab. 2013. The effect of political sensitivity and bargaining power on taxes: Evidence from federal contractors. *The Accounting Review* 88(3): 977-1005.

Mills, L., L. Robinson, and R. Sansing. 2010. FIN 48 and tax compliance. *The Accounting Review* 85(5): 1721-1742.

Mills, L., and R. Sansing. 2000. Strategic tax and financial reporting decisions: theory and evidence. *Contemporary Accounting Research* 17(1): 85-106.

Rubin, R. 2015. IRS audits fall to an 11-year low. *Wall Street Journal*: November 4.

Russell, R. 2015. NTA highlights decline in taxpayer service. *Accounting Today*: February 1.

Shackelford, D., and T. Shevlin. 2001. Empirical tax research in accounting. *Journal of Accounting and Economics* 31(1-3): 321–387.

Slemrod, J., M. Blumenthal, and C. Christian. 2001. Taxpayer response to an increased probability of audit: evidence from a controlled experiment in Minnesota. *Journal of Public Economics* 79: 455-483.

TIGTA. 2011. Successfully processing large corporate tax returns electronically was a major accomplishment, but eliminating more compliant returns from the audit stream is a work in progress. (Reference Number: 2011-30-048).

U.S. Department of the Treasury, 1999. The Problem of Corporate Tax Shelters: Discussion, Analysis and Legislative Proposals. July. Washington, D.C.: Government Printing Office.

Wilson, R. 2009. An examination of corporate tax shelter participants. *The Accounting Review* 84(3): 969-999.

APPENDIX A
Variable definitions

IRSAudit	=	One if the IRS audits the return year (AIMS database), and zero otherwise
PropDefInd	=	One if the IRS proposes a deficiency for the return year (AIMS database), and zero otherwise
PropDef ($M)	=	Initial deficiencies proposed to the taxpayer by the IRS (AIMS database)
PropDef_TaxSavings	=	Deficiency proposed by the IRS divided by *TaxSavings*, where *TaxSavings* equals pretax income times 35 percent minus total tax payments reported on the corporate tax return
UnagreedDef ($M)	=	Amount of proposed deficiency unagreed at the conclusion of the exam process (AIMS database)
TotalSettle ($M)	=	Total deficiencies retained by the IRS (ERIS database)
TotalSettle_PropDef	=	*TotalSettle* divided by *PropDef*
ExamsSettle ($M)	=	Deficiencies retained by the IRS during the exam process (ERIS dataset)
ExamsSettle_PropDef	=	*ExamsSettle* divided by *PropDef*
AppealsSettle ($M)	=	Deficiencies retained by the IRS during the appeals process (ERIS dataset)
AppealsSettle_UnagreedDef	=	*AppealsSettle* divided by *UnagreedDef*
Enforce_Filed	=	IRS inflation-adjusted enforcement expenditures ($Thousands) / # of total tax returns filed (both from IRS Annual Data Book)
RevAgents_Filed	=	Total IRS revenue agents / # of total tax returns filed (Thousands) (both from IRS Annual Data Book)
Enforce_Audited	=	IRS inflation-adjusted enforcement expenditures ($Thousands) / # of total tax returns audited (both from IRS Annual Data Book)
RevAgents_Audited	=	Total IRS revenue agents / # of total tax returns audited (Thousands) (both from IRS Annual Data Book)

BTD	=	Pretax domestic income (PIDOM) minus federal tax expense (TXFED) divided by 35 percent scaled by total assets (AT)
CIC	=	One if a firm is in the CIC program, and zero otherwise
PaidPreparer	=	One if a paid preparer signed the tax return (BRTF dataset), and zero otherwise
Haven	=	One if a firm reports a subsidiary located in a tax haven jurisdiction, and zero otherwise
Foreign	=	Pretax foreign income (PIFO) divided by lagged total assets (AT)
Size	=	Natural log of total assets (AT)
Leverage	=	Long-term debt (DLTT) plus debt in current liabilities (DLC) divided by total assets (AT)
ROA	=	Pretax income (PI) divided by total assets (AT)
R&D	=	Research and development expenses (XRD) divided by lagged total assets (AT)
BigN	=	One if a taxpayer is audited by a Big N auditor, and zero otherwise
NOL	=	One if tax loss carryforwards (TLCF) are positive, and zero otherwise
LagETR	=	Lagged *ETR*, where *ETR* equals total tax expense (TXT) divided by pretax income (PI)
EquityEarnings	=	One if income statement equity in earnings (ESUB) is present, and zero otherwise
Mezz	=	Convertible debt and preferred stock (DCPSTK) divided by total assets (AT)
Litigation	=	One if pretax litigation/insurance settlement (SETP) or after-tax litigation/insurance settlement (SETA) is negative, and zero otherwise
PTDA	=	Pretax discretionary accruals from the performance-adjusted modified cross-sectional Jones (1991) model (Kothari, Leone and Wasley 2005)

APPENDIX B

Calculation of Economic Magnitudes

Panel A: Magnitude of estimated one standard deviation decrease in IRS enforcement budget

Standard deviation of *Enforce_Audited* (**Table 2 Panel B**)	0.7788
x Aggregate number of total returns examined from 2002-2014	18,274,831
Aggregate one standard deviation decrease in IRS enforcement budget from 2002-2014 (in thousands $)	$ (14,232,438)

Panel B: Effect of one standard deviation decrease in IRS enforcement budget on net aggregate collections for large public corporate returns in our sample

Effect on proposed deficiencies for sample returns

Standard deviation of *Enforce_Audited* (**Table 2 Panel B**)		0.7788
x Estimated coefficient for *Enforce_Audited* (**Table 5 Panel B**)		0.0098
x Mean *Tax Savings* of sample audited returns (in thousands $, untabulated)	$	65,132
Change in *PropDef* per sample audited return (in thousands $)	$	(497.10)
x Number of audited sample returns (**Table 1**)		11,899
Aggregate change in *PropDef* during 2002-2014 for sample returns (in thousands $)	$	(5,915,029)
x *TotalSettle_PropDef* (**Table 2 Panel A**)		0.7295
Aggregate change in collections during 2002-2014 for sample returns assuming no change in the settlement ratio (in thousands $)	$	**(4,315,014)**

Effect on settlements for sample returns

Standard deviation of *Enforce_Audited* (**Table 2 Panel B**)		0.7788
x Estimated coefficient for *Enforce_Audited* (**Table 6**)		-0.0218
x Mean *PropDef* of sample returns with settlements (in thousands $, untabulated)	$	10,569
Change in *TotalSettle* per sample return with a settlement (in thousands $)	$	179.44
x Number of sample returns with settlements (**Table 1**)		5,840
Aggregate change in *TotalSettle* during 2002-2014 for sample returns (in thousands $)	$	**1,047,923**

Net effect on total collections for sample returns

Aggregate change in collections during 2002-2014 for sample returns assuming no change in the settlement ratio (in thousands $)	$	(4,315,014)
Aggregate change in collections during 2002-2014 for sample returns resulting from the estimated change in the settlement ratio (in thousands $)	$	1,047,923
Net aggregate increase (decrease) in collections for our sample given one standard deviation decrease in IRS enforcement budget	$	**(3,267,091)**

APPENDIX B (continued)
Calculation of Economic Magnitudes

Panel C: Extrapolated effect of one standard deviation decrease in IRS enforcement budget on net aggregate collections for population of large corporations

Change in *PropDef* per sample audited return (in thousands $)	$	(497.10)
x Aggregate number of large corporation returns audited from 2002-2014 (**Untabulated**)		124,236
x *TotalSettle_PropDef* (**Table 2 Panel A**)		0.7295
Aggregate change in collections during 2002-2014 for all audited large corporation returns assuming no change in the settlement ratio (in thousands $)	**$**	**(45,052,530)**
Change in *TotalSettle* per sample return with a settlement (in thousands $)	$	179.44
x Approximate number of large corporation returns with settlements from 2002-2014		91,039
Aggregate change in collections during 2002-2014 for all large corporation returns with settlements resulting from the estimated change in the settlement ratio (in thousands $)	**$**	**16,335,928**
Net aggregate increase (decrease) in collections for all large corporations given one standard deviation decrease in IRS enforcement budget	**$**	**(28,716,602)**

Appendix B outlines the calculation of economic magnitudes, in thousands of US$, based on coefficient estimates. The first step in estimation calculates anticipated changes in collections based on the decrease in the magnitude of proposed deficiencies and assumes the percentage of proposed deficiencies collected is unchanged (72.95 percent for our sample). The next step incorporates the increase in settlement collections associated with a decrease in IRS resources to arrive at a net aggregate estimated change in total collections. Panel A presents the magnitude of an estimated one standard deviation decrease in the IRS enforcement budget. Panel B presents estimated collection for our sample of large public corporations. These amounts represent a lower bound because they are based on collections from only a subsample of corporate taxpayers. Panel C presents estimates of changes in collections extrapolated to include all large corporations. These estimates are also a lower bound because they do not include potential collections from small corporations, individuals, etc. to which the total IRS enforcement budget is applied. Untabulated amounts related to numbers of returns audited and number of returns with proposed deficiencies are from the IRS Annual Data Book. Large corporations are all corporations with at least $10M in assets. We estimate the number of large corporations with settlements from 2002-2014 using IRS data from 2006-2014 to compute the average percentage of returns that receive a proposed deficiency and applying that average to 2002-2005 when these data are unavailable.

FIGURE 1
Examples of IRS Behavior when Faced with Fewer Enforcement Resources

Stage 1: Determine rate of audit	*Stage 2:* Identify proposed deficiencies	*Stage 3:* Negotiate settlements		Scenario Description
Maintain audit rate → Fewer resources per audited return	***Maintain resources devoted to proposing deficiencies→*** Similar incidence and magnitude of proposed deficiencies*	***Reduce resources allocated to collecting deficiencies →*** Lower settlement ratio	(1)	If the IRS maintains the audit rate when faced with fewer resources, it restricts resources available in subsequent stages. If the IRS maintains the level of resources allocated to determining the incidence and magnitude of proposed deficiencies, it will have limited resources remaining to successfully collect deficiencies. In this scenario, the level of IRS resources will: (1) not be associated with audit rates, (2) not be associated with the incidence or magnitude of proposed deficiencies, and (3) be positively associated with settlement ratios.
	Reduce resources devoted to proposing deficiencies→ Lower incidence and magnitude of proposed deficiencies*	***Maintain resources allocated to collecting deficiencies →*** Higher settlement ratio	(2)	If the IRS maintains the audit rate when faced with fewer resources, it restricts resources available in subsequent stages. If the IRS allocates fewer resources to proposing deficiencies but targets the weakest taxpayer positions, the IRS will reduce the incidence and magnitude of proposed deficiencies. However, because the IRS targets the weakest tax positions and maintains resources for collecting deficiencies, the IRS will exhibit a higher settlement ratio. In this scenario, the level of IRS resources will: (1) not be associated with audit rates, (2) be positively associated with the incidence and magnitude of proposed deficiencies, and (3) be negatively associated with settlement ratios.
Decrease audit rate→ Maintain resources per audited return	***Maintain resources devoted to proposing deficiencies→*** Similar incidence and magnitude of proposed deficiencies*	***Maintain resources allocated to collecting deficiencies →*** Similar settlement ratio	(3)	If the IRS reduces the audit rate when faced with fewer resources, the IRS can maintain the level of resources allocated to each audited return. As such, the IRS can maintain resources allocated to determining the incidence and magnitude of proposed deficiencies and to successfully collecting deficiencies. In this scenario, IRS resources will: (1) be positively associated with audit rates, (2) not be associated with the incidence or magnitude of proposed deficiencies, and (3) not be associated with settlement ratios.
	Reduce resources devoted to proposing deficiencies→ Lower incidence and magnitude of proposed deficiencies*	***Maintain resources allocated to collecting deficiencies →*** Higher settlement ratio	(4)	If the IRS reduces the audit rate when faced with fewer resources, the IRS can maintain the level of resources allocated to each audited return. If the IRS allocates fewer resources to proposing deficiencies but targets the weakest taxpayer positions, the IRS will reduce the incidence and magnitude of proposed deficiencies. However, because the IRS targets the weakest tax positions and maintains resources for collecting deficiencies, the IRS will exhibit a higher settlement ratio. In this scenario, IRS resources will: (1) be positively associated with audit rates, (2) be positively associated with the incidence or magnitude of proposed deficiencies, and (3) be negatively associated with settlement ratios.

This figure provides examples of potential IRS behavior when faced with fewer enforcement resources. The examples provided are a subsample of potential IRS actions and are intended to demonstrate that the relation between IRS resources and each stage of the enforcement process is unclear *ex ante*. We present outcomes that we consider most plausible assuming strategic choices by the IRS when they have fewer resources available for enforcement.

* The incidence and magnitude of proposed deficiencies are measured using a sample of audited returns, and the magnitude of proposed deficiencies is measured as a percentage of total tax savings. These design choices have implications for interpreting the results in this study. For example, in scenario (3), the IRS audits fewer returns when it has fewer resources. Although the IRS can maintain the incidence and magnitude of proposed deficiencies for audited returns, the aggregate number of proposed deficiencies, the aggregate magnitude of proposed deficiencies, and therefore potentially aggregate collections, will decline because fewer returns are audited.

TABLE 1

Sample selection

Panel A: Full sample	N
Return years from 2000 through 2010 in IRS datasets and Compustat	48,886
Less: financial and utility return years	(11,545)
Less: return years missing explanatory variables	(2,377)
Less: return years with mismatch between AIMS and ERIS databases	(214)
Less: CIC return years	(3,201)
Audit probability sample	**31,549**
Add: CIC return years	3,201
Less: return years not audited by IRS	(22,851)
Proposed deficiency sample	**11,899**
Less: return years with no proposed deficiency	(6,059)
Settlement sample	**5,840**
Less: return years with no unagreed amount	(5,130)
Appeals sample	**710**

Panel B: Sample by year

Return Year	Audit probability sample	Proposed deficiency sample	Settlement sample	Appeals sample
2000	3,054	937	469	72
2001	3,151	1,054	491	72
2002	3,082	1,066	509	78
2003	3,048	1,071	580	82
2004	3,029	1,206	654	88
2005	2,909	1,203	637	88
2006	2,798	1,214	653	71
2007	2,726	1,090	580	66
2008	2,611	1,104	486	46
2009	2,579	1,093	427	30
2010	2,562	861	354	17
	31,549	**11,899**	**5,840**	**710**

This table presents the sample selection process. Panel A provides the derivation of the aggregate sample and Panel B provides the number of observations per return year.

TABLE 2

Descriptive statistics

Variable	N	Mean	Std. Dev.	P25	Median	P75
Panel A: Components of IRS audit process						
IRSAudit	31,549	0.2864	0.4521	0.0000	0.0000	1.0000
PropDefInd	11,899	0.4918	0.5000	0.0000	0.0000	1.0000
PropDef ($M)	11,899	5.1882	21.3046	0.0000	0.0000	0.6648
PropDef_TaxSavings	11,899	0.0685	0.2325	0.0000	0.0000	0.0218
UnagreedDef ($M)	11,899	2.6298	13.4801	0.0000	0.0000	0.0000
TotalSettle ($M)	5,840	5.4237	17.1848	0.0140	0.3160	2.4384
TotalSettle_PropDef	5,840	0.7295	0.4212	0.3009	1.0000	1.0000
ExamsSettle ($M)	5,840	4.0740	13.7471	0.0000	0.1542	1.4778
ExamsSettle_PropDef	5,840	0.6785	0.4594	0.0000	1.0000	1.0000
AppealsSettle ($M)	710	11.1167	28.8350	0.4104	2.0677	8.7629
AppealsSettle_UnagreedDef	710	0.4526	0.3380	0.1508	0.3812	0.7725
Panel B: Tax authority resources						
Enforce_Filed	31,549	0.0232	0.0013	0.0223	0.0231	0.0240
RevAgents_Filed	31,549	0.0545	0.0030	0.0518	0.0545	0.0564
Enforce_Audited	11,899	3.8993	0.7788	3.4208	3.4536	4.0331
RevAgents_Audited	11,899	9.1739	1.7669	8.0992	8.2030	9.4138
Panel C: Control variables						
BTD	34,750	-0.0631	0.1682	-0.0721	-0.0015	0.0273
CIC	34,750	0.0921	0.2892	0.0000	0.0000	0.0000
PaidPreparer	34,750	0.7274	0.4453	0.0000	1.0000	1.0000
Haven	34,750	0.3225	0.4674	0.0000	0.0000	1.0000
Foreign	34,750	0.0091	0.0332	0.0000	0.0000	0.0054
Size	34,750	5.6233	1.9751	4.0846	5.5261	6.9629
Leverage	34,750	0.2344	0.2569	0.0122	0.1735	0.3541
ROA	34,750	-0.0409	0.2782	-0.0786	0.0335	0.0996
R&D	34,750	0.0605	0.1194	0.0000	0.0025	0.0732
BigN	34,750	0.7549	0.4302	1.0000	1.0000	1.0000
NOL	34,750	0.4488	0.4974	0.0000	0.0000	1.0000
LagETR	34,750	0.1818	0.3970	0.0000	0.2880	0.3750
EquityEarnings	34,750	0.1193	0.3242	0.0000	0.0000	0.0000
Mezz	34,750	0.0382	0.1147	0.0000	0.0000	0.0000
Litigation	34,750	0.0737	0.2613	0.0000	0.0000	0.0000
PTDA	34,750	-0.0024	0.0898	-0.0347	0.0000	0.0286

TABLE 2 (continued)
Descriptive statistics

Panel D: IRS resources by year

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Return Year	IRS Enforcement Budget[1]	IRS Enforcement Budget - Inflation Adjusted[1]	Revenue Agents	Total Returns Filed[2]	Enforcement Budget / Returns Filed	Revenue Agents / Returns Filed	Total Returns Audited[2]	Enforcement Budget / Return Audited	Revenue Agents / Return Audited
2002	3,691,535	4,872,826	11,518	226,609	21.50	0.051	827	5,892.32	13.928
2003	3,849,819	4,966,267	11,513	222,271	22.34	0.052	929	5,347.11	12.396
2004	4,140,479	5,175,599	11,861	224,393	23.06	0.053	1,070	4,835.71	11.082
2005	4,374,595	5,293,260	12,355	226,677	23.35	0.055	1,312	4,033.15	9.414
2006	4,686,011	5,482,633	12,859	228,145	24.03	0.056	1,406	3,898.67	9.144
2007	4,663,321	5,316,186	12,816	235,438	22.58	0.054	1,551	3,427.76	8.263
2008	4,791,449	5,270,594	12,587	250,379	21.05	0.050	1,541	3,420.75	8.169
2009	5,113,926	5,625,319	12,948	236,503	23.79	0.055	1,578	3,563.84	8.203
2010	5,497,476	5,992,249	13,879	230,409	26.01	0.060	1,735	3,453.58	7.999
2011	5,510,732	5,786,269	13,969	234,567	24.67	0.060	1,725	3,354.89	8.099
2012	5,301,838	5,460,893	13,011	237,345	23.01	0.055	1,658	3,294.26	7.849
2013	4,960,528	5,059,739	12,270	240,076	21.08	0.051	1,558	3,247.47	7.875
2014	4,944,885	4,944,885	11,659	239,875	20.61	0.049	1,384	3,571.95	8.422

[1] Denotes figures are in thousands of dollars.
[2] Denotes figures are in thousands.

This table provides summary statistics for the sample. Panel A provides statistics related to each stage of the enforcement process. Panel B provides statistics for IRS resources. Panel C provides statistics for control variables. Continuous variables are winsorized at the 1st and 99th percentiles. See Appendix A for variable definitions. Panel D provides information on IRS resources by year. Note that any descriptive statistics calculated using data presented in Panel D would not tie to the descriptive statistics in Panel B due to an uneven distribution of sample observations per year and the fact that data in Panel B are winsorized.

TABLE 3
Correlations

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]
IRSAudit	[1]							0.02	0.02	.	.	0.20	.	-0.13	0.13	0.12	0.34	0.01	0.28	-0.13	0.14	-0.07	0.25	0.07	-0.05	0.03	-0.06
PropDefInd	[2]			0.81				-0.04	-0.05	0.02	0.04	0.10	0.23	-0.12	0.10	0.14	0.24	-0.03	0.24	0.01	0.08	-0.06	0.07	0.07	-0.01	0.02	-0.02
PropDef_TaxSavings	[3]		0.30		0.08	0.05	-0.22	-0.05	-0.05	0.03	0.05	0.22	0.21	-0.11	0.10	0.20	0.21	-0.07	0.37	0.03	0.08	-0.07	0.06	0.07	-0.03	0.00	0.02
TotalSettle_PropDef	[4]			-0.09		0.95	0.94	0.02	0.05	-0.04	-0.04	0.06	-0.18	0.08	-0.08	-0.01	-0.21	-0.09	0.13	0.02	-0.07	-0.03	0.04	-0.04	-0.06	-0.05	0.02
ExamsSettle_PropDef	[5]			-0.12	0.92		0.00	0.03	0.05	-0.05	-0.05	0.05	-0.18	0.07	-0.09	-0.01	-0.21	-0.08	0.12	0.03	-0.07	-0.02	0.02	-0.04	-0.06	-0.04	0.01
AppealsSettle_UnagreedDef	[6]			-0.18	0.95	0.03		-0.13	-0.13	0.02	0.05	0.05	-0.05	0.10	-0.06	-0.08	-0.06	0.06	-0.01	-0.13	-0.05	-0.10	0.13	-0.05	0.01	-0.04	0.08
Enforce_Filed	[7]	0.02	-0.05	-0.05	0.01	0.03	-0.14		0.93	-0.31	-0.40	-0.01	.	0.00	0.03	0.01	0.03	-0.04	-0.03	0.01	-0.09	0.07	-0.03	0.00	0.00	0.03	0.00
RevAgents_Filed	[8]	0.03	-0.05	-0.05	0.03	0.05	-0.12	0.95		-0.46	-0.54	0.00	.	0.00	0.05	0.03	0.06	-0.05	-0.02	0.01	-0.12	0.09	-0.04	0.01	-0.01	0.04	0.00
Enforce_Audited	[9]	.	0.00	0.03	-0.03	-0.04	0.06	-0.41	-0.52		0.91	0.01	-0.03	0.01	-0.07	-0.08	-0.07	0.05	-0.01	-0.01	0.11	-0.16	0.15	-0.05	0.00	-0.05	0.01
RevAgents_Audited	[10]	.	0.00	0.03	-0.02	-0.04	0.06	-0.43	-0.52	1.00		0.02	-0.04	0.01	-0.07	-0.07	-0.07	0.05	0.00	0.00	0.12	-0.17	0.14	-0.06	0.01	-0.05	0.00
BTD	[11]	0.22	0.14	0.05	0.07	0.06	0.06	-0.04	-0.03	0.00	0.00		0.10	-0.12	0.07	0.11	0.25	-0.03	0.76	-0.23	0.09	-0.09	0.27	0.10	-0.14	-0.03	0.08
CIC	[12]	.	0.23	0.07	-0.15	-0.16	-0.04	.	.	-0.07	-0.07	0.13		-0.34	0.28	0.26	0.47	0.09	0.16	-0.01	0.18	0.01	0.09	0.23	0.03	0.09	-0.04
PaidPreparer	[13]	-0.13	-0.12	0.01	0.06	0.06	0.10	0.00	0.00	0.01	0.01	-0.16	-0.34		-0.26	-0.22	-0.45	-0.13	-0.16	0.09	-0.22	-0.01	-0.12	-0.18	-0.01	-0.06	0.04
Haven	[14]	0.13	0.10	0.00	-0.08	-0.08	-0.07	0.04	0.05	-0.06	-0.06	0.13	0.28	-0.26		0.34	0.44	0.01	0.14	0.11	0.23	0.08	0.04	0.13	0.05	0.07	-0.07
Foreign	[15]	0.10	0.13	0.00	0.00	0.00	-0.12	0.01	0.02	-0.07	-0.07	0.14	0.22	-0.18	0.28		0.33	-0.02	0.32	0.06	0.14	0.02	0.10	0.13	-0.04	0.04	-0.04
Size	[16]	0.33	0.24	0.04	-0.18	-0.19	-0.08	0.04	0.05	-0.07	-0.07	0.35	0.55	-0.46	0.44	0.28		0.25	0.34	-0.21	0.49	0.01	0.30	0.27	0.07	0.10	-0.12
Leverage	[17]	-0.04	-0.07	-0.04	-0.07	-0.06	0.06	-0.02	-0.03	0.06	0.06	-0.09	0.03	-0.07	-0.04	-0.07	0.13		-0.13	-0.31	0.05	0.05	0.04	0.12	0.31	0.01	-0.02
ROA	[18]	0.23	0.22	0.09	0.14	0.12	-0.01	-0.04	-0.03	-0.03	-0.03	0.90	0.13	-0.15	0.13	0.26	0.36	-0.14		-0.21	0.13	-0.17	0.39	0.12	-0.19	-0.01	0.02
R&D	[19]	-0.16	-0.05	-0.01	0.00	0.02	-0.14	0.00	0.00	0.01	0.01	-0.46	-0.08	0.14	-0.04	-0.05	-0.27	-0.15	-0.43		0.03	0.11	-0.31	-0.11	0.05	0.03	-0.01
BigN	[20]	0.14	0.08	0.02	-0.06	-0.06	-0.07	-0.09	-0.12	0.11	0.11	0.12	0.18	-0.22	0.23	0.10	0.47	0.03	0.13	0.00		-0.02	0.15	0.09	0.01	0.03	-0.08
NOL	[21]	-0.07	-0.06	-0.06	-0.03	-0.02	-0.10	0.07	0.09	-0.15	-0.15	-0.10	0.01	-0.01	0.08	0.00	0.00	0.05	-0.13	0.09	-0.02		-0.17	0.00	0.09	0.02	0.00
LagETR	[22]	0.16	0.08	0.03	0.04	0.02	0.07	-0.01	-0.02	0.08	0.07	0.17	0.08	-0.08	0.03	0.07	0.18	-0.03	0.18	-0.16	0.09	-0.11		0.08	-0.14	-0.01	-0.06
EquityEarnings	[23]	0.07	0.07	0.00	-0.03	-0.04	-0.05	0.00	0.01	-0.06	-0.06	0.12	0.23	-0.18	0.13	0.10	0.28	0.07	0.12	-0.12	0.09	0.00	0.06		0.01	0.05	0.02
Mezz	[24]	-0.07	-0.06	-0.04	0.00	0.01	0.01	0.00	0.00	-0.01	-0.01	-0.23	-0.05	0.05	0.01	-0.06	-0.04	0.31	-0.23	0.15	0.00	0.09	-0.10	-0.04		0.03	-0.02
Litigation	[25]	0.03	0.02	0.00	-0.04	-0.03	-0.04	0.03	0.04	-0.06	-0.06	-0.01	0.09	-0.06	0.07	0.04	0.11	0.01	-0.01	-0.01	0.03	0.02	-0.01	0.05	0.01		-0.04
PTDA	[26]	-0.04	-0.01	0.01	0.02	0.02	0.05	0.00	0.00	0.00	0.00	0.10	-0.03	0.03	-0.05	-0.01	-0.09	-0.02	0.09	-0.02	-0.07	0.00	-0.02	0.02	-0.03	-0.04	

This table provides Pearson (Spearman) correlations above (below) the diagonal. See Appendix A for variable definitions.

43

TABLE 4

The relation between IRS resources and the probability of audit

IRSResources =	Enforce_Filed	RevAgents_Filed
	Coef.	Coef.
Variable	t-statistic	t-statistic
Intercept	-0.1642 ***	-0.1959 ***
	-3.59	-3.93
IRSResources	4.9839 ***	2.7185 ***
	2.63	3.05
BTD	0.0650 **	0.0652 **
	2.09	2.10
PaidPreparer	-0.0118	-0.0119
	-1.26	-1.27
Haven	0.0129	0.0128
	1.45	1.44
Foreign	0.1833	0.1826
	1.57	1.56
Size	0.0760 ***	0.0757 ***
	26.51	26.31
Leverage	-0.1116 ***	-0.1108 ***
	-8.45	-8.38
ROA	0.0843 ***	0.0843 ***
	4.15	4.15
R&D	-0.1313 ***	-0.1320 ***
	-6.21	-6.25
BigN	-0.0173 **	-0.0159 **
	-2.18	-1.99
NOL	-0.0436 ***	-0.0441 ***
	-6.40	-6.46
LagETR	0.0881 ***	0.0883 ***
	13.43	13.46
EquityEarnings	-0.0060	-0.0061
	-0.48	-0.48
Mezz	-0.0558 ***	-0.0558 ***
	-2.40	-2.41
Litigation	0.0167	0.0165
	1.50	1.48
PTDA	-0.1145 ***	-0.1147 ***
	-4.35	-4.36
Adjusted R^2	0.1402	0.1403
N	31,549	31,549

This table presents results of estimating IRS audit probability as a function of IRS resources using a linear probability model. We present t-statistics below coefficient estimates. Continuous variables are winsorized at the 1st and 99th percentiles. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Significance is assessed using two-tailed *p*-values. See Appendix A for variable definitions.

TABLE 5

The relation between IRS resources and the incidence and magnitude of proposed deficiencies

Panel A: The incidence of proposed deficiencies

IRSResources =	Enforce_Audited	RevAgents_Audited
	Coef.	Coef.
Variable	t-statistic	t-statistic
Intercept	0.0786 *	0.0762 *
	1.91	1.83
IRSResources	0.0201 ***	0.0088 ***
	3.00	2.99
BTD	-0.4225 ***	-0.4221 ***
	-5.12	-5.12
CIC	0.1353 ***	0.1355 ***
	7.56	7.58
PaidPreparer	0.0070	0.0070
	0.54	0.54
Haven	-0.0047	-0.0047
	-0.39	-0.39
Foreign	0.0382	0.0376
	0.23	0.23
Size	0.0506 ***	0.0506 ***
	10.93	10.92
Leverage	-0.1662 ***	-0.1663 ***
	-5.69	-5.70
ROA	0.7302 ***	0.7299 ***
	13.35	13.35
R&D	-0.1181	-0.1188
	-1.46	-1.47
BigN	-0.0499 ***	-0.0499 ***
	-2.72	-2.72
NOL	-0.0431 ***	-0.0431 ***
	-3.79	-3.80
LagETR	0.0474 ***	0.0475 ***
	3.75	3.76
EquityEarnings	-0.0127	-0.0127
	-0.89	-0.89
Mezz	-0.0370	-0.0368
	-0.53	-0.53
Litigation	-0.0018	-0.0019
	-0.12	-0.12
PTDA	-0.1079 *	-0.1080 *
	-1.88	-1.88
Adjusted R^2	0.1170	0.1170
N	11,899	11,899

TABLE 5 (continued)
The relation between IRS resources and the incidence and magnitude of proposed deficiencies

Panel B: The magnitude of proposed deficiencies

IRSResources =	Enforce_Audited	RevAgents_Audited
	Coef.	Coef.
Variable	t-statistic	t-statistic
Intercept	-0.0038	-0.0044
	-0.20	-0.22
IRSResources	0.0098 ***	0.0042 ***
	3.13	3.07
BTD	-0.1762 ***	-0.1759 ***
	-4.86	-4.85
CIC	0.0460 ***	0.0461 ***
	5.25	5.26
PaidPreparer	0.0192 ***	0.0192 ***
	3.08	3.07
Haven	-0.0014	-0.0014
	-0.25	-0.25
Foreign	-0.2946 ***	-0.2950 ***
	-3.49	-3.49
Size	0.0028	0.0028
	1.27	1.26
Leverage	-0.0335 ***	-0.0335 ***
	-2.54	-2.54
ROA	0.2050 ***	0.2048 ***
	8.15	8.15
R&D	-0.0112	-0.0115
	-0.29	-0.30
BigN	0.0012	0.0012
	0.15	0.16
NOL	-0.0172 ***	-0.0172 ***
	-3.56	-3.56
LagETR	0.0044	0.0045
	0.64	0.65
EquityEarnings	-0.0046	-0.0046
	-0.67	-0.68
Mezz	-0.0408 **	-0.0407 **
	-2.00	-2.00
Litigation	-0.0035	-0.0035
	-0.48	-0.48
PTDA	0.0100	0.0100
	0.36	0.36
Adjusted R^2	0.1170	0.1170
N	11,899	11,899

This table presents results of estimating proposed deficiencies as a function of IRS resources. Panel A presents results of estimating the likelihood of the IRS proposing a deficiency as a function of IRS resources using a linear probability model. Panel B presents results of estimating the magnitude of proposed deficiency relative to tax savings originally claimed as a function of IRS resources using ordinary least squares. We present t-statistics below coefficient estimates. Continuous variables are winsorized at the 1st and 99th percentiles. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Significance is assessed using two-tailed *p*-values. See Appendix A for variable definitions.

TABLE 6

The relation between IRS resources and settlements

IRSResources =	Enforce_Audited	RevAgents_Audited
	Coef.	Coef.
Variable	t-statistic	t-statistic
Intercept	1.0480 ***	1.0430 ***
	16.96	16.72
IRSResources	-0.0218 **	-0.0087 **
	-2.32	-2.13
PropDef_TaxSavings	-0.1364 ***	-0.1365 ***
	-6.34	-6.35
BTD	-0.1983	-0.1988
	-1.37	-1.37
CIC	-0.0375	-0.0376
	-1.49	-1.49
PaidPreparer	-0.0203	-0.0202
	-1.11	-1.10
Haven	-0.0122	-0.0121
	-0.64	-0.63
Foreign	0.0165	0.0182
	0.07	0.07
Size	-0.0380 ***	-0.0379 ***
	-4.90	-4.89
Leverage	-0.0075	-0.0082
	-0.14	-0.16
ROA	0.5825 ***	0.5831 ***
	5.71	5.71
R&D	-0.0887	-0.0908
	-0.52	-0.53
BigN	0.0280	0.0274
	1.01	0.99
NOL	-0.0045	-0.0040
	-0.26	-0.23
LagETR	0.0504 ***	0.0500 ***
	2.49	2.47
EquityEarnings	0.0278	0.0280
	1.34	1.35
Mezz	0.1352	0.1356
	1.12	1.12
Litigation	-0.0263	-0.0260
	-1.21	-1.20
PTDA	-0.0115	-0.0121
	-0.13	-0.14
Adjusted R^2	0.0638	0.0635
N	5,840	5,840

This table presents results of estimating the proportion of the proposed deficiency retained by the IRS as a function of IRS resources using ordinary least squares. We present t-statistics below coefficient estimates. Continuous variables are winsorized at the 1st and 99th percentiles. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Significance is assessed using two-tailed *p*-values. See Appendix A for variable definitions.

TABLE 7
The relation between IRS resources and settlements at the initial examination and upon appeal

Panel A: Settlements following the initial examination

IRSResources =	Enforce_Audited	RevAgents_Audited
	Coef.	Coef.
Variable	t-statistic	t-statistic
Intercept	1.0964 ***	1.0927 ***
	15.56	15.36
IRSResources	-0.0316 ***	-0.0131 ***
	-3.00	-2.83
PropDef_TaxSavings	-0.1887 ***	-0.1889 ***
	-8.28	-8.29
BTD	-0.1472	-0.1477
	-0.98	-0.98
CIC	-0.0526 *	-0.0528 *
	-1.83	-1.84
Paid Preparer	-0.0328	-0.0327
	-1.60	-1.59
Haven	-0.0227	-0.0226
	-1.06	-1.05
Foreign	0.1670	0.1688
	0.60	0.60
Size	-0.0452 ***	-0.0451 ***
	-5.19	-5.18
Leverage	0.0026	0.0020
	0.04	0.03
ROA	0.5003 ***	0.5010 ***
	4.53	4.53
R&D	0.0514	0.0494
	0.27	0.26
BigN	0.0460	0.0454
	1.42	1.41
NOL	0.0033	0.0038
	0.17	0.20
LagETR	0.0346	0.0341
	1.62	1.60
EquityEarnings	0.0232	0.0233
	0.97	0.98
Mezz	0.1175	0.1176
	0.90	0.90
Litigation	-0.0162	-0.0159
	-0.70	-0.69
PTDA	-0.0107	-0.0114
	-0.12	-0.13
Adjusted R^2	0.0694	0.0691
N	5,840	5,840

TABLE 7 (continued)

The relation between IRS resources and settlements at the initial examination and upon appeal

Panel B: Settlements following an appeal

IRSResources =	Enforce_Audited	RevAgents_Audited
	Coef.	Coef.
Variable	t-statistic	t-statistic
Intercept	0.5679 ***	0.5533 ***
	5.01	4.85
IRSResources	0.0141	0.0077
	0.80	1.01
PropDef_TaxSavings	-0.1593 ***	-0.1594 ***
	-5.76	-5.76
BTD	0.2044	0.2034
	0.61	0.61
CIC	0.0628 *	0.0641 *
	1.6735	1.7076
PaidPreparer	0.0599 **	0.0604 **
	2.07	2.09
Haven	0.0006	0.0006
	0.02	0.02
Foreign	-0.4160	-0.4114
	-1.19	-1.18
Size	-0.0201	-0.0201
	-1.61	-1.61
Leverage	0.0561	0.0518
	0.57	0.53
ROA	-0.0093	-0.0100
	-0.05	-0.05
R&D	-0.7239 ***	-0.7302 ***
	-2.78	-2.79
BigN	0.0021	0.0011
	0.03	0.02
NOL	-0.0524 *	-0.0514 *
	-1.89	-1.86
LagETR	0.0659	0.0648
	1.01	0.99
EquityEarnings	-0.0382	-0.0380
	-1.22	-1.21
Mezz	0.1850	0.1851
	0.65	0.65
Litigation	-0.0084	-0.0081
	-0.20	-0.19
PTDA	0.1701	0.1679
	0.86	0.85
Adjusted R^2	0.0727	0.0733
N	710	710

This table presents results of estimating the proportion of the proposed deficiency retained by the IRS following the initial examination as a function of IRS resources using ordinary least squares (Panel A) and results of estimating the proportion of the proposed deficiency retained by the IRS following appeals as a function of IRS resources using an ordinary least squares (Panel B). We present t-statistics below coefficient estimates. Continuous variables are winsorized at the 1st and 99th percentiles. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Significance is assessed using two-tailed *p*-values. See Appendix A for variable definitions.

TABLE 8

The relation between IRS resources and firms' initial tax return filing positions

IRSResources =	Enforce_Audited	RevAgents_Audited
	Coef.	Coef.
Variable	t-statistic	t-statistic
Intercept	0.0116 ***	0.0126 ***
	9.31	8.89
IRSResources	0.0786	0.0133
	1.55	0.54
Paid Preparer	-0.0003	-0.0003
	-1.30	-1.28
Haven	0.0012 ***	0.0012 ***
	4.44	4.46
Foreign	0.1815 ***	0.1815 ***
	37.92	37.92
Size	-0.0003 ***	-0.0003 ***
	-3.96	-3.89
Leverage	-0.0038 ***	-0.0038 ***
	-8.40	-8.47
ROA	0.0239 ***	0.0239 ***
	39.42	39.41
R&D	0.0098 ***	0.0098 ***
	10.40	10.39
BigN	-0.0003	-0.0003
	-0.86	-0.97
NOL	0.0002	0.0002
	0.99	1.05
LagETR	-0.0005 ***	-0.0006 ***
	-2.67	-2.70
EquityEarnings	0.0008 **	0.0008 **
	2.14	2.15
Mezz	0.0025 ***	0.0025 ***
	3.04	3.06
Litigation	-0.0009 ***	-0.0008 ***
	-2.89	-2.85
PTDA	0.0077 ***	0.0077 ***
	7.25	7.26
Adjusted R^2	0.3672	0.3672
N	34,750	34,750

This table presents results of estimating whether firms' initial tax positions vary with IRS resources using ordinary least squares. The dependent variable is *TaxSavings* scaled by total assets. We present t-statistics below coefficient estimates. Continuous variables are winsorized at the 1st and 99th percentiles. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Significance is assessed using two-tailed *p*-values. See Appendix A for variable definitions.