How do resource constraints affect the tax enforcement process?

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Abstract: We examine how resource constraints at both the Internal Revenue Service (IRS) and taxpayer level affect multiple stages of the IRS enforcement process. Specifically, we examine (1) the effect of IRS resource constraints on audit rates and the incidence and magnitude of proposed deficiencies and (2) the effect of both taxpayer and IRS resource constraints on settlement outcomes. Using confidential IRS audit data, we find little evidence that IRS constraints affect audit rates. We do find, however, that both the likelihood and magnitude of proposed deficiencies are negatively associated with IRS resource constraints. We interpret this evidence as suggesting the IRS focuses its attention on fewer and weaker positions when resources are limited. Consistent with this conjecture, we estimate the IRS collects a larger portion of proposed deficiencies when constrained. Constrained taxpayers remit a smaller portion of proposed deficiencies in line with the capital structure and value of cash literatures and evidence on the use of cash tax savings as a source of internal financing. 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.

Keywords: *IRS enforcement, tax avoidance, resource constraints*

I. INTRODUCTION

When faced with resource constraints, organizations are often forced to modify their processes and policies to maximize benefits extracted from existing resources. This study examines the impact of both tax authority and taxpayer resource constraints on Internal Revenue Service (IRS or the Service) audit and enforcement outcomes. We separately examine each stage of the enforcement process including (1) the rate of IRS audit, (2) the rate and magnitude of proposed deficiencies conditional on audit, and (3) the percentage of the proposed deficiency collected by the IRS at the completion of the examination and appeals.

Examining the effect of resource constraints on IRS enforcement outcomes is particularly important in light of recent IRS budget cuts, which have reduced IRS 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, Friedman and DeBot 2015). These cuts have occurred despite the importance of income taxes to the financial health of the federal government and despite the fact that the Service's responsibilities continue to grow as the number of returns filed increases.[1] While prior research documents a negative association between the strength of IRS enforcement and corporate tax avoidance (Hoopes, Mescall and Pittman 2012), there is limited evidence on how IRS resources affect enforcement outcomes. Conventional wisdom suggests reducing IRS resources results in lower tax collections because agents likely examine fewer returns and/or devote less time to uncovering, investigating and litigating potential noncompliance. However, the IRS faces a number of decisions when choosing how to best allocate its limited resources including the number of returns to audit, the scope of the audit (which influences the number and magnitude of proposed deficiencies), and

[1] The IRS collected 93 percent of total federal government receipts in 2014 (GAO 2015). In inflation-adjusted dollars, the IRS' total enforcement budget declined 18 percent from 2010 to 2014 while the total number of returns filed increased by 4 percent over that time.

the level of resources allocated to sustaining proposed deficiencies. Moreover, decisions made in early stages affect the resources allocated to later stages. It is therefore unclear how resource constraints will affect each stage of the enforcement process *ex ante*.[2]

The effect of taxpayer resource constraints on enforcement *outcomes* is also important to examine given recent empirical evidence that constrained firms engage in higher levels of tax avoidance (Edwards, Schwab and Shevlin 2016; Law and Mills 2015). We extend this literature by examining whether financially constrained taxpayers sustain a greater portion of the tax benefits they claim. We anticipate that taxpayers' resource constraints are most likely to affect the final stage of the enforcement process (i.e., taxpayer-tax authority negotiations) and predict constrained taxpayers pay less to the IRS to settle proposed deficiencies. This prediction stems from theoretical and empirical evidence in finance that constrained firms have strong incentives to preserve existing cash balances and to identify additional sources of internal funds (e.g., Myers and Majluf 1984; Fama and French 2002; Leary and Roberts 2010; Almeida, Campello, and Weisbach 2004; Faulkender and Wang 2006).

To test the effect of taxpayer and tax authority resource constraints on IRS audit outcomes, we use confidential audit examination data from the IRS' Audit Information Management System (AIMS) and Enforcement Revenue Information System (ERIS) databases for tax return-years from 2000 through 2010.[3] The sample includes IRS audits conducted during the years 2002 through 2014. These databases identify tax returns selected for audit and provide information about the total amount of proposed deficiency for each tax return and how much of the proposed deficiency the taxpayer pays after audit, appeals and counsel. We obtain data on IRS resources from the IRS Annual Data Book. Our measures of IRS resource constraints

[2] Section II and Figure 1 present detailed examples of potential IRS responses to resource constraints at each stage of the enforcement process and the impact those decisions could have on enforcement outcomes.
[3] We end the sample period in 2010 to allow sufficient time for the 2010 tax return year examinations to close.

include the IRS' total enforcement budget and the number of revenue agents. When examining the probability of IRS audit, we scale each IRS resource constraint measure by the number of returns filed each year. When examining later stages in the audit process that are contingent on a firm being audited, we scale each IRS resource constraint measure by the number of returns audited each year. To capture taxpayer-level constraints, we employ two measures of investment constraints used in prior literature, the KZ Index (Kaplan and Zingales 1997; Lamont, Polk and Saa-Requejo 2001) and the extent of "constraining" language present in a firm's Form 10-K (Bodnaruk, Loughran and McDonald 2015; Law and Mills 2015).

We examine three enforcement stages: audit selection, proposed deficiencies, and settlements. In the first two stages, we examine the impact of IRS resource constraints on the probability of audit and the incidence and magnitude of proposed deficiencies within a sample of 25,653 tax return-years with data required to conduct our analysis. We focus on IRS resource constraints in these stages because these stages are governed by the IRS. Controlling for known determinants of IRS audits, we find little evidence of an association between IRS resource constraints and the probability of IRS audit. However, we find a negative association between IRS constraints and both the incidence and magnitude of proposed deficiencies within a sample of 9,914 audited tax return-years. Our estimates suggest that a one standard deviation increase in IRS resource constraints is associated with a 13.6 percent decrease in the magnitude of proposed deficiencies relative to the mean level of proposed deficiencies. On average, this translates to a $620,000 decrease in the level of proposed deficiencies per audited return-year in our sample. These results collectively suggest the IRS focuses on maintaining its rate of audit but potentially redirects its limited enforcement resources to positions supported by weak facts that are most likely to be settled in the IRS' favor.

In the third stage, we examine the impact of both taxpayer and tax authority resource constraints on negotiated settlement outcomes. We measure negotiation outcomes as the percentage of the proposed deficiency retained by the IRS (the settlement ratio). A higher (lower) settlement ratio indicates better outcomes for the IRS (taxpayer). Using a sample of 4,897 audited tax return-years with a proposed deficiency, we find a negative relation between taxpayer resource constraints and settlement ratios. These results are consistent with resource constrained firms taking actions to reduce cash tax payments to maintain internal funds. We find a positive association between IRS resource constraints and settlement ratios, consistent with the IRS using its more limited resources to target positions supported by weaker facts that are most likely to be settled in the IRS' favor. Our estimates suggest that a one standard deviation increase in IRS resource constraints is associated with a 3.2 percentage point increase in the proportion of proposed deficiencies retained by the IRS, which translates to an average $350,000 increase in the level of settlements among our sample of return-years with proposed deficiencies.

We further explore the relation between resource constraints and settlement ratios by separately examining settlements following the initial examination and those following a taxpayer appeal. If our interpretation of the evidence from our main analysis is correct (i.e., the IRS modifies its audit process in response to resource constraints by targeting positions supported by weak facts that are most likely to be overturned), we anticipate IRS resource constraints will be positively associated with settlements following initial examinations, but not associated or negatively associated with settlements following a taxpayer appeal. This prediction follows from the fact that even if the IRS attempts to target only those positions supported by weak facts, it might do so with error. In situations where the IRS has correctly identified a weak position, we expect the taxpayer will concede a greater portion of the proposed deficiency during

the examination. In contrast, when the IRS has incorrectly identified a weak position, we expect the taxpayer will be more likely to appeal and successfully defend its positions. We find IRS resource constraints are positively associated with settlements following initial examinations but negatively associated with settlements challenged upon appeal.

Our study makes two main contributions. First, we contribute to the stream of research examining the interaction between taxpayers and the tax authority. Studies in this area often focus on taxpayer strategy in deciding which positions to claim on originally filed returns (e.g., Mills, Robinson and Sansing 2010; De Simone, Sansing and Seidman 2013; Ayers, Seidman and Towery 2015) or on 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 resource constraints affect each step 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 revenues as well as taxpayer cash flows (and thus shareholder value). Second, we contribute to the tax avoidance literature by identifying taxpayer and IRS resource constraints as two significant determinants of ultimate tax avoidance outcomes. In this way, our paper complements Edwards et al. (2016) and Law and Mills (2015), both of which provide empirical evidence that financially constrained firms engage in higher levels of tax avoidance. Our findings suggest firms that are financially constrained during audit retain a greater portion of disputed tax savings, all else equal.

This study should also be of interest to Congress, taxpayers and tax authorities. Our results inform the ongoing political debate about IRS funding. Although we provide evidence that the settlement ratio is higher when the IRS is resource constrained, we also find a reduction in the number and magnitude of proposed deficiencies. Therefore, our estimates indicate a net loss in revenue collected through the tax enforcement process when the IRS is more constrained. Our results also suggest the IRS should be aware of a taxpayer's financial position during the tax enforcement process because it is a significant determinant of the outcome of negotiations between taxpayers and the IRS. Finally, taxpayers should be aware of IRS resource constraints during the tax enforcement process and realize that when the IRS is constrained it proposes fewer adjustments but is better able to sustain the adjustments it proposes.

II. BACKGROUND & HYPOTHESIS DEVELOPMENT

Overview of IRS Business Enforcement Process

The Large Business and International Division (LB&I) of the IRS is responsible for ensuring the tax compliance of corporations and partnerships with assets greater than $10 million. 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.[4] Some CIC and IC cases are also eligible for the Compliance Assurance Program (CAP), in which revenue agents work with taxpayers to resolve issues prior to filing a return. Although many LB&I taxpayers are audited every year, the IRS audits only 14 percent of corporate tax returns (IRS Form 1120) filed each year, on average, according to the IRS' Audit Information Management System database. Returns are selected for audit based on a number of factors including suspected participation in an abusive transaction and computer-

[4] See Ayers et al. (2015) and the Internal Revenue Manual for additional detail on the point system.

based scores of the potential for a change in tax liability. Tax return examinations can take place through the mail or in person.

As part of the examination, IRS agents issue a Notice of Proposed Assessment (NOPA) if they believe a taxpayer has underreported taxable income. Revenue agents propose deficiencies in approximately 40 percent of business tax return audits.[5,6] Taxpayers who disagree with recorded proposed deficiencies first request a conference with the exam 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. Several studies consider the impact of the tax authority on taxpayers' initial tax reporting decisions, including how the probability of audit affects taxpayers' tax avoidance behavior (Slemrod et al. 2001; Hoopes et al. 2012; Ayers et al. 2015) and how factors such as financial reporting regimes (Mills et al. 2010) and CAP participation (De Simone et al. 2013) affect the strength of claimed tax positions. Our study extends this literature on taxpayer-tax authority interactions and the enforcement role of the IRS by investigating how resource constraints affect various stages of the IRS enforcement process.

IRS Resource Constraints

Understanding how IRS resources affect the enforcement process is important, especially given reductions in the IRS budget since 2010, which have reduced IRS resources by 18 percent and resulted in 13,000 (14 percent) fewer employees, 10,000 (20 percent) fewer enforcement

[5] We obtain these figures from the IRS' Audit Information Management System database.
[6] Anecdotal evidence suggests taxpayers sometimes negotiate with revenue agents during the examination stage and agree on a deficiency amount prior to the agent issuing the NOPA. Therefore, although a taxpayer could pay 100 percent of the proposed deficiency recorded by the IRS, the taxpayer did not necessarily agree with all of the changes initially proposed by the agent.

staff, and the lowest level of individual and business audits in a decade (Marr et al. 2015). These cuts have occurred despite a 4 percent increase in the number of returns filed since 2010 and other increased responsibilities due to the implementation of the Foreign Account Tax Compliance Act and the Affordable Care Act (Marr et al. 2015). Increasing the Service's responsibilities without similarly increasing its resources could prove costly. The IRS collected over $17 trillion of income taxes during our sample period, which represents roughly 63 percent of all Internal Revenue collections, making income tax enforcement a meaningful part of the IRS' overall focus.[7]

We examine how IRS resource constraints affect each stage of the enforcement process: audit rates, proposed deficiencies, and settlements. We expect the IRS faces many decisions regarding resource allocation, and that decisions made at one stage affect later stages. With regard to audit rates, the IRS can choose to audit fewer returns in the face of resource constraints thereby freeing up additional resources for other stages. Alternatively, the IRS could find it optimal to maintain the audit rate despite reduced resources to preserve a credible threat of audit, which is an important element of a voluntary tax compliance system (Allingham and Sandmo 1972; Slemrod et al. 2001; Hoopes et al. 2012). Doing so would result in fewer resources available per examination, meaning the IRS could choose to: (a) audit fewer tax positions and target those likely to yield the greatest collections, or (b) audit the same number of positions in less depth, which could reduce their ability to identify the weakest positions.[8] Thus, the effect of resource constraints on the rate of audit is unclear.

[7] We compile these figures using IRS Annual Data Book Table 6.
[8] This is true whether the number of revenue agents is reduced (implying fewer individuals available to examine returns) or if the enforcement budget is reduced (implying fewer funds available to pay overtime to existing revenue agents).

The choice of resource allocation at the audit selection stage in turn affects proposed deficiencies. If the IRS audits fewer returns to maintain the level of resources committed to each audit, we are unlikely to observe a relation between IRS resources and the incidence and magnitude of proposed deficiencies and settlement ratios. If the IRS maintains the rate of audit and targets fewer, weaker positions, we would observe a negative association between IRS resource constraints and the incidence and magnitude of proposed deficiencies. However, if the IRS maintains the rate of audit and targets the same number of positions, we would observe no association between IRS resources and the incidence and magnitude of proposed deficiencies.

We present additional plausible scenarios in Figure 1 outlining how resource constraints might affect each stage of the enforcement process and how the effects in preliminary stages flow through to subsequent stages. Collectively, these examples demonstrate that the relation between IRS resource constraints and each stage of the enforcement process is unclear *ex ante* and is an empirical question. Because the effect of IRS resource constraints on each stage of the process is unclear, we state the following hypotheses in the null.

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 related to the proportion of deficiencies collected.

Taxpayer Resource Constraints

Several finance theories predict that financially constrained firms take actions to generate additional sources of internal funds when traditional sources of financing become more costly. Pecking order theory predicts that costs resulting from asymmetric information between managers and market participants cause managers to prefer financing investment with internally-

generated funds first, debt second, and equity third.[9] In general, a firm will access less desirable methods of financing only when the cost of preferred sources is prohibitive. Because financially constrained firms often face an increased cost of external funds, they have a stronger preference to generate internal funds. Trade-off theory predicts that firms trade off the benefits (e.g., tax shields) and costs (e.g., agency costs) of debt financing and develop a target debt-to-equity ratio toward which they adjust (Kraus and Litzenberger 1973; Bradley, Jarrell, and Kim 1984; Fama and French 2002; Frank and Goyal 2008). Resource constrained firms rely more heavily on internal funds because they have lower agency costs (due to lower free cash flows) and increased external financing costs.[10] Finally, the value of cash literature (e.g., Almeida et al. 2004; Faulkender and Wang 2006; Denis and Sibilkov 2009) provides theoretical and empirical evidence that financially constrained firms: (1) have incentives to increase internally-generated cash, (2) take actions to increase and retain funds, and (3) are rewarded with a higher market valuation of cash. All of these theories yield the same prediction that financially constrained firms take actions to increase internal funds.

In the context of tax planning, recent studies provide support for this prediction and find that constrained firms take actions to generate internal funds via tax planning. Edwards et al. (2016) find that firms increase their level of cash tax planning in response to increasing constraints. Moreover, they find that their result is strongest among firms with low cash reserves. Law and Mills (2015) provide evidence that constrained firms engage in more aggressive tax

[9] The pecking order hypothesis was originally posited by Myers and Majluf (1984). More recent studies such as Leary and Roberts (2010) and Lemmon and Zender (2010) interpret the pecking order hypothesis in a broader manner and allow for less strict financing rankings. Our discussion is most consistent with the broader interpretation of the pecking order hypothesis.

[10] While trade-off theory would predict that financially distressed firms have a preference for internal funds for the same reasons as investment constrained firms (i.e., decreased agency costs and increased costs of external financing), distressed firms also prefer internal funds due to decreased tax benefits of debt and increased bankruptcy costs. As noted earlier in the paper, we choose focus on investment constrained firms. We do not focus on distressed firms because distressed firms are generally unprofitable and, thus, less likely to be subject to current taxation and IRS audit.

avoidance and receive higher proposed deficiencies from the IRS. Although the findings in these studies are consistent with taxpayers viewing tax savings as a source of internal financing, it is important to determine whether the incremental savings generated via tax planning are sustained upon audit—especially given the findings in Law and Mills (2015) that constrained firms receive higher proposed deficiencies from the IRS. Tax savings are a viable source of internal funds for constrained firms only if they are sustained upon audit.

Based on this collective body of literature, we anticipate that constrained firms will take actions to retain cash tax savings upon audit. Although negotiating with the IRS to reduce proposed deficiencies can require cash outlays, it could still be optimal for constrained firms to incur those upfront costs if the overall expected value of negotiations is positive. Furthermore, firms with in-house legal counsel or tax departments can negotiate with the IRS without incremental cash outlays. We state our second hypothesis in the alternative form.

H2: Taxpayer resource constraints are negatively associated with the amount of proposed deficiencies the IRS collects.

This hypothesis does not lack tension, however. Unlike the setting in Almeida et al. (2004), where financially constrained managers can take actions to preserve their cash flows without direct restrictions, managers' attempts to preserve cash during IRS negotiations will be contested by the IRS. In other words, because the IRS is an adversarial party in the negotiation, it is not a forgone conclusion that a financially constrained taxpayer's greater incentive to achieve a lower settlement is sufficient to favorably influence outcomes.

III. RESEARCH DESIGN

Sample

To examine the impact of resource constraints on the IRS enforcement process, we

construct a distinct sample for each stage of the process—the audit selection stage, the proposed deficiency stage, the initial examination stage and the appeals stage. To construct our initial sample, we 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 retained deficiencies. Table 1 summarizes our sample construction.

Insert Table 1 here

Our sample period starts with the 2000 tax return year and ends with the 2010 tax return year to allow sufficient time for returns selected for audit to move through the audit and appeals process.[11] The sample includes IRS audits conducted during the years 2002 through 2014. We impose three 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. Finally, we remove observations with a mismatch between the AIMS data and ERIS datasets. These criteria yield a sample of 28,305 return-year observations that we use to examine the impact of resource constraints on audit probability.[12] Because the probability of a proposed deficiency is conditional on being audited, we exclude return-years that are not subject to audit when examining the impact of resource constraints on the incidence and

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

[12] As discussed in the next subsection, we exclude firms in the Coordinated Industry Case (CIC) program when testing the effect of IRS resource constraints on audit probability. Doing so reduces our audit probability sample to 25,653 return-year observations. We add CIC return-year observations back into the sample in later stages.

magnitude of proposed deficiencies. This yields a sample of 9,914 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 resource constraints on total settlements and settlements reached following the initial examination. This yields a sample of 4,897 return-year observations with a proposed deficiency. Finally, because an appeals settlement is conditional on taxpayers not agreeing to some of 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 resource constraints on settlements following an appeal. This yields a sample of 591 return-year observations with unagreed deficiency amounts.

Regression Analysis

Audit Rates

We estimate the following model to examine the effect of IRS resource constraints on the probability of IRS audit. We exclude firms in the Coordinated Industry Case (CIC) program from this analysis because CIC firms are under continual audit each year.

$$\begin{aligned} IrsAudit_{i,t-k} = \quad & \alpha_0 + \alpha_1 * IrsConstraint_t + \alpha_2 * FirmConstraint_t + \alpha_3 * BTD_{i,t-k} \\ & + \alpha_4 * PaidPreparer_{i,t-k} + \alpha_5 * Haven_{,t-k} + \alpha_6 * Foreign_{i,t-k} + \alpha_7 * Size_{i,t-k} \\ & + \alpha_8 * Leverage_{i,t-k} + \alpha_9 * ROA_{i,t-k} + \alpha_{10} * R\&D_{i,t-k} + \alpha_{11} * BigN_{i,t-k} \\ & + \alpha_{12} * NOL_{i,t-k} + \alpha_{13} * LagETR_{i,t-k} + \alpha_{14} * EquityEarnings_{i,t-k} \\ & + \alpha_{15} * Mezz_{i,t-k} + \alpha_{16} * Litigation_{i,t-k} + \alpha_{17} * PTDA_{i,t-k} + \varepsilon \end{aligned} \quad (1)$$

We estimate equation (1) using a linear probability model (LPM) rather than a logistic regression. As noted in Hanlon and Hoopes (2014), a LPM allows for easy interpretation of coefficients and does not induce biased coefficients or standard errors. In equation (1), year *t* is

the year in which the audit was initiated and year *t-k* is the audited tax return-year.[13] *IrsAudit* is an indicator variable equal to one if the IRS audits the return-year and zero otherwise. In equation (1), *IrsConstraint* is measured in the year the audit is initiated and equals either the ratio of IRS enforcement expenditures in 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*).[14] These data are reported in the IRS Annual Data Book. IRS enforcement expenditures include amounts allocated to collections, examinations, Chief Counsel and tax fraud investigations. Enforcement expenditures affect not just the number of employees the Service can recruit and retain but also the level of regular wages and the availability of overtime pay. IRS revenue agents are those employees tasked with auditing tax returns. Because these variables represent the level of IRS resources, we multiply the measures by negative one to interpret them as IRS resource constraints. A negative (positive) coefficient on *IrsConstraint* is consistent with IRS resource constraints decreasing (increasing) the average probability of audit by the IRS.

Although we make no prediction on the association between taxpayer resource constraints at the time of audit and audit probability, we include *FirmConstraint* to observe whether financially constrained taxpayers have higher or lower audit probability relative to non-financially constrained taxpayers. We measure *FirmConstraint* using two common measures of financing constraints. *KZ* equals the decile ranking, with values from zero to nine, of the Kaplan and Zingales (1997) financial constraint index constructed following Lamont et al. (2001). *TEXT*

[13] For example, if a taxpayer's 2007 tax return is audited in 2009, year *t* equals 2009, the year the audit is initiated. Year *t-k* equals 2007, the tax-return year. We anticipate that IRS audit probability will vary with current IRS resources (in year *t*) and characteristics of the taxpayer in the year the return was filed (in year *t-k*).

[14] 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 solely to corporate tax compliance but such data are not available.

equals the decile ranking, with values from zero to nine, of the fraction of negative words in a firm's annual filing based on the Bill McDonald's dataset. Both of these rankings are computed so that higher values indicate higher levels of firm-level resource constraints.

We control for multiple 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).[15] We include *PaidPreparer*, equal to one if a paid preparer signed the tax return and zero otherwise. 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 are based on characteristics the IRS considers when attempting to identify the most aggressive taxpayers (Treasury 1999). *Haven* equals one if an observation reports a subsidiary located in a tax haven jurisdiction and zero otherwise.[16] *Foreign* equals pretax foreign income (PIFO) divided by lagged total assets. *Size* equals the natural log of *TotalAssets* (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) are positive and zero otherwise. *LagETR* equals lagged ETR, 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.

[15] We report Compustat mnemonics in parentheses throughout the manuscript.
[16] We thank Scott Dyreng for the use of these data.

MezzFin 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. Finally, *PTDA* equals pretax performance-matched discretionary accruals as estimated in Frank, Lynch and Rego (2009).

When estimating equation (1), as well as later models, we winsorize all continuous variables at first and 99th percentiles and report Huber-White robust standard errors clustered by firm to control for heteroscedasticity and serial correlation.

Proposed Deficiencies

We estimate the following models to examine the effect of IRS resource constraints on both the probability of the IRS proposing a deficiency and the magnitude of the proposed deficiency.

$$\begin{aligned} Deficiency_{i,t-k} = \; & \alpha_0 + \alpha_1 * IrsConstraint_t + \alpha_2 * FirmConstraint_t + \alpha_3 * BTD_{i,t-k} \\ & + \alpha_4 * PaidPreparer_{i,t-k} + \alpha_5 * Haven_{,t-k} + \alpha_6 * Foreign_{i,t-k} \\ & + \alpha_7 * Size_{i,t-k} + \alpha_8 * Leverage_{i,t-k} + \alpha_9 * ROA_{i,t-k} + \alpha_{10} * R\&D_{i,t-k} \\ & + \alpha_{11} * BigN_{i,t-k} + \alpha_{12} * NOL_{i,t-k} + \alpha_{13} * LagETR_{i,t-k} \\ & + \alpha_{14} * EquityEarnings_{i,t-k} + \alpha_{15} * Mezz_{i,t-k} + \alpha_{16} * Litigation_{i,t-k} \\ & + \alpha_{17} * PTDA_{i,t-k} + \alpha_{18} * CIC_{i,t-k} + \varepsilon \end{aligned} \quad (2)$$

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 return-year and zero otherwise. Similar to De Simone, Mills and Stomberg (2015), 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. A negative (positive) coefficient on *IrsConstraint* is consistent with IRS resource constraints decreasing (increasing) the probability and/or magnitude

of a proposed deficiency. When *PropDefInd* (*ProfDef_TaxSavings)* is the dependent variable, we estimate the regression with LPM (OLS).

In these models, we scale the *IrsConstraint* measures by total returns examined because proposed deficiencies are contingent on a firm being audited. 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 and tax positions based on prior years' audits. All other control variables are as defined above.

Settlement Outcomes

We estimate the following model to examine the effect of IRS and firm resource constraints on settlement outcomes.

$$\begin{aligned} Settlement_{i,t-k} = \; & \alpha_0 + \alpha_1 * IrsConstraint_t + \alpha_2 * FirmConstraint_t + \\ & \alpha_3 * PropDef\_TaxSavings_{i,t-k} + \alpha_4 * BTD_{i,t-k} \\ & + \alpha_5 * PaidPreparer_{i,t-k} + \alpha_6 * Haven_{,t-k} + \alpha_7 * Foreign_{i,t-k} + \alpha_8 * Size_{i,t-k} \\ & + \alpha_9 * Leverage_{i,t-k} + \alpha_{10} * ROA_{i,t-k} + \alpha_{11} * R\&D_{i,t-k} + \alpha_{12} * BigN_{i,t-k} + \\ & \alpha_{13} * NOL_{i,t-k} + \alpha_{14} * LagETR_{i,t-k} + \alpha_{15} * EquityEarnings_{i,t-k} + \\ & \alpha_{16} * Mezz_{i,t-k} + \alpha_{17} * Litigation_{i,t-k} + \alpha_{18} * PTDA_{i,t-k} + \alpha_{19} * CIC_{i,t-k} + + \varepsilon \end{aligned} \quad (3)$$

When estimating equation (3), we set *Settlement* equal to total settlements paid to the IRS scaled by the level of the proposed deficiency (*TotalSettle_PropDef*). This ratio represents the portion of the initial 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 exam process (*ExamsSettle_PropDef*) and settlements paid during the appeals process (*AppealsSettle_UnagreedDef*). In this model, we scale the *IrsConstraint* measures by total returns examined because settlements are contingent on a firm being audited.

A negative (positive) coefficient *IrsConstraint* is consistent with IRS resource constraints decreasing (increasing) the proportion of proposed deficiencies retained by the IRS. H2 predicts

a negative coefficient on *FirmConstraint*, which would be consistent with financially constrained firms paying a smaller percentage of the proposed deficiency to the IRS. 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. For the sample of 9,914 returns in our sample that are audited, the average proposed deficiency is just over $5.3 million, which represents approximately 6.7 percent of tax savings claimed on the originally filed return. The median proposed deficiency is zero, however, suggesting the IRS proposes no adjustments to taxable income for at least half of the audited returns in our sample. On average, 73 percent of the proposed deficiency is ultimately paid by the taxpayer in examination and appeals.

Insert Table 2 here

Panels B and C present descriptive statistics about IRS and taxpayer resource constraints, respectively. The IRS has an enforcement budget of $15.30 per return filed and less than one revenue agent per 10,000 returns filed, on average. When we scale enforcement resources by audited returns, we estimate an enforcement budget of $2,832 per audited return and one revenue agent for every 100 audited returns. Panel C illustrates a mean (median) value of the KZ Index of

-5.580 (-1.055), which is consistent with prior studies (e.g., Edwards et al. 2016). At the mean and median, 1.7 percent of the words in firms' 10-Ks are negative in tone.

Finally, Panel D presents descriptive statistics for control variables used in our multivariate analysis. The mean value of book-tax differences in our sample is -0.058, suggesting estimated taxable income exceeds pre-tax book income, on average. This is perhaps not surprising given the negative average return on assets we observe in our sample. Approximately, 9.4 percent of sample firms are 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 for the possibility of the IRS to modify rates of audit among sample firms in response to resource constraints. Roughly 73 percent of sample returns were signed by a paid preparer and 76 percent of firm-years were audited by one of the Big N accounting firms.

Table 3 presents correlations. Our measures of resource constraints in the audit selection phase, *Enforce_Filed* and *RevAgents_Filed*, exhibit large, positive correlations (ρ = 0.90). Similarly, our measures of IRS constraints in the proposed deficiency and settlement phases, *Enforce_Audited* and *RevAgents_Audited*, exhibit large, positive correlations (ρ = 0.96). Although our IRS constraint measures are negatively and significantly related to the probability of audit and both the incidence and magnitude of proposed deficiencies and positively and significantly related to the settlement ratio, the magnitudes of these correlations are relatively small ($-0.03 \leq \rho \leq 0.08$). Similarly, our firm-level measures of resource constraints are negatively and significantly related to settlement ratios but the magnitudes of those correlations are small (ρ = -0.08). As such, we estimate multivariate regressions that control for other potential determinants of enforcement outcomes in order to make inferences with respect to the hypotheses.

Insert Table 3 here

Multivariate Results

Audit Rates

Table 4 presents results of testing the effect of IRS resource constraints on audit rates. Across all four columns, we control for potential determinants of audit selection. H1a predicts no effect of IRS resource constraints on audit rates. Overall, consistent with H1a, we find little evidence that IRS resource constraints – whether measured using the total enforcement budget or the number of revenue agents per filed return – affect the rate of corporate audit in our sample. In three of the four specifications, we estimate an insignificant coefficient on *IrsConstraint*. In the third column, where we measure IRS constraints using the total enforcement budget per filed return (*Enforce_Filed*) and measure taxpayer financial constraints using *TEXT*, we estimate a negative and marginally significant effect (coeff. = -5.3662, p-value=0.078). It therefore appears that the IRS prefers to keep the corporate audit rate steady, even in the face of diminishing resources, to maintain a credible threat of audit.

Insert Table 4 here

We also find that the probability of audit is higher for larger firms, more profitable firms and firms with higher effective tax rates in the prior year. Book-tax differences and the use of tax havens are significantly positively associated with the probability of audit in two of the four specifications. Conversely, the probability of audit is decreasing in leverage, R&D, BigN auditors, NOLs, mezzanine financing and pre-tax discretionary accruals. The extent of foreign

income, using a paid preparer, equity-method investments, and the risk of litigation are not associated with the likelihood of audit.

Proposed Deficiencies

We next turn to the effect of IRS constraints on both the incidence and the magnitude of proposed deficiencies. Having found no effect of constraints on audit rates suggests the IRS could be forced to cut its resource allocation in other parts of the enforcement process because auditing the same number of returns on a reduced budget necessarily implies fewer resources per audit. This suggests that we may observe a reduction in the incidence and magnitude of proposed deficiencies if the agents examine, investigate and/or challenge fewer positions.

Consistent with this IRS response to resource constraints, in Panel A of Table 5 we find a negative association between IRS constraints and the likelihood of the IRS issuing a proposed deficiency in all specifications. Focusing on the first column where we measure IRS constraints using the total enforcement budget scaled by filed returns and where we measure financial constraints using the KZ Index, we estimate a coefficient of -0.0337 ($p < 0.01$). We therefore estimate that a one standard deviation increase in IRS resource constraints is associated with a 2.1 percentage point decrease in the probability of the IRS issuing a proposed deficiency during audit. This represents 4.28 percent of the base probability (49.4 percent). Moving from the 1st to 3rd quartile of IRS resource constraints is associated with a 4.2 percentage point decrease in the probability of a proposed deficiency. This represents 8.5 percent of the base probability. Estimates of economic magnitude are similar across specifications. It therefore appears resource constraints have a significant and economically meaningful impact on the likelihood that the IRS will propose an increase to taxable income upon audit.

Insert Table 5 here

We also find the probability of receiving a proposed deficiency is higher for profitable firms and larger firms, and smaller for firms claiming NOL deductions and firms exhibiting higher levels of resource constraints. Firms in the CIC program are also more likely to receive a proposed deficiency, which could reflect agents' enhanced knowledge of questionable positions acquired through multiple years of audit. Somewhat surprisingly, we estimate the rate of proposed deficiency is negatively associated with *BTD*.[17]

In Panel B of Table 5, we focus on the magnitude of the proposed deficiency relative to the total tax savings claimed on the originally filed return. Results are largely consistent with those presented in Panel A. We find a negative association between IRS constraints and the level of proposed deficiencies across all specifications ($p < 0.01$). Focusing again on the first column, our coefficient estimates suggest that a one standard deviation increase in IRS resource constraints is associated with a 13.6 percent decrease in the magnitude of proposed deficiencies relative to the mean (0.067). Using the average value of tax savings for sample returns that were audited ($68.27 million), this implies a $620,000 decrease in the level of proposed deficiencies given a one standard deviation decrease in the IRS enforcement budget. That on average decrease corresponds to an aggregate reduction in proposed deficiencies of over $6.15 billion across our sample. Given our sample captures only a subset of public corporations, our estimate of aggregate proposed deficiencies forgone as a result of resource constraints is a lower bound and understates the total economic impact of IRS budgetary constrictions. Estimated coefficients on control variables are also largely in line with those reported in Panel A.

[17] When we estimate equation (1) excluding *ROA*, the rate of proposed deficiency is positively associated with *BTD*.

Settlement Outcomes

In the last stage of our main analysis, we examine how IRS and taxpayer constraints affect the settlement process. To this point, our results are consistent with the IRS maintaining its audit rate and therefore having fewer resources to devote to each audit. What is unclear is whether these resources are focused on positions suspected to be supported by a weaker set of facts. If the IRS targets its efforts toward uncovering and pursuing weak positions, we would expect *TotalSettle_PropDef* to increase as IRS resource constraints increase. Conversely, if the reduction in proposed deficiencies we estimate in Table 5 reflects a reduction in available resources without a corresponding change in focus, we would expect no change in *TotalSettle_PropDef*. If resources are constrained to such a point that agents are not able to investigate and challenge positions as effectively as prior to the budget cuts, we could observe a decrease in the ratio, suggesting taxpayers are able to retain a greater portion of originally-claimed benefits.

We present results in Table 6. We estimate a significant positive association between IRS constraints and *TotalSettle_PropDef* across all specifications ($p < 0.01$). Thus, the portion of proposed deficiencies the IRS collects is increasing in its resource constraints. This result, while potentially counterintuitive on its face, is consistent with the IRS deploying its limited resources by targeting those positions it suspects are supported by the weakest facts. Focusing on the first column where we measure IRS constraints using the total enforcement budget scaled by audited returns and where we measure financial constraints using the KZ Index, our coefficient estimates suggest that a one standard deviation increase in IRS resource constraints is associated with a 3.2 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 ($10.8

million), this implies a $350,000 increase in the level of settlements given a one standard deviation decrease in the IRS enforcement budget. In aggregate across our sample of 4,897 returns with settlements, this translates to increased collections of $1.7 billion across our sample. Thus, it appears the IRS increases its collections associated with proposed deficiencies when resource constrained. However, this is only one stage of the overall enforcement process. Recall from Panel B of Table 5 that our estimates indicate the IRS proposes *fewer* deficiencies when constrained. The net effect of these results suggests an overall loss in collections of $4.4 billion associated with a one standard deviation increase in IRS resource constraints. Recall also that our sample consists of only a portion of public corporations and does not include private corporations or individual taxpayers. Therefore, these estimates represent a lower bound and understate the total collections potentially lost as a result of IRS budget reductions.

Insert Table 6 here

Turning to taxpayer financial constraints, H2 predicts a negative association between firm-level constraints and settlement ratios. Consistent with this prediction, we estimate a significant negative effect of taxpayer financial constraints on *TotalSettle_PropDef* across all four specifications, although this relation is only marginally significant when using *KZ* to proxy for firm-level resource constraints. Our coefficient estimate of -0.0064 in the first column corresponds to a 5.8 percentage point decrease in *TotalSettle_PropDef* for the most constrained firms (ranked *KZ* = 9) relative to the most unconstrained firms (ranked *KZ* = 0). This translates to a $624,000 reduction in settlement payments based on the mean value of proposed deficiencies among this sample of firms ($10.8 million). We therefore conclude that taxpayer financial constraints are an economically important determinant of IRS enforcement outcomes.

With respect to control variables, we estimate a negative association between the magnitude of the proposed deficiency and *TotalSettle_PropDef*. This could be indicative of taxpayers being willing to concede relatively small adjustments or revenue agents selecting 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 estimate that IRS collections of proposed deficiencies are increasing in taxpayers' return-on-assets, prior year effective tax rate, and equity investment. In contrast, collections are decreasing in taxpayers' size. No other control variables are significant determinants of *TotalSettle_PropDef*.

Supplement analyses: Decomposing settlement outcomes

In this section, we further examine the relation between resource constraints and settlements by separately examining settlements following the initial examination and those following a taxpayer appeal. If our interpretation of the evidence from our analysis is correct (i.e., the IRS modifies its audit process in response to resource constraints by targeting positions supported by weak facts that are most likely to be overturned), we anticipate IRS resource constraints will be positively associated with settlements following initial examinations, but not associated or negatively associated with settlements following a taxpayer appeal. This prediction follows from the fact that even if the IRS attempts to target only those positions supported by weak facts, it will do so with error. In situations where the IRS has correctly identified a weak position, we expect on average the taxpayer to concede during the examination. In contrast, when the IRS has incorrectly identified a weak position, we expect the taxpayer is more likely to appeal and successfully defend its positions.

Insert Table 7 here

We present the results from this analysis in Table 7. Consistent with our expectations, we estimate a significant positive effect of IRS resource constraints on settlements following the initial examination across in Panel A but a significant negative effect of IRS resource constraints on settlements following a taxpayer appeal. These associations are all highly significant ($p < 0.01$) and hold across all four specifications of our IRS resource constraints. Collectively, these results are consistent our interpretation that the IRS deploys its limited resources to target taxpayer positions it suspects are supported by the weakest facts. When the IRS correctly identifies a weak position in the initial examination, the settlement ratio is higher. When the IRS incorrectly identifies a weak position and the proposed deficiency is challenged by the taxpayer, the settlement ratio is lower.

V. CONCLUSION

In this study, we examine how IRS and taxpayer resource constraints affect the tax enforcement process. Using multiple measures of resource constrains including the IRS' enforcement budget and number of IRS revenue agents, we find that the IRS maintains its rate of audit but decreases the incidence and magnitude of proposed deficiencies in the face of higher resource constraints. However, we also find that the IRS retains a greater proportion of the deficiencies it proposes when it is resource constrained. This result is consistent with resource constraints forcing the IRS to be strategic in 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 it is resource constrained, our estimates indicate an overall net decline in revenue collected through the tax enforcement process as IRS resource constraints

increase. Our findings support the GAO's assertion that recent cuts to the IRS budget could adversely affect tax collections (GAO 2015).

When we examine taxpayer resource constraints, we find evidence that financially constrained taxpayers negotiate more favorable settlements with the IRS. These results are consistent with theoretical and empirical evidence in the capital structure and value of cash literatures that financially constrained firms have strong incentives to negotiate aggressively with the IRS due to increased incentives to generate and preserve additional sources of internal funds.

Our study contributes to the tax literature in several ways. First, we contribute to the literature that examines strategic interactions between taxpayers and the tax authority. Prior research has examined how factors such as audit probability and financial reporting regimes affect taxpayers' decisions regarding positions to claim on originally filed returns and on the determinants of proposed deficiencies. We advance this literature by identifying IRS resource constraints as an important determinant of proposed deficiencies and by examining the negotiation process that follows the completion of an IRS exam. Second, we contribute to the tax avoidance literature by identifying taxpayer and IRS resource constraints as important determinants of ultimate tax avoidance outcomes.

Our findings also inform policy makers, tax enforcement agencies, and taxpayers. Our empirical estimates of tax revenue potentially lost when the IRS is resource constrained should be of interest to Congress when deciding the amount of resources to allocate to the IRS. Our results also suggest the IRS should be aware of a taxpayer's financial position during the tax enforcement process because it is a significant determinant of the outcome of negotiations between taxpayers and the IRS. Finally, taxpayers should be aware of IRS resource constraints

during the tax enforcement process and realize that when the IRS is resource constrained it proposes fewer adjustments but is better able to sustain the adjustments it does propose.

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APPENDIX

Variable definitions

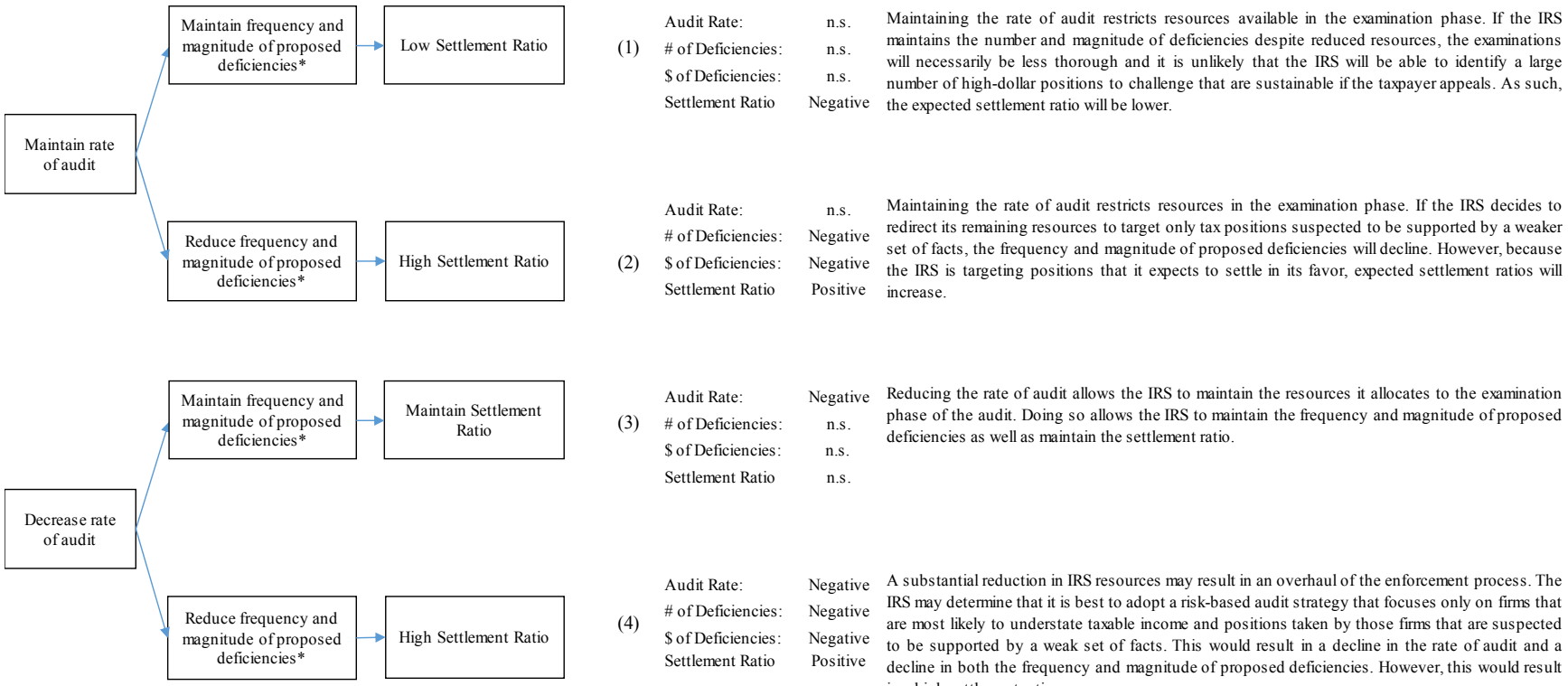
IrsAudit	=	One if the IRS audits the taxpayer (AIMS database), and zero otherwise
PropDefInd	=	One if the IRS proposes a deficiency for the return-year (AIMS database), and zero otherwise
PropDef ($M)	=	Initial deficiencies proposed to the taxpayer by the IRS (AIMS database)
PropDef_TaxSavings	=	Deficiency proposed by the IRS divided by *TaxSavings*, where *TaxSavings* equals pretax income times 35 percent minus total tax payments reported on the corporate tax return
UnagreedDef ($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 ($M)	=	Deficiencies retained by the IRS during the appeals process (ERIS dataset)
AppealsSettle_UnagreedDef	=	*AppealsSettle* divided by *UnagreedDef*
Enforce_Filed	=	(-1)*IRS inflation-adjusted enforcement expenditures ($Thousands) / # of total tax returns filed (both from IRS Annual Data Book)
RevAgents_Filed	=	(-1)*Total IRS revenue agents / # of total tax returns filed ($Thousands) (both from IRS Annual Data Book)
Enforce_Audited	=	(-1)*IRS inflation-adjusted enforcement expenditures ($Thousands) / # of total tax returns audited (both from IRS Annual Data Book)
RevAgents_Audited	=	(-1)*Total IRS revenue agents / # of total tax returns audited ($Thousands) (both from IRS Annual Data Book)
KZ	=	the decile ranking of the Kaplan and Zingales (1997) financial constraint index constructed following Lamont, Polk, and Saa-Requejo (2001) as -1.001909*((IB+DP)/lagged PPENT) + 0.2826389*((AT+PRCC_F*CSHO-CEQ-TXDB)/AT) + 3.139193*((DLTT+DLC)/(DLTT+DLC+SEQ)) - 39.3678*((DVC+DVP)/lagged PPENT) - 1.314759*(CHE/lagged PPENT) (index increases in financial constraints)

APPENDIX (continued)
Variable definitions

TEXT	=	the decile ranking of the fraction of negative words in a firm's annual filing based on the Bill McDonald's dataset
BTD	=	Pretax domestic income (PIDOM) minus federal tax expense (TXFED) divided by 35 percent scaled by total assets (AT)
PaidPreparer	=	One if a paid preparer signed the tax return (BRTF dataset), and zero otherwise
Haven	=	One if an observation 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)
CIC	=	One if a firm is in the CIC program, and zero otherwise

FIGURE 1

Examples of IRS Responses to a Reduction in IRS Resources



Scenario	Association between decreased IRS resources and:		Scenario description
(1)	Audit Rate:	n.s.	Maintaining the rate of audit restricts resources available in the examination phase. If the IRS maintains the number and magnitude of deficiencies despite reduced resources, the examinations will necessarily be less thorough and it is unlikely that the IRS will be able to identify a large number of high-dollar positions to challenge that are sustainable if the taxpayer appeals. As such, the expected settlement ratio will be lower.
	# of Deficiencies:	n.s.	
	$ of Deficiencies:	n.s.	
	Settlement Ratio	Negative	
(2)	Audit Rate:	n.s.	Maintaining the rate of audit restricts resources in the examination phase. If the IRS decides to redirect its remaining resources to target only tax positions suspected to be supported by a weaker set of facts, the frequency and magnitude of proposed deficiencies will decline. However, because the IRS is targeting positions that it expects to settle in its favor, expected settlement ratios will increase.
	# of Deficiencies:	Negative	
	$ of Deficiencies:	Negative	
	Settlement Ratio	Positive	
(3)	Audit Rate:	Negative	Reducing the rate of audit allows the IRS to maintain the resources it allocates to the examination phase of the audit. Doing so allows the IRS to maintain the frequency and magnitude of proposed deficiencies as well as maintain the settlement ratio.
	# of Deficiencies:	n.s.	
	$ of Deficiencies:	n.s.	
	Settlement Ratio	n.s.	
(4)	Audit Rate:	Negative	A substantial reduction in IRS resources may result in an overhaul of the enforcement process. The IRS may determine that it is best to adopt a risk-based audit strategy that focuses only on firms that are most likely to understate taxable income and positions taken by those firms that are suspected to be supported by a weak set of facts. This would result in a decline in the rate of audit and a decline in both the frequency and magnitude of proposed deficiencies. However, this would result in a high settlement ratio.
	# of Deficiencies:	Negative	
	$ of Deficiencies:	Negative	
	Settlement Ratio	Positive	

This figure provides examples of potential IRS responses to a reduction in IRS resources. Note that the examples provided are just a subsample of potential IRS responses. Because numerous plausible IRS responses exist, this figure is intended to demonstrate that the relation between IRS resource constraints and each stage of the enforcement process is unclear ex ante.

* The frequency of proposed deficiencies are measured as a percentage of returns audited and the magnitude of proposed deficiencies are measured as a percentage of total tax savings for audited firms. This is important to understand the broader implications of this figure as well as the empirical results presented in this study. For example, in scenario (3), the IRS responds to reduced resources by reducing the rate of audit. Although the IRS can maintain the frequency and magnitude of proposed deficiencies *as a percentage of audited returns and as a percentage of the taxpayers' tax savings*, respectively, the aggregate number of proposed deficiencies and the aggregate total of proposed deficiencies will decline (because fewer tax returns are audited).

TABLE 1
Sample selection

Panel A: Full sample	**N**
Return years from 2000 through 2010 in BRTF database and Compustat	48,886
Less: financial and utility return years	(11,545)
Less: return years missing explanatory variables	(8,855)
Less: return years with mismatch between AIMS and ERIS databases	(181)
Audit probability sample (25,653 after removing CIC return years)	**28,305**
Less: return years not audited by IRS	(18,391)
Proposed deficiency sample	**9,914**
Less: return years with no proposed deficiency	(5,017)
Settlement sample	**4,897**
Less: return years with no unagreed amount	(4,306)
Appeals sample	**591**

Panel B: Sample by year

Return Year	**Audit probability sample**	**Proposed deficiency sample**	**Settlement sample**	**Appeals Sample**
2000	2,554	780	397	63
2001	2,751	880	419	60
2002	2,776	880	428	64
2003	2,809	912	491	70
2004	2,742	1,005	548	68
2005	2,652	1,003	528	71
2006	2,494	966	515	54
2007	2,456	921	499	57
2008	2,382	933	409	39
2009	2,372	913	360	29
2010	2,317	721	303	16
	28,305	**9,914**	**4,897**	**591**

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

TABLE 2

Descriptive statistics

Variable	N	Mean	Std. Dev.	P25	Median	P75
Panel A: Components of IRS audit process						
IrsAudit	28,305	0.3503	0.4771	0.0000	0.0000	1.0000
PropDefInd	9,914	0.4941	0.5000	0.0000	0.0000	1.0000
PropDef ($M)	9,914	5.3357	21.8894	0.0000	0.0000	0.6648
PropDef_TaxSavings	9,914	0.0665	0.2221	0.0000	0.0000	0.0225
UnagreedDef ($M)	9,914	2.6697	14.0397	0.0000	0.0000	0.0000
TotalSettle ($M)	4,897	5.5081	17.6569	0.0125	0.3013	2.3875
TotalSettle_PropDef	4,897	0.7275	0.4223	0.2893	1.0000	1.0000
ExamsSettle ($M)	4,897	4.0773	13.8340	0.0000	0.1491	1.4397
ExamsSettle_PropDef	4,897	0.6774	0.4596	0.0000	1.0000	1.0000
AppealsSettle ($M)	591	11.9714	32.1385	0.4083	2.0888	9.2135
AppealsSettle_UnagreedDef	591	0.4468	0.3353	0.1426	0.3764	0.7638
Panel B: Tax authority resource constraints (multiplied by -1 in analyses to represent constraints)						
Enforce_Filed	28,305	0.0153	0.0010	0.0142	0.0153	0.0160
RevAgents_Filed	28,305	0.0544	0.0030	0.0518	0.0544	0.0564
Enforce_Audited	28,305	2.8322	0.6220	2.2813	2.5991	3.5233
RevAgents_Audited	28,305	10.1053	2.3436	8.1693	9.1440	12.3959
Panel C: Taxpayer resource constraints						
KZ (unranked)	28,305	-5.5804	11.8184	-6.1849	-1.0549	0.9702
TEXT (unranked)	28,305	0.0169	0.0040	0.0141	0.0167	0.0195
Panel D: Control variables						
BTD	28,305	-0.0584	0.1620	-0.0660	-0.0001	0.0282
PaidPreparer	28,305	0.7250	0.4465	0.0000	1.0000	1.0000
Haven	28,305	0.3298	0.4701	0.0000	0.0000	1.0000
Foreign	28,305	0.0096	0.0337	0.0000	0.0000	0.0055
Size	28,305	5.6457	1.9813	4.0932	5.5449	6.9792
Leverage	28,305	0.2193	0.2333	0.0110	0.1655	0.3385
ROA	28,305	-0.0323	0.2676	-0.0706	0.0381	0.1040
R&D	28,305	0.0624	0.1244	0.0000	0.0034	0.0743
BigN	28,305	0.7598	0.4272	1.0000	1.0000	1.0000
NOL	28,305	0.4419	0.4966	0.0000	0.0000	1.0000
LagETR	28,305	0.1891	0.3792	0.0000	0.2964	0.3750
EquityEarnings	28,305	0.1226	0.3280	0.0000	0.0000	0.0000
Mezz	28,305	0.0363	0.1097	0.0000	0.0000	0.0000
Litigation	28,305	0.0744	0.2625	0.0000	0.0000	0.0000
PTDA	28,305	-0.0027	0.0891	-0.0352	0.0000	0.0285
CIC	28,305	0.0937	0.2914	0.0000	0.0000	0.0000

This table provides summary statistics for the sample. Panel A provides descriptive statistics for stages of the tax enforcement process. Panel B provides descriptive statistics for the measures of tax authority resources and Panel C provides descriptive statistics for the measures of taxpayer resource constraints. Panel D provides descriptive statistics for all other variables. Continuous variables are winsorized. See the Appendix for variable definitions.

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]	[27]	[28]
IrsAudit	[1]		.	.	.	.	.	**-0.03**	**-0.03**	**0.04**	**0.04**	**-0.01**	**-0.04**	**0.21**	**0.37**	**-0.23**	**0.21**	**0.19**	**0.44**	**0.05**	**0.29**	**-0.13**	**0.18**	**-0.06**	**0.26**	**0.14**	**-0.03**	**0.05**	**-0.07**
PropDefInd	[2]	.		**0.81**	.	.	.	**0.04**	**0.04**	**-0.03**	**-0.05**	**-0.08**	**-0.07**	**0.10**	**0.22**	**-0.12**	**0.09**	**0.14**	**0.24**	-0.02	**0.23**	-0.01	**0.07**	**-0.06**	**0.06**	**0.07**	0.00	**0.02**	**-0.02**
PropDef_TaxSavings	[3]	.	**0.30**		**0.08**	**0.05**	**-0.21**	**0.04**	**0.04**	**-0.03**	**-0.05**	**-0.11**	**-0.12**	**0.22**	**0.20**	**-0.10**	**0.09**	**0.19**	**0.21**	**-0.05**	**0.36**	0.01	**0.07**	**-0.07**	**0.06**	**0.07**	**-0.03**	-0.01	**0.03**
TotalSettle_PropDef	[4]	.	.	**-0.09**		**0.96**	**0.94**	**-0.04**	**-0.05**	**0.08**	**0.08**	**-0.08**	**-0.08**	**0.06**	**-0.18**	**0.08**	**-0.08**	0.00	**-0.22**	**-0.10**	**0.14**	**0.02**	**-0.07**	**-0.02**	**0.04**	**-0.04**	**-0.06**	**-0.05**	0.01
ExamsSettle_PropDef	[5]	.	.	**-0.12**	**0.92**		-0.01	**-0.05**	**-0.06**	**0.10**	**0.09**	**-0.07**	**-0.07**	**0.05**	**-0.19**	**0.08**	**-0.09**	0.00	**-0.22**	**-0.09**	**0.12**	**0.03**	**-0.07**	-0.01	**0.03**	**-0.04**	**-0.06**	**-0.04**	0.01
AppealsSettle_UnagreedDef	[6]	.	.	**-0.17**	**0.94**	0.01		0.06	0.02	**-0.09**	**-0.10**	0.02	-0.07	0.02	-0.02	**0.07**	-0.06	**-0.08**	**-0.07**	0.06	-0.01	**-0.11**	-0.04	**-0.10**	**0.11**	-0.06	0.02	-0.03	**0.09**
Enforce_Filed	[7]	**-0.03**	**0.05**	**0.04**	**-0.03**	**-0.04**	0.06		**0.90**	**-0.50**	**-0.62**	**0.11**	**-0.10**	**-0.02**	**-0.04**	**0.01**	**-0.05**	**-0.05**	**-0.07**	**0.06**	-0.01	0.00	**0.10**	**-0.09**	**0.04**	**-0.03**	**0.02**	**-0.04**	-0.01
RevAgents_Filed	[8]	**-0.02**	**0.05**	**0.04**	**-0.04**	**-0.05**	0.02	**0.92**		**-0.50**	**-0.58**	**0.10**	**-0.08**	**-0.02**	**-0.03**	**0.01**	**-0.05**	**-0.05**	**-0.07**	**0.05**	**-0.02**	0.00	**0.10**	**-0.08**	**0.04**	**-0.03**	**0.02**	**-0.03**	0.00
Enforce_Audited	[9]	**0.05**	**-0.02**	**-0.04**	**0.08**	**0.10**	**-0.11**	**-0.60**	**-0.57**		**0.96**	**-0.10**	**0.15**	**0.02**	**0.05**	**-0.02**	**0.09**	**0.10**	**0.12**	**-0.08**	**0.06**	**0.01**	**-0.18**	**0.12**	**-0.06**	**0.05**	**-0.03**	**0.05**	-0.01
RevAgents_Audited	[10]	**0.05**	**-0.02**	**-0.04**	**0.07**	**0.09**	**-0.12**	**-0.63**	**-0.55**	**0.99**		**-0.11**	**0.16**	**0.01**	**0.06**	**-0.02**	**0.09**	**0.09**	**0.12**	**-0.08**	**0.04**	0.01	**-0.18**	**0.13**	**-0.06**	**0.04**	**-0.03**	**0.05**	-0.01
KZ	[11]	**-0.01**	**-0.09**	**-0.02**	**-0.07**	**-0.07**	0.01	**0.11**	**0.10**	**-0.12**	**-0.12**		**-0.05**	**-0.08**	**-0.03**	**-0.03**	**-0.08**	**-0.12**	**0.06**	**0.51**	**-0.21**	**-0.31**	**-0.01**	**0.02**	**0.04**	**0.05**	**0.07**	0.00	**0.01**
TEXT	[12]	**-0.04**	**-0.07**	**-0.05**	**-0.08**	**-0.06**	**-0.07**	**-0.10**	**-0.09**	**0.14**	**0.14**	**-0.05**		**-0.21**	0.01	**0.02**	**0.11**	**-0.03**	**0.04**	**-0.07**	**-0.25**	**0.22**	**0.07**	**0.12**	**-0.20**	**-0.04**	**0.07**	**0.11**	**-0.03**
BTD	[13]	**0.24**	**0.14**	**0.05**	**0.08**	**0.06**	0.03	**-0.01**	**-0.02**	**0.03**	**0.03**	**-0.06**	**-0.20**		**0.10**	**-0.12**	**0.06**	**0.11**	**0.24**	**-0.02**	**0.74**	**-0.25**	**0.08**	**-0.09**	**0.27**	**0.10**	**-0.14**	**-0.03**	**0.09**
CIC	[14]	**0.37**	**0.22**	**0.06**	**-0.15**	**-0.17**	-0.02	**-0.04**	**-0.03**	**0.06**	**0.06**	**-0.03**	0.01	**0.12**		**-0.34**	**0.28**	**0.25**	**0.48**	**0.11**	**0.15**	**-0.02**	**0.18**	0.01	**0.09**	**0.24**	**0.04**	**0.09**	**-0.04**
PaidPreparer	[15]	**-0.23**	**-0.12**	0.01	**0.07**	**0.07**	**0.08**	**0.02**	**0.02**	**-0.01**	**-0.01**	**-0.03**	**0.02**	**-0.16**	**-0.34**		**-0.26**	**-0.23**	**-0.46**	**-0.14**	**-0.16**	**0.10**	**-0.22**	**-0.01**	**-0.12**	**-0.18**	**-0.01**	**-0.07**	**0.05**
Haven	[16]	**0.21**	**0.09**	0.00	**-0.07**	**-0.08**	-0.07	**-0.06**	**-0.06**	**0.08**	**0.08**	**-0.08**	**0.11**	**0.12**	**0.28**	**-0.26**		**0.35**	**0.44**	**0.04**	**0.13**	**0.09**	**0.23**	**0.08**	**0.04**	**0.14**	**0.05**	**0.07**	**-0.08**
Foreign	[17]	**0.15**	**0.12**	0.00	0.00	0.01	**-0.13**	**-0.04**	**-0.04**	**0.08**	**0.08**	**-0.13**	**-0.04**	**0.13**	**0.21**	**-0.18**	**0.29**		**0.33**	**-0.01**	**0.32**	**0.05**	**0.14**	**0.01**	**0.10**	**0.14**	**-0.04**	**0.05**	**-0.04**
Size	[18]	**0.44**	**0.24**	**0.04**	**-0.18**	**-0.19**	**-0.09**	**-0.07**	**-0.08**	**0.11**	**0.11**	**0.05**	**0.04**	**0.34**	**0.56**	**-0.47**	**0.44**	**0.28**		**0.27**	**0.33**	**-0.23**	**0.49**	0.01	**0.30**	**0.28**	**0.08**	**0.10**	**-0.12**
Leverage	[19]	-0.01	**-0.04**	**-0.04**	**-0.08**	**-0.08**	0.06	**0.04**	**0.04**	**-0.08**	**-0.08**	**0.46**	**-0.03**	**-0.06**	**0.05**	**-0.09**	**-0.01**	**-0.06**	**0.17**		**-0.12**	**-0.31**	**0.06**	**0.06**	**0.05**	**0.13**	**0.32**	**0.02**	**-0.01**
ROA	[20]	**0.25**	**0.21**	**0.09**	**0.15**	**0.12**	-0.01	-0.01	**-0.02**	**0.04**	**0.04**	**-0.13**	**-0.20**	**0.90**	**0.13**	**-0.16**	**0.13**	**0.26**	**0.36**	**-0.12**		**-0.24**	**0.12**	**-0.18**	**0.39**	**0.11**	**-0.19**	**-0.02**	**0.03**
R&D	[21]	**-0.19**	**-0.06**	**-0.02**	-0.01	0.01	**-0.12**	**0.01**	0.00	0.00	0.00	**-0.19**	**0.16**	**-0.49**	**-0.09**	**0.15**	**-0.06**	**-0.06**	**-0.28**	**-0.15**	**-0.47**		**0.02**	**0.11**	**-0.33**	**-0.12**	**0.05**	**0.02**	**-0.02**
BigN	[22]	**0.18**	**0.07**	**0.02**	**-0.06**	**-0.06**	-0.06	**0.10**	**0.10**	**-0.18**	**-0.18**	**-0.01**	**0.07**	**0.11**	**0.18**	**-0.22**	**0.23**	**0.10**	**0.47**	**0.04**	**0.12**	0.00		**-0.02**	**0.15**	**0.09**	**0.02**	**0.03**	**-0.08**
NOL	[23]	**-0.06**	**-0.06**	**-0.06**	**-0.03**	-0.01	**-0.10**	**-0.09**	**-0.08**	**0.13**	**0.13**	**0.02**	**0.12**	**-0.10**	0.01	**-0.01**	**0.08**	0.00	0.00	**0.07**	**-0.13**	**0.09**	**-0.02**		**-0.17**	0.01	**0.10**	**0.02**	-0.01
LagETR	[24]	**0.18**	**0.07**	**0.02**	**0.04**	**0.03**	0.05	**0.03**	**0.02**	**-0.04**	**-0.04**	**0.02**	**-0.13**	**0.18**	**0.08**	**-0.09**	**0.04**	**0.07**	**0.20**	**-0.02**	**0.20**	**-0.17**	**0.10**	**-0.11**		**0.07**	**-0.14**	**-0.01**	**-0.05**
EquityEarnings	[25]	**0.14**	**0.07**	0.01	-0.02	**-0.03**	-0.05	**-0.03**	**-0.03**	**0.05**	**0.05**	**0.05**	**-0.04**	**0.12**	**0.24**	**-0.18**	**0.14**	**0.11**	**0.29**	**0.08**	**0.12**	**-0.13**	**0.09**	0.01	**0.06**		**0.02**	**0.06**	**0.02**
Mezz	[26]	**-0.09**	**-0.05**	**-0.04**	0.01	0.01	0.02	**0.01**	**0.02**	-0.01	-0.01	0.00	**0.10**	**-0.22**	**-0.05**	**0.05**	0.01	**-0.06**	**-0.04**	**0.32**	**-0.23**	**0.16**	0.01	**0.09**	**-0.10**	**-0.04**		**0.03**	**-0.02**
Litigation	[27]	**0.05**	**0.02**	-0.01	**-0.04**	**-0.04**	-0.03	**-0.04**	**-0.03**	**0.06**	**0.06**	0.00	**0.11**	-0.01	**0.09**	**-0.07**	**0.07**	**0.04**	**0.11**	**0.02**	-0.01	**-0.02**	**0.03**	**0.02**	**-0.01**	**0.06**	**0.02**		**-0.04**
PTDA	[28]	**-0.05**	0.00	0.01	**0.03**	0.02	**0.07**	0.00	0.00	-0.01	-0.01	0.00	**-0.03**	**0.10**	**-0.02**	**0.03**	**-0.06**	**-0.01**	**-0.09**	**-0.02**	**0.09**	**-0.02**	**-0.07**	0.00	**-0.02**	**0.02**	**-0.03**	**-0.04**	

The table provides Pearson (Spearman) correlations above (below) the diagonal. Bolded correlations indicate significance at the 10 percent level. See Appendix for variable definitions.

TABLE 4

Relation between resource constraints & the probability of IRS audit

IrsConstraint =	*Enforce_Filed*	*RevAgents_Filed*	*Enforce_Filed*	*RevAgents_Filed*
FirmConstraint =	*KZ*	*KZ*	*TEXT*	*TEXT*
	Coef.	Coef.	Coef.	Coef.
Variable	*t-statistic*	*t-statistic*	*t-statistic*	*t-statistic*
Intercept	-0.1078 **	-0.0684	-0.1201 ***	-0.0807
	-2.15	*-1.22*	*-2.46*	*-1.47*
IrsConstraint	-4.1388	-0.4283	-5.3662 *	-0.7612
	-1.35	*-0.44*	*-1.76*	*-0.79*
FirmConstraint	-0.0010	-0.0011	-0.0038 ***	-0.0037 ***
	-0.73	*-0.83*	*-3.01*	*-2.94*
BTD	0.0660 *	0.0665 *	0.0579	0.0586
	1.82	*1.84*	*1.60*	*1.62*
PaidPreparer	-0.0107	-0.0105	-0.0095	-0.0094
	-1.04	*-1.02*	*-0.93*	*-0.92*
Haven	0.0150	0.0150	0.0172 *	0.0172 *
	1.56	*1.57*	*1.79*	*1.79*
Foreign	0.0839	0.0844	0.0703	0.0718
	0.64	*0.65*	*0.54*	*0.55*
Size	0.0772 ***	0.0775 ***	0.0780 ***	0.0783 ***
	24.39	*24.47*	*24.57*	*24.64*
Leverage	-0.1138 ***	-0.1142 ***	-0.1228 ***	-0.1240 ***
	-6.67	*-6.69*	*-7.60*	*-7.68*
ROA	0.0939 ***	0.0929 ***	0.0928 ***	0.0921 ***
	3.99	*3.95*	*3.95*	*3.92*
R&D	-0.1229 ***	-0.1235 ***	-0.1145 ***	-0.1150 ***
	-5.43	*-5.44*	*-5.09*	*-5.10*
BigN	-0.0243 ***	-0.0254 ***	-0.0231 ***	-0.0243 ***
	-2.69	*-2.82*	*-2.56*	*-2.70*
NOL	-0.0414 ***	-0.0410 ***	-0.0399 ***	-0.0394 ***
	-5.50	*-5.44*	*-5.27*	*-5.21*
LagETR	0.0975 ***	0.0973 ***	0.0948 ***	0.0946 ***
	12.86	*12.84*	*12.49*	*12.47*
EquityEarnings	-0.0092	-0.0091	-0.0111	-0.0110
	-0.68	*-0.67*	*-0.82*	*-0.81*
Mezz	-0.0669 ***	-0.0671 ***	-0.0580 **	-0.0577 **
	-2.45	*-2.45*	*-2.15*	*-2.14*
Litigation	0.0126	0.0129	0.0163	0.0165
	1.03	*1.05*	*1.33*	*1.35*
PTDA	-0.1257 ***	-0.1253 ***	-0.1252 ***	-0.1249 ***
	-4.21	*-4.20*	*-4.19*	*-4.18*
Adjusted R^2	0.1393	0.1393	0.1398	0.1397
N	25,653	25,653	25,653	25,653

Table 4 presents results of estimating IRS audit probability as a function of IRS resource constraints using a linear probability model. T-statistics are presented below coefficient estimates. Continuous variables are winsorized. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Significance is assessed using two-tailed p-values when no signed prediction is made. See Appendix for variable definitions.

TABLE 5

Relation between resource constraints & the incidence and magnitude of proposed deficiencies

Panel A: The incidence of proposed deficiencies				
IrsConstraint =	*Enforce_Audited*	*RevAgents_Audited*	*Enforce_Audited*	*RevAgents_Audited*
FirmConstraint =	*KZ*	*KZ*	*TEXT*	*TEXT*
	Coef.	Coef.	Coef.	Coef.
Variable	*t-statistic*	*t-statistic*	*t-statistic*	*t-statistic*
Intercept	0.0781 *	0.0873 **	0.0938 **	0.1023 ***
	1.78	*2.04*	*2.10*	*2.35*
IrsConstraint	-0.0337 ***	-0.0086 ***	-0.0254 ***	-0.0064 ***
	-3.42	*-3.32*	*-2.58*	*-2.45*
FirmConstraint	-0.0088 ***	-0.0088 ***	-0.0069 ***	-0.0070 ***
	-3.15	*-3.15*	*-3.25*	*-3.27*
BTD	-0.3928 ***	-0.3900 ***	-0.4364 ***	-0.4343 ***
	-4.21	*-4.18*	*-4.69*	*-4.67*
PaidPreparer	0.0111	0.0110	0.0110	0.0109
	0.79	*0.78*	*0.78*	*0.77*
Haven	-0.0136	-0.0136	-0.0075	-0.0075
	-1.02	*-1.02*	*-0.56*	*-0.56*
Foreign	-0.0587	-0.0612	-0.0447	-0.0470
	-0.33	*-0.35*	*-0.26*	*-0.27*
Size	0.0559 ***	0.0557 ***	0.0560 ***	0.0558 ***
	11.11	*11.08*	*11.10*	*11.08*
Leverage	-0.1017 ***	-0.1016 ***	-0.1557 ***	-0.1556 ***
	-2.71	*-2.70*	*-4.54*	*-4.54*
ROA	0.6991 ***	0.6971 ***	0.7185 ***	0.7167 ***
	11.24	*11.22*	*11.65*	*11.63*
R&D	-0.1851 **	-0.1860 **	-0.1017	-0.1019
	-2.12	*-2.13*	*-1.19*	*-1.19*
BigN	-0.0632 ***	-0.0624 ***	-0.0618 ***	-0.0610 ***
	-3.13	*-3.09*	*-3.05*	*-3.02*
NOL	-0.0440 ***	-0.0443 ***	-0.0421 ***	-0.0423 ***
	-3.55	*-3.57*	*-3.39*	*-3.41*
LagETR	0.0384 ***	0.0387 ***	0.0355 ***	0.0358 ***
	2.55	*2.57*	*2.36*	*2.38*
EquityEarnings	-0.0151	-0.0152	-0.0193	-0.0194
	-0.98	*-0.99*	*-1.24*	*-1.25*
Mezz	-0.0544	-0.0536	-0.0103	-0.0097
	-0.66	*-0.65*	*-0.13*	*-0.12*
Litigation	-0.0013	-0.0013	0.0067	0.0067
	-0.07	*-0.07*	*0.38*	*0.39*
PTDA	-0.0952	-0.0957	-0.0969	-0.0972
	-1.53	*-1.53*	*-1.55*	*-1.56*
CIC	0.1161 ***	0.1167 ***	0.1192 ***	0.1197 ***
	5.93	*5.96*	*6.10*	*6.13*
Adjusted R^2	0.1136	0.1135	0.1135	0.1135
N	9,914	9,914	9,914	9,914

Panel A of Table 5 presents results of estimating the likelihood of the IRS issuing a proposed deficiency as a function of IRS resource constraints using a linear probability model. T-statistics are presented below coefficient estimates. Continuous variables are winsorized. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Significance is assessed using two-tailed p-values when no signed prediction is made. See Appendix for variable definitions.

TABLE 5 (continued)

Relation between resource constraints & the incidence and magnitude of proposed deficiencies

IrsConstraint =	*Enforce_Audited*	*RevAgents_Audited*	*Enforce_Audited*	*RevAgents_Audited*
FirmConstraint =	*KZ*	*KZ*	*Text*	*Text*
	Coef.	Coef.	Coef.	Coef.
Variable	*t-statistic*	*t-statistic*	*t-statistic*	*t-statistic*
Intercept	-0.0159	-0.0139	-0.0059	-0.0043
	-0.85	*-0.75*	*-0.30*	*-0.22*
IrsConstraint	-0.0146 ***	-0.0039 ***	-0.0131 ***	-0.0035 ***
	-3.14	*-3.17*	*-2.81*	*-2.83*
FirmConstraint	-0.0001	-0.0001	-0.0020 **	-0.0020 **
	-0.10	*-0.12*	*-2.08*	*-2.07*
BTD	-0.1614 ***	-0.1604 ***	-0.1650 ***	-0.1643 ***
	-4.21	*-4.18*	*-4.24*	*-4.22*
PaidPreparer	0.0223 ***	0.0223 ***	0.0227 ***	0.0227 ***
	3.41	*3.41*	*3.49*	*3.48*
Haven	-0.0033	-0.0033	-0.0024	-0.0024
	-0.56	*-0.56*	*-0.40*	*-0.40*
Foreign	-0.2684 ***	-0.2692 ***	-0.2734 ***	-0.2740 ***
	-3.05	*-3.06*	*-3.12*	*-3.13*
Size	0.0043 *	0.0042 *	0.0045 **	0.0045 **
	1.91	*1.88*	*2.02*	*2.00*
Leverage	-0.0316 **	-0.0317 **	-0.0334 ***	-0.0337 ***
	-2.10	*-2.11*	*-2.56*	*-2.58*
ROA	0.1960 ***	0.1952 ***	0.1909 ***	0.1903 ***
	7.48	*7.45*	*7.23*	*7.20*
R&D	-0.0231	-0.0240	-0.0127	-0.0134
	-0.64	*-0.67*	*-0.36*	*-0.38*
BigN	0.0007	0.0008	0.0013	0.0014
	0.09	*0.10*	*0.16*	*0.18*
NOL	-0.0159 ***	-0.0158 ***	-0.0153 ***	-0.0153 ***
	-3.05	*-3.05*	*-2.96*	*-2.96*
LagETR	-0.0011	-0.0011	-0.0018	-0.0017
	-0.13	*-0.13*	*-0.21*	*-0.21*
EquityEarnings	-0.0033	-0.0033	-0.0041	-0.0041
	-0.45	*-0.45*	*-0.56*	*-0.56*
Mezz	-0.0488 **	-0.0485 **	-0.0452 **	-0.0449 *
	-2.08	*-2.06*	*-1.97*	*-1.96*
Litigation	-0.0079	-0.0079	-0.0057	-0.0057
	-1.07	*-1.06*	*-0.78*	*-0.78*
PTDA	-0.0047	-0.0050	-0.0044	-0.0046
	-0.16	*-0.17*	*-0.15*	*-0.16*
CIC	0.0391 ***	0.0393 ***	0.0389 ***	0.0391 ***
	4.32	*4.35*	*4.31*	*4.33*
Adjusted R^2	0.1136	0.1135	0.1135	0.1135
N	9,914	9,914	9,914	9,914

Panel B of Table 5 presents results of estimating the magnitude of proposed deficiency relative to tax savings originally claimed as a function of IRS resource constraints using an OLS regression. T-statistics are presented below coefficient estimates. Continuous variables are winsorized. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Significance is assessed using two-tailed p-values when no signed prediction is made. See Appendix for variable definitions.

TABLE 6

Relation between resource constraints & total settlements

IrsConstraint =	*Enforce_Audited*	*RevAgents_Audited*	*Enforce_Audited*	*RevAgents_Audited*
FirmConstraint =	*KZ*	*KZ*	*TEXT*	*TEXT*
	Coef.	Coef.	Coef.	Coef.
Variable	*t-statistic*	*t-statistic*	*t-statistic*	*t-statistic*
Intercept	1.1195 ***	1.1023 ***	1.1501 ***	1.1303 ***
	17.12	*17.27*	*17.36*	*17.52*
IrsConstraint	0.0521 ***	0.0130 ***	0.0616 ***	0.0155 ***
	3.74	*3.53*	*4.37*	*4.17*
FirmConstraint	-0.0064 *	-0.0065 *	-0.0092 ***	-0.0090 ***
	-1.47	*-1.48*	*-2.99*	*-2.94*
PropDef_TaxSavings	-0.1437 ***	-0.1438 ***	-0.1457 ***	-0.1458 ***
	-5.76	*-5.77*	*-5.88*	*-5.88*
BTD	-0.1290	-0.1337	-0.1729	-0.1782
	-0.82	*-0.85*	*-1.10*	*-1.14*
PaidPreparer	-0.0161	-0.0159	-0.0143	-0.0142
	-0.82	*-0.82*	*-0.74*	*-0.73*
Haven	-0.0129	-0.0129	-0.0063	-0.0063
	-0.63	*-0.63*	*-0.31*	*-0.31*
Foreign	0.0584	0.0624	0.0592	0.0639
	0.22	*0.23*	*0.22*	*0.24*
Size	-0.0387 ***	-0.0383 ***	-0.0376 ***	-0.0373 ***
	-4.69	*-4.65*	*-4.55*	*-4.51*
Leverage	0.0222	0.0222	-0.0154	-0.0154
	0.35	*0.35*	*-0.27*	*-0.27*
ROA	0.5171 ***	0.5214 ***	0.5173 ***	0.5230 ***
	4.83	*4.87*	*4.82*	*4.87*
R&D	-0.1570	-0.1587	-0.0287	-0.0311
	-0.82	*-0.83*	*-0.15*	*-0.16*
BigN	0.0424	0.0410	0.0416	0.0401
	1.44	*1.39*	*1.41*	*1.36*
NOL	-0.0099	-0.0093	-0.0074	-0.0068
	-0.54	*-0.50*	*-0.40*	*-0.36*
LagETR	0.0681 ***	0.0673 ***	0.0645 ***	0.0636 ***
	2.99	*2.96*	*2.84*	*2.81*
EquityEarnings	0.0378 *	0.0380 *	0.0334	0.0336
	1.72	*1.72*	*1.52*	*1.53*
Mezz	0.1670	0.1653	0.1970	0.1948
	1.28	*1.26*	*1.53*	*1.51*
Litigation	-0.0289	-0.0286	-0.0188	-0.0187
	-1.23	*-1.22*	*-0.81*	*-0.81*
PTDA	0.0133	0.0142	0.0124	0.0137
	0.14	*0.15*	*0.13*	*0.15*
CIC	-0.0432	-0.0440	-0.0423	-0.0431
	-1.61	*-1.64*	*-1.59*	*-1.62*
Adjusted R^2	0.0723	0.0717	0.0745	0.0738
N	4,897	4,897	4,897	4,897

Table 6 presents results of estimating the proportion of the proposed deficiency retained by the IRS as a function of IRS and firm-level resource constraints using an OLS regression. T-statistics are presented below coefficient estimates. Continuous variables are winsorized. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Significance is assessed using two-tailed p-values when no signed prediction is made. See Appendix for variable definitions.

TABLE 7

Relation between resource constraints & settlements at the initial examination and upon appeal

Panel A: Settlements following the initial examination

IrsConstraint =	*Enforce_Audited*	*RevAgents_Audited*	*Enforce_Audited*	*RevAgents_Audited*
FirmConstraint =	*KZ*	*KZ*	*TEXT*	*TEXT*
	Coef.	Coef.	Coef.	Coef.
Variable	*t-statistic*	*t-statistic*	*t-statistic*	*t-statistic*
Intercept	1.1901 ***	1.1671 ***	1.2216 ***	1.1960 ***
	15.99	*16.10*	*16.18*	*16.30*
IrsConstraint	0.0760 ***	0.0192 ***	0.0855 ***	0.0217 ***
	4.89	*4.69*	*5.44*	*5.24*
FirmConstraint	-0.0061	-0.0061	-0.0092 ***	-0.0091 ***
	-1.25	*-1.26*	*-2.67*	*-2.62*
PropDef_TaxSavings	-0.1960 ***	-0.1961 ***	-0.1979 ***	-0.1980 ***
	-7.42	*-7.42*	*-7.55*	*-7.55*
BTD	-0.0491	-0.0558	-0.0920	-0.0991
	-0.30	*-0.34*	*-0.56*	*-0.61*
PaidPreparer	-0.0228	-0.0227	-0.0210	-0.0209
	-1.05	*-1.04*	*-0.97*	*-0.96*
Haven	-0.0243	-0.0243	-0.0178	-0.0179
	-1.06	*-1.06*	*-0.78*	*-0.78*
Foreign	0.2497	0.2549	0.2493	0.2553
	0.83	*0.85*	*0.83*	*0.85*
Size	-0.0457 ***	-0.0453 ***	-0.0447 ***	-0.0442 ***
	-4.92	*-4.88*	*-4.78*	*-4.73*
Leverage	0.0354	0.0356	-0.0005	-0.0002
	0.50	*0.51*	*-0.01*	*0.00*
ROA	0.4174 ***	0.4236 ***	0.4162 ***	0.4237 ***
	3.60	*3.65*	*3.58*	*3.65*
R&D	-0.0169	-0.0180	0.1103	0.1081
	-0.08	*-0.09*	*0.52*	*0.51*
BigN	0.0639 *	0.0621 *	0.0632 *	0.0612 *
	1.89	*1.84*	*1.88*	*1.82*
NOL	-0.0020	-0.0013	0.0006	0.0013
	-0.10	*-0.06*	*0.03*	*0.06*
LagETR	0.0548 **	0.0537 **	0.0512 **	0.0501 **
	2.27	*2.23*	*2.14*	*2.10*
EquityEarnings	0.0370	0.0372	0.0326	0.0328
	1.48	*1.49*	*1.31*	*1.32*
Mezz	0.1315	0.1287	0.1604	0.1572
	0.94	*0.92*	*1.16*	*1.14*
Litigation	-0.0216	-0.0213	-0.0114	-0.0113
	-0.86	*-0.85*	*-0.47*	*-0.46*
PTDA	0.0113	0.0129	0.0104	0.0125
	0.11	*0.13*	*0.11*	*0.13*
CIC	-0.0623 **	-0.0634 **	-0.0615 **	-0.0627 **
	-2.04	*-2.08*	*-2.03*	*-2.07*
Adjusted R^2	0.0813	0.0805	0.0833	0.0824
N	4,897	4,897	4,897	4,897

TABLE 7 (continued)

Relation between resource constraints & settlements at the initial examination and upon appeal

Panel B: Settlements following a taxpayer appeal				
IrsConstraint =	*Enforce_Audited*	*RevAgents_Audited*	*Enforce_Audited*	*RevAgents_Audited*
FirmConstraint =	*KZ*	*KZ*	*Text*	*Text*
	Coef.	Coef.	Coef.	Coef.
Variable	*t-statistic*	*t-statistic*	*t-statistic*	*t-statistic*
Intercept	0.5053 ***	0.5163 ***	0.4948 ***	0.5043 ***
	4.12	*4.27*	*3.96*	*4.11*
IrsConstraint	-0.0721 ***	-0.0195 ***	-0.0651 ***	-0.0176 ***
	-2.79	*-2.89*	*-2.51*	*-2.59*
FirmConstraint	-0.0132 **	-0.0134 **	-0.0047	-0.0047
	-1.74	*-1.77*	*-0.84*	*-0.85*
PropDef_TaxSavings	-0.1747 ***	-0.1751 ***	-0.1703 ***	-0.1706 ***
	-5.32	*-5.33*	*-5.18*	*-5.18*
BTD	-0.2523	-0.2360	-0.3257	-0.3121
	-0.69	*-0.65*	*-0.87*	*-0.83*
PaidPreparer	0.0471	0.0474	0.0441	0.0444
	1.48	*1.49*	*1.37*	*1.37*
Haven	-0.0082	-0.0077	0.0028	0.0034
	-0.25	*-0.23*	*0.08*	*0.10*
Foreign	-0.4934	-0.4845	-0.5627	-0.5554
	-1.32	*-1.30*	*-1.53*	*-1.52*
Size	-0.0243 *	-0.0245 *	-0.0246 *	-0.0248 *
	-1.82	*-1.83*	*-1.83*	*-1.84*
Leverage	0.0992	0.0912	0.0309	0.0228
	0.91	*0.83*	*0.29*	*0.22*
ROA	0.0913	0.0728	0.1542	0.1384
	0.42	*0.34*	*0.71*	*0.63*
R&D	-0.8777 ***	-0.8853 ***	-0.7608 ***	-0.7665 ***
	-2.98	*-2.99*	*-2.56*	*-2.58*
BigN	0.0015	0.0028	-0.0056	-0.0046
	0.02	*0.04*	*-0.08*	*-0.06*
NOL	-0.0483	-0.0482	-0.0449	-0.0447
	-1.55	*-1.55*	*-1.44*	*-1.43*
LagETR	0.0203	0.0205	0.0137	0.0139
	0.28	*0.29*	*0.19*	*0.19*
EquityEarnings	-0.0521	-0.0511	-0.0433	-0.0423
	-1.50	*-1.47*	*-1.27*	*-1.24*
Mezz	0.2355	0.2391	0.2725	0.2763
	0.74	*0.76*	*0.86*	*0.88*
Litigation	0.0185	0.0183	0.0141	0.0138
	0.40	*0.40*	*0.31*	*0.30*
PTDA	0.2324	0.2253	0.2245	0.2180
	1.07	*1.04*	*1.04*	*1.01*
CIC	0.0859 **	0.0866 **	0.0889 **	0.0897 **
	2.16	*2.18*	*2.20*	*2.22*
Adjusted R^2	0.0799	0.0809	0.0754	0.0762
N	591	591	591	591

Table 7 presents results of estimating the proportion of the proposed deficiency retained by the IRS following the initial examination (Panel A) and the appeals examination (Panel B) as a function of IRS and firm-level resource constraints using an OLS regression. T-statistics are presented below coefficient estimates. Continuous variables are winsorized. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Significance is assessed using two-tailed p-values when no signed prediction is made. See Appendix for variable definitions.