

Examining IRS Audit Outcomes of Income Mobile Firms

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Keywords: *IRS audit, tax avoidance, international tax, income shifting*

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ABSTRACT:

We develop a measure to identify firms with greater opportunities for tax avoidance through cross-jurisdictional income shifting and other tax-favored activities. We then test whether this “income mobile” tax avoidance is associated with more negative IRS audit outcomes. Results suggest income mobile firms are more likely to be audited and to incur proposed deficiencies by the IRS. However, even conditional upon IRS audit, these firms have fewer claimed tax benefits challenged, retain more tax benefits originally claimed, and sustain lower effective tax rates (ETR) even after additional tax payments. Further tests provide evidence on IRS audit efficiency, the impact of FASB Interpretation No. 48 on IRS audit outcomes, and the ability of lower long-run cash ETRs and larger reserves for tax uncertainty to reflect probable negative IRS audit outcomes. Our contribution is using confidential IRS tax return data to inform the debate over U.S. tax outcomes for income mobile firms.

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1. INTRODUCTION

We examine whether income mobile firms face more negative consequences related to their U.S. tax avoidance than other firms. Income mobile firms have business operations and asset structures that allow them greater flexibility to locate valuable capital in and allocate substantial income to low-tax jurisdictions. Because U.S. tax law allows U.S. corporations to defer taxes on certain income earned abroad, income mobile firms have significant opportunities to legally minimize their explicit U.S. income tax burdens. Yet lawmakers and the business press have increased their attention to income mobile tax avoidance, and researchers often categorize transactions such as transfer pricing and operating in low-tax countries as having a low probability of withstanding IRS scrutiny. We use confidential IRS audit data to examine whether income mobile firms face a greater likelihood of IRS audit or incur more negative outcomes conditional upon being audited.

Income mobile firms could face greater audit probability because the IRS can easily identify tax benefits associated with R&D and foreign operations using either tax return or financial statement information. However, conditional upon audit, income mobile firms may not face more negative outcomes. This conjecture is consistent with the notion that some multinational entities (MNEs) “capture tax rents” by allocating a greater portion of pre-tax returns to low-tax jurisdictions “without incremental risk” (Kleinbard [2012], p.671).¹ Although all MNEs have the opportunity to reduce U.S. tax burdens by shifting income out of the U.S., income mobile firms can strengthen their negotiating position with the IRS by diversifying tax benefits across multiple positions and/or jurisdictions (De Waegenaere, Sansing, and

¹ The concept of risk in the context of income taxes is not well defined. In a recent survey, 67 percent of corporate executives define it as risk of noncompliance with tax laws and 50 percent as unsupportable tax positions or audit risk [KPMG 2011]. We consider negative IRS audit outcomes to be consistent with these practitioner perspectives. Although other views of risk focus on the distribution of outcomes, our study focuses on the level of IRS audit outcomes.

Wielhouwer [2006]). They are also able to take advantage of discretion in setting intercompany prices because their products and services are unique (Birch [1991], De Simone [2015], Frisch and Horst [1989], Hines and Rice [1994], Shackelford, Slemrod, and Sallee [2011]). Therefore, the extent to which income mobile firms sustain claimed tax benefits upon IRS audit is an empirical question.

To date, most research examining tax planning outcomes has used financial statement data because government audit data are confidential (e.g. Dyreng and Lindsey [2009]). For example, researchers often use low long-run cash effective tax rates (ETR) or unrecognized tax benefits (UTB) as proxies for aggressive tax avoidance that represent potentially unfavorable future outcomes (i.e., tax avoidance likely to be overturned upon IRS audit). However, financial statement measures cannot fully differentiate between possible and actual outcomes. Historically low cash ETRs could instead represent favorable historical outcomes (i.e., a history of successful tax avoidance). Further, financial reporting rules and incentives can confound inferences related to accrual measures such as ETRs and UTBs. We overcome these limitations by using confidential data to examine IRS audit outcomes of income mobile tax avoidance.

We begin by developing a measure to identify income mobile firms. We use financial statement data to combine characteristics associated with opportunities for income mobile tax planning including foreign sales, research and development (R&D) expenditures, advertising expenditures, and gross profit margins.² Following the methodology of Bentley, Omer and Sharp [2013], we develop a composite score that uses the quintile rank of these four items plus a bonus for firms in high-tech industries. Importantly, our measure captures multiple dimensions of income mobility and is not based exclusively on a firm being a MNE or operating in a high-tech

² We use publicly available data to construct our measure of income mobility so that its use does not require confidential tax return data.

industry. We validate the score by providing evidence that income mobile firms (i) shift more income to low-tax jurisdictions than other MNEs in response to differential tax rates, (ii) claim larger amounts of U.S. R&D credits on their tax returns, and (iii) claim larger total tax benefits.

We find income mobile firms face a higher rate of IRS audit and proposed adjustments but that the IRS proposes to disallow a smaller portion of tax benefits originally claimed. Further, income mobile firms more successfully defend disputed positions during IRS audit, lose a smaller share of claimed tax benefits, and sustain lower ETRs even after considering audit settlements. The magnitude of net savings (5.4 percent of taxable income) exceeds likely compliance and defense costs, which we are unable to measure. Results suggest that although income mobile tax avoidance is more highly scrutinized by the IRS, this scrutiny does not result in more negative outcomes. Results are robust to restricting our analysis to MNE's, demonstrating that income mobile firms are able to minimize the portion of their worldwide income subject to U.S. tax better than other MNEs. We attribute the relatively smaller settlements of income mobile firms to regulatory ambiguity inherent to transactions such as transfer pricing.

In supplemental analysis, we find that the IRS proposes and collects higher additional taxes per exam day for income mobile firms relative to other firms, suggesting the IRS efficiently deploys its limited resources. We also find evidence consistent with FASB Interpretation No. 48 (FIN 48) permitting the IRS to maintain its efficiency during a time of decreasing budgets. Using financial statement data, we document that income mobile firms report lower long-run cash ETRs and higher UTBs even after controlling for known determinants of both measures. Based on interpretations of these measures from prior literature, this unexplained difference could represent a greater probability of negative future outcomes related

to tax avoidance (e.g., Hanlon, Maydew and Saavedra [2014], Rego and Wilson [2012], Shevlin, Urcan, and Vasvari [2013]). Yet our findings are more consistent with income mobile firms having greater ability to legally exploit opportunities for U.S. tax minimization without incurring more negative IRS audit outcomes. For income mobile firms, low long-run cash ETRs and high levels of UTB are not associated with a loss of claimed tax benefits in the U.S., on average. Finally, in a pooled sample of income mobile and non-income mobile firms, we find no correlation between negative IRS audit outcomes and either low long-run cash ETRs or UTBs.

Our study makes the following contributions to the literature. First, we inform the debate over whether (and the extent to which) income mobile firms reduce their U.S. tax liabilities on global income. Although policy makers and journalists suggest these firms avoid substantial U.S. taxes, research relying on financial statement measures has generally been unable to support this assertion (Klassen and Laplante [2014]). For example, Dyreng and Lindsey [2009] use financial statement measures of global current tax expense to estimate *higher* U.S. tax liabilities for firms with material tax haven operations. The strength of our setting is using confidential IRS audit data to quantify outcomes, finding that audited income mobile firms report lower taxes on their U.S. returns both as filed and after settlement.

Second, we contribute to the literature exploring the determinants and consequences of potential negative tax outcomes and to the literature assessing how well financial statement proxies capture those outcomes (Dyreng, Hanlon, and Maydew [2014], Hanlon et al. [2014], Lisowsky [2010], Mills [1998], Rego and Wilson [2012], Shevlin et al. [2013], Wilson [2009]). By using IRS data, our work is distinct from studies that rely on financial statement proxies. Our analysis of a broad range of tax avoidance also differs from prior studies that develop financial statement prediction models of tax shelter involvement (Lisowsky [2010], Wilson [2009]), a

subset of activities characterized as aggressive by the IRS. Our conclusion that cash ETRs or UTBs can overstate negative IRS audit outcomes is of interest to researchers, policy makers, tax authorities and other financial statement users and suggests a need for better measures of tax planning opportunities in determinants of tax avoidance models.

Third, and related to this point, our measure of income mobility is useful to researchers and policy makers because it identifies firms with similar opportunities for tax avoidance, firms that are well positioned to engage in cross-jurisdictional income shifting, and firms that can sustain higher levels of U.S. tax avoidance. Notably, our measure has incremental explanatory power over its components alone (e.g., R&D, foreign intensity, industry). Brown and Drake [2014] use our measure to identify firms with similar opportunities for tax avoidance and test the effects of network ties on their levels of tax avoidance. Dyreng, Lindsey, Markle, and Shackelford [2015] use the measure to identify firms likely engaged in global income shifting and find that income mobile firms respond less to tax withholding rates when structuring their global supply chains. Dyreng and Markle [2014] and Wagener and Watrin [2014] use our measure to study ex post realizations of income shifting to offer insights into the cost-benefit trade-offs of income shifting. Future research could also use our measure to test a broad range of cross-sectional predictions based on the extent of multinational tax planning.

2. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

Related Literature

Income shifting and mobile income

A broad economics literature highlights the difficulty of taxing mobile capital as jurisdictions struggle to determine the economic source of income (e.g., Gordon and Nielsen [1997], Slemrod and Wilson [2009], Wilson [1999, 2005]). This literature describes income

mobile firms as those whose business operations and asset structures allow them locate valuable capital (e.g., intangible property, processes) in low-tax jurisdictions. These U.S. MNEs can then transfer income from the U.S. to subsidiaries in low-tax jurisdictions to benefit from U.S. deferral of taxes on income earned by foreign corporations.

Increasing globalization and growing tax incentives for U.S. corporations to shift income to lower tax jurisdictions has spurred much research exploring tax-motivated income shifting.³ Several groups are interested in quantifying the amount of income shifted by MNEs, the amount of tax revenue lost as a result, and the extent to which income mobile firms may not pay their “fair share” of taxes. Klassen and Laplante [2012] provide evidence that the incidence of shifting income out of the U.S. increased from 2005 to 2009 due to decreases in regulatory costs faced by U.S. MNEs. However, their study does not speak to whether firms *sustained* U.S. tax benefits claimed. Indeed, Dyreng and Lindsey [2009] note a scarcity of empirical evidence on the extent to which foreign operations affect U.S. MNEs’ federal and worldwide tax rates. Using financial statement data, they estimate that operations in tax havens actually *increase* U.S. tax collections. Dyreng et al. [2014] use financial statement data to document an association between tax avoidance related to research and development activity and reserves for uncertain tax benefits, particularly for firms with tax haven operations. Finally, Dyreng, Hanlon, Maydew and Thornock [2014] provide evidence that MNEs report higher cash ETRs on average relative to domestic firms.

We contribute to this literature by using confidential IRS audit data to assess the extent to which income mobile tax avoidance affects U.S. tax burdens. These data also allow us to speak

³ See, for example, Collins and Shackelford [1998], Collins et al. [1998], De Simone [2015], De Simone, Klassen, and Seidman [2015], Dharmapala and Riedel [2013], Gramlich, Limpaphayom, and Rhee [2004], Grubert and Mutti [1991], Hines and Rice [1994], Huizinga and Laeven [2008], Klassen et al. [1993], Klassen and Laplante [2012], Markle [2014]. Dyreng and Markle [2014] outline the two approaches most commonly used to estimate income shifting and note the limitations of both.

to the notion that income mobile firms are tax dodgers. To the extent income mobile tax avoidance faces higher IRS audit scrutiny, these firms face higher risk of having their positions overturned. However, estimating the extent to which income mobile tax avoidance *withstands* IRS scrutiny allows us to shed light on the relative likelihood of negative outcomes for such firms. Thus, distinct from prior studies, our ability to directly observe IRS audit *outcomes* allows us to distinguish differences between potential and realized negative resolutions of income mobile tax avoidance.

To develop our measure of income mobility, we draw on prior literature establishing that successful income shifting out of the U.S. requires more than foreign sales or presence in a low-tax jurisdiction like a tax haven (Desai, Foley, and Hines [2006], Dischinger and Riedel [2011], Krautheim and Schmidt-Eisenlohr [2011]). For example, the IRS' Transfer Pricing Audit Roadmap identifies R&D activity and location, descriptions of patents, trademarks and other intellectual property, and segmented operational and profitability levels as core business factors that are useful during a transfer pricing review. Further, the subsection of the Internal Revenue Manual dealing with transfer pricing audits suggests IRS agents compare key financial ratios, including gross profit percentage, within industries as a pre-audit technique. We draw on the academic income shifting literature, tax authority procedures, and institutional knowledge to identify four fundamental firm-level measures that, along with industry membership, can be used to classify firms as "income mobile."

First, a large global footprint allows firms to locate key components of their operations in low-tax jurisdictions and lay the foundation for shifting income. For example, firms with high foreign sales have both the incentive and the opportunity to structure foreign operations to serve

their global market base while optimizing tax burdens.⁴ Thus, although some U.S. MNEs still engage in substantial export sales from the U.S. direct to foreign customers, the modern multinational business structures its supply chain in a tax-efficient way to take advantage of U.S. deferral of taxation on foreign earnings. For example Caterpillar, historically known for its export sales structure, recently made headlines for transferring its international parts distribution division to a wholly-owned Swiss subsidiary to mitigate its worldwide tax burden (McCoy [2014]). Consistent with foreign operations providing more opportunities for tax avoidance, Mills, Maydew, and Erickson [1998] find that firms with foreign assets (based on firm-level survey data) spend more on tax planning.

Significant R&D and advertising expenditures amplify opportunities for income shifting and worldwide tax avoidance. First, firms can locate the valuable intellectual property created through R&D and advertising expenditures in low-tax jurisdictions and charge royalties to affiliates for its use. This allows companies to shift gross income to low-tax jurisdictions while allocating expenses to high-tax jurisdictions.⁵ Second, many countries provide tax incentives for R&D activities and the economics literature notes that R&D activities are increasingly exported to foreign jurisdictions (e.g., Abramovsky, Griffith, and Macartney [2008], Griffith and Bloom [2001]). Intellectual property derived through R&D and advertising increases profitability through patent, trademark and copyright protections. Thus, gross profit margin is an ex post

⁴ We use foreign sales to capture foreign activity for three reasons. First, although prior research used foreign assets to capture the extent of firms' foreign operations because that measure was not confounded by foreign export sales, foreign assets are not as widely reported as they were in the past. For example, Oler, Shevlin, and Wilson [2007] report that only 19 percent of their sample discloses foreign assets. Second, recent studies that estimate foreign assets (e.g., Campbell, Dhaliwal, Krull, and Schwab [2014]) often rely on foreign sales to develop their estimates. Third, we are interested in capturing intellectual property, and any available measure of foreign assets likely understates the value of internally-developed intellectual property.

⁵ Further, R&D and advertising activities often generate substantial expenses related to administrative support, such as legal costs associated with patent and trademark applications and defense. Firms can provide such administrative services in low-tax jurisdictions and charge fees to affiliates in high-tax jurisdictions with a mark-up. Harris [1993] suggests that an important income shifting mechanism is the flexibility of income and expense, and considers firms as highly flexible if they report large amounts of interest, research and development, rent, and advertising.

measure of the value of intellectual property. Firms with unique products that generate high gross margins have more flexibility to avoid tax through strategic transfer pricing, because tax authorities find it difficult to obtain comparable arm's-length prices to challenge the taxpayer. Finally, industry provides an added indication of income mobility because technological innovations that create intellectual property are more common in certain industries.⁶

Hypothesis development

The primary aim of this study is to provide evidence on negative IRS audit outcomes of income mobile firms. Kleinbard [2012] argues that an economically significant portion of income mobile tax avoidance occurs through legal channels, suggesting that although there may be some uncertainty about the exact amount of tax benefit sustained, income mobile firms can exploit opportunities for greater tax savings without incurring incremental negative tax outcomes.⁷ De Waegenaere et al. [2006] theorize that inconsistency in transfer pricing rules across countries can actually decrease the taxpayer's expected tax liability. Similarly, anecdotal evidence suggests that taxpayers claiming multiple positions within a jurisdiction negotiate with tax authorities upon audit and concede benefits claimed on one position to maintain others. It is therefore possible that claiming multiple positions within and across jurisdictions allows income mobile firms to sustain a greater portion of their tax avoidance.

However, the IRS heavily scrutinized income mobile tax avoidance for much of our sample period. In 2003, the IRS issued proposed transfer pricing service regulations, which became final in 2006, that impose stringent rules and documentation requirements for the pricing of intercompany services. In addition, the IRS made multiple changes to the cost-sharing

⁶ Dyreng et al. [2008] document low long-run cash ETRs tend to cluster in certain industries. Our measure of income mobility identifies firms with low long-run cash ETRs based on multiple dimensions that include industry.

⁷ Additionally, although the focus of this study is the risk of having a position overturned in the U.S., we note that by claiming tax benefits across multiple tax positions and jurisdictions, income mobile firms can potentially diversify away a significant portion of their global tax authority audit risk.

agreement regulations since 2005, limiting the ability of U.S. MNEs to use these arrangements to transfer valuable intellectual property to low-tax jurisdictions. These regulations and subsequent litigation provide additional fodder for tax examiners. The IRS is also dedicated to making transfer-pricing audits a priority. In a December 2008 speech, IRS commissioner Doug Schulman named transfer pricing as one of the three most important international issues the IRS is addressing. In December 2010, he announced that the IRS would establish a “Transfer Pricing Practice” to administer transfer pricing policies. The move was finalized in 2012 when the IRS created Director level positions for International Business Compliance and Transfer Pricing.⁸ Similarly, R&D credits became a Tier 1 issue in 2007 and the IRS created a separate department to audit these tax credits. Due to competing predictions, we design tests of the following hypothesis, stated in the null form.

Hypothesis: *Income mobile firms achieve similar IRS audit outcomes relative to other firms.*

3. RESEARCH DESIGN

Sample Selection

We begin with a sample of Compustat firms from 1999-2012 because IRS examination data are best populated for those years. Following Dyreng, Hanlon, and Maydew [2008], we eliminate REITs (SIC=6798) and any firm with “LP” or “Partners” in the name to remove flow-through entities not subject to entity level income tax. We also eliminate observations lacking data necessary to calculate long-run cash ETR as well as observations with missing or zero assets or pre-tax income, and observations with non-positive sales. The resulting sample consists of 25,290 firm-year observations representing 7,175 firms. Table 1 describes this sample, which we

⁸ See www.transferpricing.com/ustransferpricing for a summary of news related to US enforcement of international transactions since 2003.

use to classify firms as having mobile income or not. To test our hypotheses, we match these 25,290 firm-years to IRS databases for Large Business & International taxpayers (i.e., U.S. taxpayers with total asset size greater than or equal to \$10 million) that contain tax return information as well as information on IRS examinations and appeals.⁹

[Insert Table 1 here.]

Sample firms are large and profitable with mean (median) pre-tax income of \$398M (\$59M). These firms also appear to have significant growth opportunities as suggested by an average market-to-book ratio of 2.82 and positive three-year sales growth. Table 1 also provides descriptive statistics on the variables we use to construct our measure of income mobility as outlined below.

Constructing a Measure of Income Mobility

Broadly following the methodology of Bentley et al. [2013], we classify firms as income mobile based on quintile rankings of foreign sales, R&D, advertising and profit margin, and membership in a high-tech industry. We rank all observations by year based on R&D and advertising expense, both scaled by assets. Consistent with prior literature (e.g., Core, Guay, and Buskirk [2003], Demers and Lev [2001]), we intend these expenditures to capture firm-level investments in intangible assets that might not be capitalized for book purposes. We also rank observations by year based on foreign sales as a percent of total sales, and by gross profit margin. We set missing values of R&D and advertising expense to zero when ranking. We also set missing foreign sales to zero when the firm does not report any foreign pre-tax income.

⁹ Specifically, we match our 25,290 firm-years to the following confidential IRS databases: the Business Returns Transaction File (BRTF), which contains data from Corporate Federal Income Tax Form 1120; the Audit Information Management System (AIMS), which contains data on IRS examinations; and the Enforcement Revenue Information System (ERIS), which contains data on payments received as a consequence of an IRS examination or subsequent proceedings. We require Employer Identification Number (EIN) to match between the tax return and the SEC 10-K and the book and tax years to be the same.

We partition observations into quintiles based on each of these four dimensions with observations in the top quintile of each characteristic receiving a score of four, etc. We sum these scores and then add four if the observation is from a high-tech industry (i.e., in three-digit SIC codes 283, 357, 360-368, 481, 737, and 873 following Core et al. [2003] and Francis and Schipper [1999]), and zero otherwise. Each firm-year observation obtains a score ranging from zero to 20, with higher scores representing more income mobility. We set *IncomeMobile* to 1 if the observation has a total score in the top quintile by year. Once we characterize a firm as income mobile, we set *IncomeMobile* to 1 for all subsequent years.

Characteristics of Income Mobile Firms

Table 2 presents information about income mobile firms. Panel A shows the percentage of observations in each component of income mobility that our measure classifies as income mobile. Conversely, Panel B shows the percentage of income mobile observations by component. For example, 79 percent of observations in the top quintile of R&D expense (*High_R&D*) are classified as income mobile, and 65 percent of income mobile observations are in the top quintile of R&D expense. We note that 65 percent of the income mobile firms come from high-tech industries and over one-third of income mobile firms operate in other industries. This descriptive analysis underscores the importance of considering these characteristics in tandem when constructing a measure of income mobility.

[Insert Table 2 here.]

Panel C shows the distribution of income mobile firms by industry using the Fama-French 30 industry groups. The largest percent of income mobile firms (37 percent) comes from the Business Equipment industry group. Another 17 percent each come from Healthcare and

from Personal and Business. Income mobile firms come from nearly all of the other Fama-French 30 industry groupings, many of which do not include high-tech industries.

Validating our measure of income mobility

We intend for our income mobility measure to capture a set of firms with opportunities for strategic cross-jurisdictional income shifting and exploiting other tax incentives such as research and development credits. We then test whether income mobile firms face incremental negative IRS audit outcomes. We validate each component of the measure as follows. First, to validate that income mobile firms shift more income out of the U.S. to low-tax foreign jurisdictions than other firms, we adapt the research design from Collins, Kemsley and Lang [1998] to estimate cross-sectional differences in tax-motivated income shifting. We acknowledge that this approach tests only for income shifting across the U.S. border and not among foreign jurisdictions. However, because our focus is on IRS audit outcomes, which are inherently focused on shifting income from the U.S. to foreign jurisdictions, we believe this methodology provides a reasonable validation that income mobile firms aim to minimize U.S. tax liabilities by shifting income out of the U.S. in response to differential tax rate incentives. Focusing on the subset of firms with the potential to shift income out of the U.S. (i.e., observations with non-missing and non-zero foreign sales), we estimate foreign return on sales (foreign pre-tax income / foreign sales) as a function of worldwide return on sales, income mobility, and the firm's average foreign tax rate (*FTR*), which is a proxy for tax incentives to shift income. We estimate equation (1) below using OLS and clustering standard errors by firm.¹⁰

¹⁰ Results are robust to clustering standard errors by firm and year. Conducting an analysis of tax-motivated income shifting on the entire sample would bias towards finding that income mobile firms shift more income, because they are more likely to have the opportunity to shift income by construction. We therefore first identify the sub-sample of 12,965 firm-year observations with foreign sales and use the approach in the Constructing a Measure of Income Mobility section to characterize firms in this sub-sample as income mobile. We estimate Equation (1) on this sub-sample. Consistent with Collins et al. [1998], we calculate the foreign tax rate (*FTR*) as total foreign taxes (*TXFO* and *TXDO*) scaled by total foreign pre-tax income (*PIFO*).

$$(1) \quad FOR_ROS = \beta_0 + \beta_1*WW_ROS + \beta_2*IncomeMobile + \beta_3*IncomeMobile*FTR + \beta_4*Non_IncomeMobile*FTR + YearFE + \varepsilon$$

Table 3 presents the results of this validation test. The interaction between *IncomeMobile* and *FTR* captures the extent to which income mobile firms incrementally shift income out of the U.S. in response to tax incentives. We find that $\beta_3 > 0$ (estimated β_3 of 0.1338, p-value < 0.01) and $\beta_3 > \beta_4$ (difference = 0.0527, F-test < 0.0001), which suggests that income mobile firms shift more income out of the U.S. than other firms in response to tax rate differentials.¹¹ This analysis supports our conjecture that income mobile firms have opportunities to minimize income taxes by structuring operations to support tax-motivated income shifting.

[Insert Table 3 here.]

Second, we examine whether firms we classify as income mobile report larger R&D tax credits on their U.S. tax returns. Table 4 shows income mobile firms have significantly higher R&D credits as a percent of taxable income than other firms: 4.7 percent versus 1.2 percent (p-value < 0.01). This suggests that the average income mobile firm claims over \$114M in R&D credits versus only \$2M for the average non-income mobile firm. Finally, Table 4 provides descriptive statistics of federal tax return variables based on income mobility and shows income mobile firms report mean effective tax rates that are lower than other firms. This pattern holds whether we scale taxes paid on the return (*TaxOnReturn*) by *TaxableIncome* or by worldwide pre-tax income as reported in Compustat. Income mobile firms also achieve a significantly higher level of *Savings*, which we measure as the difference between 35 percent of worldwide pre-tax income and *TaxOnReturn*. These statistics validate our assertion that income mobile firms claim greater levels of tax benefits on their U.S. tax returns than other firms.

¹¹ We note that the main effect of *IncomeMobile* is negative and significant, consistent with implicit taxes reducing returns on average in foreign jurisdictions where income mobile firms operate.

Our primary measures use worldwide pre-tax book income as the scalar or benchmark to compute *Savings* for two main reasons. First, we believe one of the primary ways income mobile firms are able to minimize U.S. taxes is by allocating a greater portion of worldwide income to low-tax jurisdictions. Using domestic pre-tax income or U.S. taxable income would therefore understate the U.S. tax benefits of income mobility, which is our area of interest. Second, using worldwide pre-tax book income allows us to better reconcile our results to prior literature [e.g., Dyreng and Lindsay 2009]. We make no adjustment for foreign taxes paid in our *Savings* measure because we are strictly interested in taxes saved in the U.S. We discuss how this design choice affects results and inferences in Section 6.

[Insert Table 4 here.]

Hypothesis Tests

Prior research guides our research design of tests to examine IRS scrutiny and audit outcomes of income mobile firms. For tractability, many analytic models examining strategic taxpayer-tax authority interactions consider probabilities and additional taxpayer costs upon audit, normalizing the setting to binary conditions and binary outcomes (e.g., Crocker and Slemrod [2005], De Simone and Sansing [2015], De Simone, Sansing and Seidman [2014], Mills, Robinson and Sansing [2010], Mills and Sansing [2000]). The empirical literature in tax compliance uses measures of whether an audit occurs and proposed deficiencies following the examination (Mills [1998], Mills and Sansing [2000], and Hanlon, Mills and Slemrod [2007]). We therefore first test whether income mobile firms face a higher likelihood of audit or positive proposed deficiencies using the following logistic model.

$$(2) \quad \text{Prob}(IRSAuditScrutiny) = F(\beta_1 * IncomeMobile + \beta_2 * PT_ROA + \beta_3 * Size + \beta_4 * NOL + \beta_5 * Leverage + \beta_6 * DiscAcc + \beta_7 * Big5 + \varepsilon)$$

We measure *IRSAuditScrutiny* using two binary outcome variables: *Audit* and *DefGTZero*. *Audit* is an indicator variable equal to one if the IRS audits the tax return for that fiscal year, zero otherwise.¹² Within the subsample of firms for which *Audit* = 1 and the audit is completed, *DefGTZero* is an indicator variable equal to one if the IRS proposes additional taxes due upon audit. *IncomeMobile* is as defined above, and β_I is our variable of interest. H1 predicts $\beta_I = 0$ suggesting no differential level of IRS audit scrutiny for income mobile firms.

Control variables come from Lisowsky [2010], Mills [1998] and Wilson [2009], and include profitability (*PT_ROA*) measured as worldwide pre-tax income scaled by assets and *Size* as the natural logarithm of total sales. *NOL* is total tax loss carryforwards reported in the financial statements, scaled by assets. *Leverage* is total debt scaled by assets and controls for debt tax shields that reduce the marginal tax benefits of tax avoidance. *DiscAcc* is performance-adjusted discretionary accruals using the Modified Jones model. Both Lisowsky [2010] and Wilson [2009] find a positive association between discretionary accruals and tax shelter incidence. *Big5* is an indicator variable equal to one if the financial statement auditor is Arthur Anderson, Deloitte, EY, KPMG or PwC and captures access to marketed tax shelters and other aggressive tax planning strategies (Lisowsky [2010]). When estimating Equation (2), we cluster standard errors by firm.¹³

In addition to the binary outcomes of audit selection and the IRS' decision to propose a deficiency, we are also interested in whether the inherently ambiguous tax positions of income

¹² Although many of the largest firms in the U.S. are under continuous audit by the IRS, because we match over 14,675 firm-years from Compustat to the IRS Audit Information Management System (AIMS) database, we expect the average incidence of audit in our sample to be below 100 percent. Our results are consistent with this expectation, and our controls for size and complexity should capture many features of the CIC "points" system disclosure in Internal Revenue Manual 4.24.5.1 and IRM Exhibit 4.46.2-2.

¹³ The version of SAS software installed on IRS computers (which must be used to access and analyze any confidential taxpayer data) does not allow two-way clustering of standard errors. We do not include fixed effects when estimating the main specifications of any nonlinear models, following Greene [2004]. However, in robustness tests we include year fixed effects to be consistent with our other analyses.

mobile firms give rise to more negative outcomes conditional upon audit. We therefore also explore continuous IRS audit outcome measures, motivated by prior empirical literature in tax compliance. *SavingsAtRisk* is the amount of the proposed deficiency during IRS examination, scaled by *Savings*, previously defined as 35 of worldwide pre-tax income, less tax after credits on the return. Because proposed deficiencies rarely increase during the appeals process, this ratio represents the worst-case outcome taxpayers face as a result of audit and potentially speaks to the relative defensibility of various types of tax avoidance. A lower ratio suggests that the IRS judged a greater portion of benefits originally claimed on the tax return to be compliant. We construct *SavingsAtRisk* only for the subsample of 4,062 firms for which both *Audit=1* and *DefGTZero=1*. We estimate Equation (3) below using pooled OLS regressions.

$$(3) \quad IRSAuditScrutiny = \beta_1 * IncomeMobile + \beta_2 * PT_ROA + \beta_3 * Size + \beta_4 * NOL + \beta_5 * Leverage + \beta_6 * DiscAcc + \beta_7 * Big5 + \beta_8 * LogExamTime + YearFE + \varepsilon$$

Finding β_1 less than (greater than) zero would be consistent with income mobile firms having a smaller (greater) percentage of their claimed benefits being at risk of repayment.

Our second set of tests focus on audit outcomes. We re-estimate Equation (3) using three measures of *IRSAuditOutcome* based on IRS audit and payments data, which we derive from the empirical literature on tax compliance (e.g., Hanlon et al. [2007], Mills [1998], Mills and Sansing [2000]). First, we calculate the amount of additional taxes paid by the taxpayer after appeals and counsel divided by the amount of the disputed deficiency (*Settle%*).¹⁴ We calculate *Settle%* only for the taxpayers who are audited, receive a proposed IRS deficiency, refuse to pay the deficiency in full during exam, and complete the appeals and counsel processes. This

¹⁴ In tabulated results, we drop any observations of the IRS ratio variables less than zero or greater than one to eliminate outliers. In untabulated analysis, we confirm results are robust to winsorizing these extreme observations at zero and one.

measure represents how successfully the taxpayer defends its contested, or most ambiguous, positions during the appeals and counsel phase of audit.

Second, we capture the total amount of taxes paid, including payments to the IRS during examination, appeals and counsel, scaled by taxable income (*AdjETR*). This measure represents the ratio of taxes paid to taxable income after considering additional payments required as a result of IRS enforcement. Finally, we calculate *SavingsLost* as the percentage of tax benefits originally claimed that the taxpayer loses during the audit process. This measure captures unsustained tax avoidance.¹⁵ Finding β_l less than (greater than) zero would be consistent with income mobile firms having a smaller (greater) percentage of their claimed benefits lost upon IRS audit. When estimating Equation (3) we control for IRS resources using *LogExamTime* and expect taxpayer benefits retained to be decreasing in IRS effort. We include year fixed effects and cluster standard errors by firm.

4. RESULTS

Univariate Analysis

Table 4 Panel A provides descriptive statistics for IRS audits. Because not all tax returns are audited and because not all audited returns involve appeals, the sample size changes based on the number of observations available in each IRS database for each stage. The most comprehensive match is between the Compustat sample of 25,290 we use to identify income mobile firms and the IRS database of filed tax returns, providing 23,091 observations. We then limit the sample to 20,220 firms for which we have definitive data on whether or not they were audited, and we observe that 10,140 audits were completed. Of the completed audits, we retain

¹⁵ Because prior literature rarely documents corporate penalties collected by the IRS, we ignore penalties in our measures of IRS audit outcomes (Hanlon et al. [2007], Mills [1998], Mills and Sansing [2000]). To measure the IRS' cost of audit, in additional analyses we investigate the time spent on examination and compute the deficiencies and collections relative to that time spent as a measure of efficiency.

4,347 observations with positive proposed deficiencies and we have settlement data on 1,438 that appealed at least part of the proposed deficiency.

We also show how IRS audits differ between firms that are income mobile and those that are not. Although the IRS audits 50 percent of all our sample firm-years matched to the Audit Information Management System (AIMS) database, the rate is significantly higher for income mobile firms.¹⁶ Additionally, income mobile firms receive a proposed adjustment 47 percent of the time upon audit, which is statistically greater than the 43 percent rate for our other firms. On average, the IRS proposes a deficiency of \$23M for income mobile firms and only \$12M for non-income mobile firms. In the aggregate, these deficiencies total over \$29B for income mobile firms. Although income mobile firms comprise only 29 percent of the sample of firms receiving a non-zero deficiency, their proposed assessments comprise 44 percent of all proposed deficiencies.

When we compare proposed deficiencies as a percentage of *Savings*, a different pattern emerges. On average, IRS proposed deficiencies as a percent of originally claimed savings (*SavingsAtRisk*) are significantly lower for income mobile firms (11.4 percent) than non-income mobile firms (14.5 percent). Although income mobile firms in our sample claim total U.S. savings on worldwide book income of \$849B, the estimated portion at risk due to IRS audit is only \$97B. Further, the variance in *SavingsAtRisk* is lower for income mobile firms with an (untabulated) interquartile range of 3 percent to 75 percent versus 6 percent to 100 percent for

¹⁶ This audit probability is higher than that observed in the total population of firms, because our sample is composed of profitable firm-years ($PI > 0$) from large, complex publicly traded corporations. Ayers, Towery and Seidman [2015] estimate a model of Coordinated Industry Cases (that are under nearly-continuous audit) that successfully fits (>90% explanatory power) the characteristics of asset size, receipts size, foreign income, numbers of entities and other complexity factors the IRS' Internal Revenue Manual use as a basis to include companies in this program.

non-income mobile firms. Thus, it appears that both the magnitude and volatility of potential negative outcomes is lower for income mobile firms.

Next, we examine audit outcomes. Within the subsample of firm-years disputing a proposed deficiency, income mobile firms settle disputed amounts for less than non-income mobile firms, on average. Again, the untabulated interquartile range of outcomes is smaller for income mobile firms, ranging from zero to 21 percent versus zero to 36 percent for non-income mobile firms. Further, even after completion of the audit process, income mobile firms have mean (median) effective tax rates that are 5.4 percent (5.9 percent) lower than non-income mobile firms. Income mobile firms also report lower mean *SavingsLost* (6.7%) than non-income mobile firms (9.2%). Taken together, these univariate tests provide preliminary evidence that income mobile firms more successfully defend and sustain their tax positions upon audit relative to other firms.

Finally, we examine whether the IRS devotes more resources to auditing income mobile firms and whether those resources are deployed efficiently. We find that the IRS spends significantly more time auditing income mobile firms, with the average exam time for an audit of an income mobile firm lasting 296 person-days longer than for a non-income mobile firm. This resource allocation appears logical given we estimate that aggregate collections from income mobile firms after audit are approximately \$0.42B larger than for non-income mobile firms. However, we find no difference in the average rate of additional tax dollars proposed or collected per hour of audit time between income mobile and non-income mobile firms.

Table 4, Panel B shows tests of mean and median differences for financial statement measures of tax avoidance and control variables. Income mobile firms have lower cash ETRs and higher UTBs consistent with them engaging in more tax avoidance in general and in more

uncertain tax avoidance. Income mobile firms are more profitable but smaller than non-income mobile firms. Their higher level of net operating losses, in spite of higher profitability, is consistent with evidence in Mills, Newberry and Novack [2003] and Graham and Mills [2008] that MNEs often have non-U.S. jurisdictional NOLs that should not be interpreted as a signal of low marginal tax rates in the U.S. Income mobile firms have much less leverage than other firms, consistent with such firms having greater cash resources (Foley, Hartzell, Titman and Twite [2007]), have lower discretionary accruals, are more likely to engage a Big5 auditor, and have higher market-to-book ratios and SG&A expenses.

Multivariate Analysis

Table 5, Panel A presents our first multivariate tests of H1 and focuses on IRS audit scrutiny. Consistent with univariate results, the estimates across the first two columns suggest a higher amount of IRS scrutiny for income mobile firms. Specifically, within the sample of firm-years matched to the IRS audit database, income mobile firms are more likely to be audited and assessed a proposed deficiency relative to non-income mobile firms. Income mobility corresponds to a marginal effect of audit (proposed deficiency) of 8.5 (3.1) percent, which represents an approximate 18.1 (7.8) percent increase in the probability of IRS audit (proposed deficiency) relative to the base rate. However, we estimate that proposed deficiencies as a percentage of U.S. savings (*SavingsAtRisk*) are 2.6 percentage points lower for income mobile firms, all else equal.¹⁷ Using mean *Savings* of income mobile firms, the IRS proposes to disallow \$1.9 million less in originally claimed benefits for the average income mobile firm during exam. Aggregating this figure across all income mobile firms in this sample, we estimate that income mobile firms claim \$2.4 billion more in tax benefits than non-income mobile firms that go

¹⁷ As noted, we use worldwide pretax income to compute our denominator, *Savings*, because we are focused on tax not being paid to the U.S. Our multivariate results on *SavingsAtRisk* are robust to limiting our sample to MNEs.

unchallenged by the IRS. These findings suggest the IRS agrees that many of the benefits claimed by income mobile firms are allowable under the law. In untabulated tests, we find these results are robust to controlling for the IRS' own audit selection score, DAS. In addition, all results are robust to controlling for *CETR5*, the sum of taxes paid in years $t-4$ through t scaled by the sum of pre-tax income in years $t-4$ through year t . Estimated coefficients on control variables suggest that larger and more profitable firms are more likely to be audited or assessed a proposed deficiency by the IRS but that proposed deficiencies for these firms are a smaller share of their total tax benefits claimed.

[Insert Table 5 here.]

Table 5, Panel B presents our second set of results of testing H1 and focuses on IRS audit outcomes. We see that income mobile firms settle a smaller share of disputed positions and lose a smaller portion of claimed tax benefits throughout the audit process. In Column (1) where the dependent variable is *Settle%*, we estimate a negative coefficient of -0.0513 (p-value = 0.0532) on *IncomeMobile*. This result suggests that income mobile firms more successfully defend contested positions that the IRS attempts to overturn upon audit. In Column (2) where the dependent variable is *AdjETR*, we estimate a coefficient of -0.0495 (p-value < 0.001) on income mobility. Thus, even after the entire audit process is complete, income mobile firms report effective tax rates on their tax returns that are approximately five percentage points lower than non-income mobile firms. In Column (3), we estimate the association between income mobility and *SavingsLost*. Our estimate of -0.0176 (p-value = 0.0095) on *IncomeMobile* indicates that income mobile firms lose fewer claimed tax benefits upon audit. Results are robust to controlling for *CETR5*. Results in Panel B collectively reveal that income mobile are more successful in

sustaining their claimed tax positions upon audit. These results dispute the notion that income mobile tax avoidance bears greater negative IRS audit outcomes.

5. ADDITIONAL TESTS AND ROBUSTNESS

IRS Efficiency

Descriptive statistics in Table 4 show that the IRS devotes more time to auditing income mobile firms. We examine IRS audit efficiency to determine whether the additional resources are appropriately deployed. Specifically, we estimate the following pooled OLS regression:

$$(4) \quad \text{AuditEfficiency} = \beta_1 * \text{IncomeMobile} + \beta_2 * \text{PT_ROA} + \beta_3 * \text{Size} + \beta_4 * \text{NOL} + \beta_5 * \text{Leverage} + \beta_6 * \text{DiscAcc} + \beta_7 * \text{Big5} + \beta_8 * \text{LogSavings} + \text{YearFE} + \varepsilon$$

We measure *AuditEfficiency* two ways. *LogExamEff* is the natural logarithm of the ratio of proposed deficiencies to total person-days of examination time and reflects the magnitude of tax benefits the IRS attempts to disallow given the IRS' investment of audit resources. *LogEnforceEff* is the natural logarithm of the ratio of dollars collected during exam, appeals and counsel to total examination time, which captures the total collected payoff to audit resources. When estimating Equation (4) we include the natural logarithm of *Savings* to control for the possibility that IRS efficiency is affected by the magnitude of originally claimed tax benefits. We also include year fixed effects and cluster standard errors by firm.

Panel A of Table 6 shows both *LogExamEff* and *LogEnforceEff* are significantly, positively associated with *IncomeMobile*, suggesting that the IRS both proposes and collects higher additional taxes per exam day for income mobile firms relative to other firms. Thus, the IRS' average return from auditing income mobile firms is higher relative to those for non-income mobile firms, supporting the IRS' economic rationale for a higher audit rate and longer exam times for these firms. These results corroborate our conjecture that the lower settlement ratios for

income mobile firms are attributable to the inherent ambiguity in the types of tax benefits they claim and not to an inefficient allocation of IRS resources.

[Insert Table 6 here.]

Effects of FIN 48

The FASB issued FASB Interpretation No. 48 (FIN 48) in part to increase financial statement transparency of uncertain tax avoidance by requiring firms to disclose the total magnitude of uncertain tax benefits. Because the IRS also observes these disclosures, many practitioners voiced concerns that FIN 48 would provide a roadmap to tax authorities and help them improve audit outcomes. Towery [2015] documents that transfer pricing and R&D credits are two of the most common uncertain tax positions reported on U.S. tax returns. Anecdotal evidence suggests these two types of positions also comprise a substantial portion of firms' UTBs reporting in financial statements. We therefore test whether FIN 48 changed the IRS' ability to identify uncertain tax avoidance and/or its ability to assess additional taxes, particularly for income mobile firms.

We re-estimate our regressions and include an indicator variable for *PostFIN48*. The coefficient on *PostFIN48* tests the average effect of these increased financial statement disclosures on all firms. We interact *PostFIN48* and *IncomeMobile* to test whether there is a differential time series effect for income mobile firms. Panel B of Table 6 reports these results. We estimate a lower overall rate of audit after the effective date of FIN 48, on average, consistent with continued declines in IRS budgets (GAO [2014]). We find no evidence of a differential effect of FIN 48 on income mobile firms, suggesting that even with limited budgets the IRS kept its attention on these firms. However, we do find some evidence that the likelihood of the IRS assessing additional taxes upon audit increased for income mobile firms after FIN 48

relative to before, although income mobile firms still face a lower probability of a deficiency than other firms. Column (3) uses *Settle%* as the dependent variable. Although the main effect of *IncomeMobile* is insignificant, we estimate negative and significant coefficients on *PostFIN48* and *IncomeMobile*PostFIN48*. These results suggest that both income mobile and non-income mobile firms actually *improve* their ability to defend against proposed deficiencies after FIN 48, and income mobile firms retain a greater percentage of proposed deficiencies. These findings are consistent with firms entering into less uncertain tax positions after FIN 48 and/or firms being better prepared to substantiate and defend claimed uncertain positions. Column (4) reveals no change after FIN 48 in income mobile firms' ability to sustain a lower ETR even after IRS adjustments. In Columns (5) and (6), we find some evidence that the IRS assesses greater deficiencies per day of audit after FIN 48 but no increase in collections or in firms' after-audit tax return ETRs. Thus, it does not appear from these tests that FIN 48 enhanced the IRS' ability to overturn uncertain tax positions among large, public firms. On the other hand, one could interpret this evidence as suggesting that FIN 48 permitted the IRS to maintain its same level of efficiency even during a time of decreasing budgets.

Financial Reporting Measures of Probable Negative Tax Outcomes

Finally, we examine how well financial statement proxies for potential negative tax outcomes explain IRS audit outcomes for income mobile firms and for our full sample. As the concept of negative tax outcomes becomes more salient to corporate managers and shareholders, researchers have begun to explore the determinants and consequences of potential negative tax outcomes. Rego and Wilson [2012] provide evidence that executives' risk incentives are positively associated with a tax shelter prediction score, reserves for unrecognized tax benefits (UTBs), and low long-run cash effective tax rates (ETR). Hanlon et al. [2014] find that firms

with higher UTBs and lower long-run cash ETRs hold larger amounts of cash, presumably to satisfy expected future tax obligations upon tax authority audit. Shevlin et al. [2013] conjecture that tax avoidance leads to elevated probabilities of IRS audits, penalty and interest charges, and find a negative association between long-run GAAP and cash ETRs and bond offering yields. Neuman [2014] studies firms' choices to focus on either minimizing cash taxes paid or achieving consistent tax outcomes. These studies collectively suggest that greater levels of tax avoidance yields greater probable negative tax outcomes and presume that financial statement measures such as long-run ETRs and UTBs accurately reflect this risk.

Although a low long-run cash ETR reflects high levels of recent explicit tax avoidance (net of cash payments for detected noncompliance for prior years), it is unclear that it predicts probable negative IRS audit outcomes. Particularly in periods of growth or strong stock price performance, low long-run cash ETRs can reflect tax benefits related to bonus depreciation or share-based compensation, neither of which are likely to be disallowed upon audit. In periods of poor economic performance, low long-run cash ETRs can represent refund claims for previously paid taxes. Indeed, low long-run cash ETRs may instead be evidence of a period of successful tax avoidance, particularly for the largest complex firms subject to continuous audit [Saavedra 2015]. Thus, whether low cash ETRs represent probable negative IRS audit outcomes is an empirical question.

UTBs have similar limitations. Lisowsky, Robinson and Schmidt [2013] correlate disclosed UTBs with tax shelters, consistent with these disclosures reflecting the most aggressive types of tax avoidance. However, the measurement and recognition criteria of FIN 48 tend to cause reserves to be overstated relative to future cash tax payments required to resolve uncertainty. Robinson, Stomberg and Towery [2016] use financial statement disclosures to

estimate that firms pay less than 25 cents of each dollar of UTB upon settlement with U.S. tax authorities.¹⁸ Further, the UTB is subject to managers' judgments and discretion; De Simone, Robinson, and Stomberg 2014 show managers record materially different UTBs for the same transaction. Robinson and Schmidt [2012] and Towery [2015] find managers reduce the level of disclosed UTBs after the implementation of Schedule UTP without reducing the level of tax avoidance. These studies collectively suggest that managers have latitude under FIN 48 to manipulate reserves. It is therefore unclear to what extent the low UTB payout ratio documented in Robinson et al. [2016] reflects low IRS audit enforcement or financial reporting choices managers make when accruing these reserves.

Recall that Panel B of Table 4 documents that income mobile firms report lower long-run cash ETRs and higher UTBs. We examine whether these different levels remain after controlling for previously documented determinants of both measures by estimating Equation (5) below using pooled OLS.

$$(5) \quad TaxAvoidance = \beta_1*IM + \beta_2*PT_ROA + \beta_3*Size + \beta_4*NOL + \beta_5*Leverage + \beta_6*DiscAcc + \beta_7*Growth + \beta_8*MTB + \beta_9*SGA + Year\ FE + \varepsilon$$

TaxAvoidance is either the historical five-year cash ETR (*CETR5*) or the ending balance of the reserve for unrecognized tax benefits scaled by total assets (*UTB*). We multiply *CETR5* by negative one so that both *TaxAvoidance* variables are increasing in tax avoidance perceived to be more aggressive or uncertain. Control variables (Rego and Wilson [2012]) are mostly defined previously. *Growth* is the average percentage three-year sales growth ending in year *t*. *MTB* is the market to book ratio ($PRCC_F*CSHO/AT$). *SGA* is selling, general and administrative expenses, scaled by assets. We include year fixed effects and cluster standard errors by firm.

¹⁸ Ciconte, Donohoe, Lisowski, and Mayberry [2015] use IRS settlement data to validate that their finding of a positive association between UTBs and future tax cash flows relates, at least in part, to payments in resolution of uncertain tax positions.

We present results of estimating Equation (5) in Panel C of Table 6. In Column (1), we estimate that income mobile firms report five-year cash ETRs that are 1.74 percentage points lower than other firms, all else equal.¹⁹ In Column (2), we estimate income mobile firms accrue larger reserves for unrecognized tax benefits than other firms, all else equal. Results are unchanged if we control for *CETR5* in the *UTB* regressions. Thus, financial statement users relying on *CETR5* or *UTB* to gauge probable negative IRS audit outcomes in the broad cross-section should note our findings that although they are audited more frequently, income mobile firms retain a greater portion of originally claimed benefits and that they face less variation in outcomes than other firms. We conclude the larger UTBs reported by income mobile firms are largely driven by the mechanics of FIN 48 and do not reflect lower expected sustainability of their claimed tax benefits, at least in the U.S. Our evidence that income mobile firms sustain a high proportion of their tax benefits against the IRS, the most sophisticated and well-funded enforcement agency worldwide, suggests their non-U.S. UTBs are also unlikely to translate into more negative outcomes in other jurisdictions.

Finally, we test whether *CETR5* and *UTB* accurately reflect probable negative IRS audit outcomes across a pooled sample of income mobile and non-income mobile firms using Equation (6) below.

$$(6) \quad IRSAuditOutcome = \beta_1 * TaxAvoidance + \beta_2 * PT_ROA + \beta_3 * Size + \beta_4 * NOL + \beta_5 * Leverage + \beta_6 * DiscAcc + \beta_7 * Big5 + \beta_8 * LogExamTime + YearFE + \varepsilon$$

IRSAuditOutcome is one of the three measures of IRS audit outcomes defined above (*Settle%*, *AdjETR*, or *SavingsLost*), and control variables are defined above. As when estimating Equation (5), we multiply *CETR5* by negative one so that higher values represent greater tax savings.

¹⁹ We note that although income mobile firms report lower cash ETRs than other firms, the Spearman correlation between *IncomeMobile* and an indicator variable for being in the bottom quintile of *CETR5* is only 0.03. We therefore conclude that our measure of income mobility captures more than just high levels of tax avoidance.

Table 6, Panel D presents results. For simplicity, we report only the estimated coefficient and p-value for the variable of interest in each regression. After controlling for other determinants of IRS audit outcomes, we find little evidence of a positive correlation between the *CETR5* and *UTB*, and IRS audit outcomes.²⁰ In untabulated tests, we also document no significant univariate correlation between *CETR5* or *UTB* and IRS audit outcomes. We therefore conclude that low long-run cash ETRs and the FIN 48 reserve perform poorly as simple cross-sectional indicators of the risk of losing tax benefits upon IRS audit.

We acknowledge that these financial statement proxies are intended to capture global tax avoidance, and not just U.S. federal tax audit scrutiny and outcomes. However, on average (at the median), U.S. taxes paid on Form 1120 are 53 (62) percent of total cash taxes paid as reported in Compustat for firms in our sample. Further, because our validation tests confirm that income mobile firms engage in more tax-motivated income shifting from the U.S. to lower-tax foreign jurisdictions, the source of potential tax savings for these firms is likely more concentrated in the U.S. than in any foreign jurisdiction observing inflated taxable income. Therefore, U.S. federal taxes comprise a majority of total tax payments and also likely represent a majority of global tax authority audit risk. However, we note that results in Panel D are robust to re-estimating Equation (6) after restricting our sample to domestic firms for which IRS audit scrutiny and outcomes likely comprise a substantial portion of total tax authority audit risk.

Measuring income mobile tax savings

Because a significant way income mobile firms reduce their U.S. tax burdens is through shifting a portion of worldwide income out of the U.S. to low-tax jurisdictions, we believe worldwide pre-tax book income is the appropriate scalar in our main analyses. However, we also

²⁰ For a similar result, see Mills and Sansing [2000]. Although they found book-tax differences predicted a higher level of proposed audit adjustment, they found no association between book-tax differences and final settlements. They interpreted that result as consistent with a game-theoretic perspective of IRS versus taxpayer behavior.

examine whether income mobile firms face differential levels of IRS audit scrutiny and outcomes on the tax savings relative to 35 percent of their reported U.S. income. We find that income mobile firms report lower *SavingsAtRisk*, *AdjETR* and *SavingsLost*, using 35 percent of taxable income reported on Form 1120 to compute savings, which is consistent with our main results. If instead we use domestic pre-tax book income (*PIDOM*), we estimate no significant difference in IRS audit outcomes for income mobile firms relative to other firms. These results support our conclusion that income mobile firms do not face incremental negative IRS audit outcomes on their U.S. tax avoidance relative to other firms.

Components of *IncomeMobile*

In untabulated analysis, we test whether the individual components are as informative as the composite measure when predicting IRS audit scrutiny and outcomes. When we replace *IncomeMobile* with each component of income mobility, we find no one component consistently drives differential IRS audit scrutiny and outcomes. We also include both *IncomeMobile* and each component of income mobility to see if our composite measure is incrementally informative to its components in our tests of the determinants of IRS audit scrutiny and outcomes. *IncomeMobile* retains its sign and statistical significance in a majority of our tests when included with the five components of the measure. Together, these results suggest that the composite measure is a more powerful predictor of IRS audit scrutiny and outcomes than any of its components and that future researchers should consider including the composite measure rather than single controls for industry, R&D and foreign operations.

6. CONCLUSIONS

This study explores the IRS audits of income mobile firms. We first develop a measure that identifies “income mobile” firms whose asset structures and business operations afford them

greater opportunities for tax avoidance. We confirm that our measure identifies firms that shift income out of the U.S. in response to foreign tax rate differentials, claim larger R&D credits and report greater tax benefits on their originally filed U.S. tax returns.

We then use confidential IRS audit data to examine whether this greater level of tax avoidance is associated with incrementally more negative IRS audit outcomes. We document that income mobile firms have higher likelihoods of IRS audit and receiving a proposed deficiency. However, income mobile firms agree to pay a smaller percentage of disputed benefits, retain a larger percentage of total tax benefits originally claimed, and sustain lower ETRs even after taking additional payments during the audit and appeals process into consideration. We therefore conclude that although income mobile tax avoidance bears more scrutiny, it does not appear to lead to incrementally negative IRS audit outcomes compared to other firms. Our findings potentially shed light on the broader question of whether these firms are more tax aggressive and/or whether their tax benefits arise largely from legislative grace and complex facts.

Subsequent tests evaluate the efficiency of IRS audits, the impact of changes to financial reporting for income taxes, and how well financial statement proxies for probable negative tax outcomes reflect the risk-return relation for income mobile firms and for firms on average. We find the IRS collects more additional tax dollars per day of audit for income mobile firms, which we view as evidence supporting the IRS' rationale for a higher audit rate and longer exam times for income mobile firms. We find some evidence that the likelihood of the IRS proposing additional taxes upon audit is higher for income mobile firms after FIN 48 than before. However, when we examine IRS audit outcomes, we find no evidence of a differential effect of FIN 48 on additional tax payments after audit for income mobile firms. Finally, we estimate that income

mobile firms report lower long-run cash ETRs and higher UTBs. These measures could therefore be viewed as capturing IRS audit scrutiny but overstating negative IRS audit outcomes. Indeed, across our full sample of firms, we find that low long-run cash ETRs and UTBs are not positively correlated with our measures IRS audit outcomes, on average. One implication of this finding is that these commonly used financial statement proxies can overstate probable future negative outcomes if used indiscriminately to make cross-sectional classifications.

Our primary contribution is using confidential IRS data to inform the debate over the extent to which income mobile firms are able to reduce their U.S. tax liabilities on global income. Our findings also contribute to the literature exploring determinants and consequences of tax avoidance by (i) examining IRS audit efficiency, (ii) exploring the impact of financial reporting for tax uncertainty on IRS audit efficiency, and (iii) assessing how well financial statement proxies capture probably negative tax outcomes. The strength of our setting is that we can measure IRS audit scrutiny and outcomes without relying on financial statement data. We acknowledge as a limitation of our study, however, that IRS activity is only one component of global negative tax outcomes.

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Table 1: Descriptive Statistics
Full Sample Based on Publicly-Available Data

Variable	N	Mean	Std Dev	p25	Median	p75
<i>Firm characteristics</i>						
PI	25,290	398.41	1,133	13.53	59.29	233.4
PT_ROA	25,290	0.104	0.075	0.050	0.086	0.140
Size	25,290	6.486	1.913	5.142	6.480	7.770
NOL	25,290	0.060	0.197	0.000	0.000	0.022
Leverage	25,290	0.189	0.170	0.020	0.165	0.307
DiscAcc	21,596	0.013	0.102	-0.042	0.004	0.054
Big5	25,282	0.835	0.371	1.000	1.000	1.000
Growth	25,275	0.313	0.495	0.045	0.199	0.428
MTB	25,289	2.824	2.436	1.362	2.084	3.345
SGA	25,290	0.232	0.208	0.069	0.192	0.337
<i>Components of Income Mobility</i>						
R&D	25,290	0.023	0.042	0.000	0.000	0.028
Advertising	25,290	0.011	0.027	0.000	0.000	0.007
PctForeignSales	25,290	0.193	0.259	0.000	0.032	0.350
PctGP	25,290	0.395	0.204	0.240	0.359	0.524
HighTech	25,290	0.217	0.412	0.000	0.000	0.000

Table 1 provides descriptive statistics for the sample of 25,290 observations used to classify firms as income mobile. *PI* is pre-tax income. *PT_ROA* is pre-tax return on assets (PI/AT). *Size* is the natural log of total sales (SALE). *NOL* is tax loss carryforward (TLCF) scaled by assets. *Leverage* is total debt (DLTT + DLC) scaled by total assets. *DiscAcc* is performance adjusted discretionary accruals. *Big5* is an indicator variable equal to one if the financial statement auditor is Arthur Anderson, Deloitte, EY, KPMG or PwC and zero otherwise. *Growth* is the average percentage three-year sales growth ending in year *t*. *MTB* is the market to book ratio (PRCC_F*CSHO/AT). *SGA* is selling, general and administrative expenses, scaled by assets. *R&D* is R&D expense scaled by assets (XRD/AT). *Advertising* is advertising expense scaled by assets (XAD/AT). *PctForeignSales* is the ratio of foreign sales to worldwide sales reported in the Compustat Segments database. *PctGP* is gross profit percent (GP/SALE). *HighTech* is an indicator variable equal to one if the observation is in a high-tech industry, defined following Core et al. [2003] and Francis and Schipper [1999] as any of the following three-digit SIC codes: 283, 357, 360-268, 481, 737 and 873.

Table 2
Characteristics of Income Mobile Firms

Panel A
Percent of Observations in Each Group That Are Income Mobile

Group	% Income Mobile
<i>High_R&D</i>	79.48%
<i>High_PctGP</i>	60.71%
<i>High_PctForeignSales</i>	56.87%
<i>High_Advertising</i>	36.11%
<i>HighTech</i>	83.38%
Full Sample	27.62%

Panel B
Percent of Income Mobile Observations in Each Group

Group	% Income Mobile
<i>High_R&D</i>	64.81%
<i>High_PctGP</i>	40.90%
<i>High_PctForeignSales</i>	39.53%
<i>High_Advertising</i>	31.44%
<i>HighTech</i>	65.37%
Full Sample	27.62%

IncomeMobile is an indicator variable equal to 1 if the sum of the annual rank of *R&D* (*XRD/AT*), *Advertising* (*XAD/AT*), *PctForeignSales* and *PctGP* (*GP/SALE*) plus *HighTech**4 is in the top quintile by year. Once a firm is classified as income mobile, we set *IncomeMobile* to 1 for all subsequent firm-years. When ranking, we set missing values of *R&D*, *Advertising* and *PctForeignSales* to zero. *HighTech* is an indicator variable set equal to 1 if the observation is in a high-tech industry, defined following Core et al. [2003] and Francis and Schipper [1999] as any of the following three-digit SIC codes: 283, 357, 360-268, 481, 737 and 873. Groups represent the highest quintile of each component of *IncomeMobile*. In Panel A, we show the percentage of firms in each group that are income mobile. In Panel B, we show the percentage of income mobile firms in each group. For example, 79.48% of all observations in the top quintile of *R&D* are classified as income mobile whereas 64.81% of all income mobile firms are also in the top quintile of *R&D*.

Table 2 (cont.), Panel C: Percent of Observations by Industry and Income Mobility

Fama French 30 Industry Group	<i>IncomeMobile=1</i>		<i>IncomeMobile=0</i>	
	N	%	N	%
Aircraft, Ships and Railroads	8	0.08%	234	1.28%
Apparel	58	0.59%	472	2.58%
Automobiles	74	0.75%	351	1.92%
Beer and Liquor	44	0.45%	83	0.45%
Business Equipment	3,629	36.71%	695	3.80%
Business Supplies and Shipping				
Containers	89	0.90%	392	2.14%
Chemicals	236	2.39%	421	2.30%
Coal	0	0.00%	39	0.21%
Communication	215	2.18%	332	1.81%
Construction Materials	102	1.03%	774	4.23%
Consumer Goods	307	3.11%	266	1.45%
Electrical Equipment	472	4.77%	150	0.82%
Fabricated Products	399	4.04%	931	5.09%
Financial Institutions	110	1.11%	1,988	10.86%
Food Products	171	1.73%	627	3.43%
Healthcare	1,717	17.37%	1,043	5.70%
Metals and mining	0	0.00%	136	0.74%
Other	139	1.41%	519	2.84%
Personal and Business Services	1,701	17.21%	1,636	8.94%
Petroleum and Natural Gas	36	0.36%	1,047	5.72%
Printing and Publishing	56	0.57%	275	1.50%
Recreation	186	1.88%	400	2.19%
Restaurants, Hotels and Motels	0	0.00%	543	2.97%
Retail	48	0.49%	1,643	8.98%
Steel Works	14	0.14%	354	1.93%
Textiles	3	0.03%	79	0.43%
Tobacco Products	7	0.07%	4	0.02%
Transportation	5	0.05%	730	3.99%
Utilities	0	0.00%	1,072	5.86%
Wholesale	59	0.60%	1,069	5.84%
Total	9,885	100.0%	18,305	100.0%

Panel C presents the breakout of observations based on income mobility using the 30 industry classification groups from Fama and French. *IncomeMobile* is an indicator variable equal to 1 if the sum of the annual rank of *R&D* (*XRD/AT*), *Advertising* (*XAD/AT*), *PctForeignSales* and *PctGP* (*GP/SALE*) plus *HighTech**4 is in the top quintile by year. Once a firm is classified as income mobile, we set *IncomeMobile* to 1 for all subsequent firm-years. When ranking, we set missing values of *R&D*, *Advertising* and *PctForeignSales* to zero. *HighTech* is an indicator variable set equal to 1 if the observation is in a high-tech industry, defined following Core et al. [2003] and Francis and Schipper [1999] as any of the following three-digit SIC codes: 283, 357, 360-268, 481, 737 and 873.

Table 3
Tax Motivated Income Shifting

$$FOR_ROS = \beta_0 + \beta_1 WW_ROS + \beta_2 IncomeMoible + \beta_3 IncomeMobile * FTR + \beta_4 Non-IncomeMobile * FTR + YearFE$$

Independent Variables	Predicted Sign	
Intercept		0.0537 *** (0.011)
Variables of interest		
WW_ROS	+	0.5470 *** (0.025)
IncomeMobile	+	-0.0108 *** (0.004)
IncomeMobile*FTR	+	0.1338 *** (0.011)
Non-IncomeMobile*FTR	+	0.0811 *** (0.007)
F-test		
$\beta_3 > \beta_4$		<0.0001
Adj. R ²		33.4%
Firm-year observations		12,965

Table 3 uses a sample of 12,965 firm-year observations with foreign sales greater than 0. *IncomeMobile* is an indicator variable equal to 1 if the sum of the annual rank of *R&D* (*XRD/AT*), *Advertising* (*XAD/AT*), *PctForeignSales* and *PctGP* (*GP/SALE*) plus *HighTech**4 is in the top quintile by year. Once a firm is classified as income mobile, we set *IncomeMobile* to 1 for all subsequent firm-years. When ranking, we set missing values of *R&D*, *Advertising* and *PctForeignSales* to zero. *HighTech* is an indicator variable set equal to 1 if the observation is in a high-tech industry, defined following Core et al. [2003] and Francis and Schipper [1999] as any of the following three-digit SIC codes: 283, 357, 360-268, 481, 737 and 873. *Non-IncomeMobile* is an indicator variable equal to 1 if *IncomeMobile* is equal to 0. When ranking, we set missing values of *R&D*, *Advertising* and *Foreign* to zero. *HighTech* is an indicator variable equal to 1 if the observation is in a high-tech industry. *FOR_ROS* is pre-tax foreign income (*PIFO*) scaled by foreign sales as reported in the Compustat segments database. *WW_ROS* is pre-tax income (*PI*) scaled by total sales (*SALE*). *FTR* is the difference between the US statutory tax rate of 35% and the firm's average foreign tax rate, measured as total foreign taxes (*TXFO+TXDFO*) divided by total foreign sales. The incentive to shift income to foreign jurisdictions is increasing in *FTR*. ***, ** and * represent two-tailed significance at the 1%, 5% and 10% level.

Table 4: Tests of Differences in Means and Medians by Income Mobile
Panel A: Tax Return and Audit Variables from Confidential IRS Data

Variable	IncomeMobile = 0				IncomeMobile = 1				Differences			
	N	Mean	Std Dev	Median	N	Mean	Std Dev	Median	Mean	Median		
<u>Tax Return Variables</u>												
RDC%	12,604	0.012	0.082	0.000	4,387	0.047	0.147	0.000	-0.035	***	0.00	***
TaxableIncome	16,568	174.5	573.0	20.19	6,523	246.4	779.1	135.09	-71.89	***	-114.9	
TaxOnReturn	16,568	50.65	149.0	5.873	6,523	50.77	164.5	23.816	-0.123		-17.94	
ReturnETR	16,520	0.169	0.147	0.167	6,505	0.113	0.130	0.065	0.057	***	0.102	
ReturnETR_TI	12,604	0.299	0.114	0.339	4,387	0.238	0.128	0.271	0.061	***	0.067	
Savings	16,520	64.35	218	7.246	6,505	130.58	392.0	116.66	-66.22	***	-109.41	***
<u>IRS Risk Variables</u>												
Audit	14,675	0.498	0.500	0.000	5,545	0.512	0.500	1.000	-0.014	*	-1.000	*
DefGTZero	7,303	0.432	0.495	0.000	2,837	0.465	0.499	0.000	-0.033	***	0.000	
DeficiencyAmt	3,066	12.24	60.26	0.652	1,281	22.80	86.40	1.070	-10.56	***	-0.418	
SavingsAtRisk	2,819	0.145	0.251	0.034	1,243	0.114	0.205	0.033	0.031	***	0.001	***
Settle%	1,020	0.220	0.357	0.000	418.0	0.179	0.325	0.000	0.041	*	0.000	
AdjETR	2,698	0.320	0.137	0.341	1,127	0.267	0.148	0.282	0.054	***	0.059	***
SavingsLost	2,796	0.092	0.191	0.018	1,232	0.067	0.143	0.014	0.024	***	0.004	***
<u>IRS Resource Variables</u>												
ExamTime	7,303	775.4	1,258	260.5	2,837	1,072	1,618	374.0	-296.4	***	-113.5	***
LogExamTime	7,201	5.329	2.054	5.591	2,805	5.641	2.126	5.951	-0.312	***	-0.360	***
ExamEfficiency	3,054	0.150	3.766	0.001	1,279	0.514	14.252	0.016	-0.364		-0.014	
EnforcementEfficiency	3,029	0.178	3.997	0.001	1,268	0.179	3.186	0.008	0.000		-0.007	
LogExamEff	3,054	6.299	4.537	7.258	1,279	6.478	4.568	7.361	-0.180		-0.102	
LogEnforceEff	2,329	7.328	2.423	7.271	999	7.437	2.513	7.343	-0.109		-0.073	

IncomeMobile is an indicator variable as defined in Section 3. All tax return variables are from the IRS' Business Returns Transaction File (BRTF) Form 1120: *RDC%* is the ratio of research and development tax credits claimed on Form 1120, scaled by taxable income reported on Line 30. *TaxableIncome* is reported on Line 30 and *TaxOnReturn* is the total tax liability reported on Line 31. *ReturnETR* is *TaxOnReturn* scaled by pre-tax income reported by Compustat (where $PI > 0$). *ReturnETR_TI* is *TaxOnReturn* scaled by *Taxable Income* (where *Taxable Income* > 0). *Savings* is the difference between $35\% \cdot PI$ and *TaxOnReturn*. *Audit* is an indicator variable equal to 1 if the IRS selects the tax return for year t for audit and zero otherwise. *DefGTZero* is an indicator variable equal to 1 if the IRS proposes deficiencies for year t and zero otherwise. *DeficiencyAmt* is the total amount of proposed deficiency in \$M of USD for those observations where *DefGTZero* = 1. *SavingsAtRisk* is *DeficiencyAmt/Savings*. *Settle%* is the percentage of disputed deficiency the taxpayer pays at appeals and counsel. *AdjETR* is the ratio of total taxes paid with the original return and during audit to *PI*. *SavingsLost* is the percentage of tax benefits originally claimed that the taxpayer loses during the audit process. *ExamTime* is the total amount of IRS agent-days spent examining the return. *ExamEfficiency* is the ratio of *DeficiencyAmt* to *ExamTime*. *EnforcementEfficiency* is the ratio of dollars collected during appeals and counsel to *ExamTime*. ***, ** and * represent significance at 1%, 5% and 10%, respectively.

Table 4 (continued): Tests of Differences in Means and Medians by Income Mobile
Panel B - Financial Reporting for Tax and Control Variables from Publicly-Available Data

Variable	IncomeMobile = 0				IncomeMobile = 1				Differences			
	N	Mean	Std Dev	Median	N	Mean	Std Dev	Median	Mean	Median		
<i>Financial Reporting for Tax</i>												
CETR5	15,904	0.280	0.139	0.288	5,632	0.263	0.143	0.261	0.017	***	0.027	***
UTB	4,571	0.007	0.010	0.003	1,993	0.017	0.018	0.010	-0.010	***	-0.007	***
<i>Control Variables</i>												
PT_ROA	18,305	0.099	0.076	0.080	6,985	0.118	0.080	0.102	-0.019	***	-0.022	***
Size	18,305	6.563	1.909	6.598	6,985	6.274	1.951	6.144	0.289	***	0.454	***
NOL	18,305	0.049	0.231	0.000	6,985	0.137	0.594	0.000	-0.087	***	0.000	
Leverage	18,305	0.211	0.177	0.194	6,985	0.132	0.149	0.079	0.079	***	0.115	***
DiscAcc	14,745	0.015	0.117	0.007	6,851	0.008	0.113	-0.002	0.007	***	0.009	***
Big5	18,299	0.829	0.376	1.000	6,983	0.851	0.356	1.000	-0.021	***	0.000	
MTB	18,304	2.491	2.152	1.882	6,985	3.716	2.959	2.818	-1.224	***	-0.937	***
SGA	18,305	0.206	0.224	0.143	6,985	0.313	0.215	0.274	-0.107	***	-0.131	***
Growth	18,293	0.824	54.69	0.192	6,982	0.371	2.072	0.219	0.453		-0.027	***

Panel B provides descriptive statistics by *IncomeMobile* for Compustat observations matched with the following sources of confidential IRS data: Business Returns Transaction File (BRTF), the Audit Information Management System (AIMS), and the Enforcement Revenue Information System (ERIS). *IncomeMobile* is an indicator variable as defined in Section 3. *CETR5* is the sum of taxes paid (TXPD) in years $t-4$ through t scaled by the sum of pre-tax income (PI) in years $t-4$ through year t . *UTB* is the reserve for unrecognized tax benefits at the end of year t scaled by total asset. Reserve data is from the IRS registry database. *PT_ROA* is pre-tax return on assets (PI/AT). *Size* is the natural log of total sales (SALE). *NOL* is tax loss carryforward (TLCF) scaled by assets. *Leverage* is total debt (DLTT + DLC) scaled by assets. *DiscAcc* is performance adjusted discretionary accruals. *Big5* is an indicator variable equal to one if the financial statement auditor is Arthur Anderson, Deloitte, EY, KPMG or PwC and zero otherwise. *MTB* is the market to book ratio (PRCC_F*CSHO/AT). *SGA* is selling, general and administrative expenses, scaled by assets. *Growth* is the average percentage three-year sales growth ending in year t . ***, ** and * represent significance at 1%, 5% and 10%, respectively.

Table 5, Panel A:
Multivariate Analysis of Whether IRS Audit Scrutiny Differs for Income Mobile Firms

$$IRSAuditScrutiny = F(\beta_1*IncomeMobile + \beta_2*PT_ROA + \beta_3*Size + \beta_4*NOL + \beta_5*Leverage + \beta_6*DiscAcc + \beta_7*Big5 + \beta_8*LogExamTime + \varepsilon)$$

IRSAuditScrutiny =	<i>Pr(Audit=1)</i>	<i>Pr(DefGTZero=1)</i>	<i>SavingsAtRisk</i>
	(1)	(2)	(3)
Intercept	-3.4852 *** (0.118)	-1.2167 *** (0.139)	0.1249 *** (0.031)
<i>IncomeMobile</i>	0.339 *** (0.056)	0.1295 ** (0.062)	-0.0254 ** (0.010)
<i>PT_ROA</i>	1.559 *** (0.322)	2.0976 *** (0.388)	-0.2668 *** (0.069)
<i>Size</i>	0.5387 *** (0.018)	0.1378 *** (0.019)	-0.0148 *** (0.003)
<i>NOL</i>	-0.8809 *** (0.235)	-0.8662 *** (0.239)	-0.1177 ** (0.057)
<i>Leverage</i>	-0.0359 (0.153)	0.0381 (0.192)	-0.1168 *** (0.034)
<i>DiscAcc</i>	-0.1537 (0.167)	-0.4648 ** (0.209)	0.0082 (0.049)
<i>Big5</i>	-0.2703 *** (0.067)	-0.2788 *** (0.093)	-0.0132 (0.016)
<i>LogExamTime</i>			0.0198 *** (0.002)
Fixed Effects	No	No	Year
Cluster	Firm	Firm	Firm
No. Obs.	17,462	8,528	3,449
R ²	0.2189	0.0296	0.042

Audit is an indicator variable equal to 1 if the IRS selects the tax return for year *t* for audit and zero otherwise. *DefGTZero* is an indicator variable equal to 1 if the IRS proposes deficiencies for year *t* and zero otherwise. *SavingsAtRisk* is *DeficiencyAmt/Savings*. This variable is intended to capture the percentage of total tax savings (claimed tax benefits) that the IRS proposes to deny during audit. *IncomeMobile* is an indicator variable equal to 1 if the sum of the annual rank of *R&D* (*XRD/AT*), *Advertising* (*XAD/AT*), *PctForeignSales* and *PctGP* (*GP/SALE*) plus *HighTech**4 is in the top quintile by year. Once a firm is classified as income mobile, we set *IncomeMobile* to 1 for all subsequent firm-years. *PT_ROA* is pre-tax return on assets (*PI/AT*). *Size* is the natural log of total sales (*SALE*). *NOL* is tax loss carryforward (*TLCF*) scaled by assets. *Leverage* is total debt (*DLTT* + *DLC*) scaled by assets. *DiscAcc* is performance adjusted discretionary accruals. *Big5* is an indicator variable equal to one if the financial statement auditor is Arthur Anderson, Deloitte, EY, KPMG or PwC and zero otherwise. *LogExamTime* is the natural logarithm of *ExamTime*. ***, ** and * represent significance at 1%, 5% and 10%, respectively. Standard errors are clustered by firm.

Table 5, Panel B:
Multivariate Analysis of Whether IRS Audit Outcomes Differ for Income Mobile Firms

$$IRSAuditOutcome = \beta_1 * IncomeMobile + \beta_2 * PT_ROA + \beta_3 * Size + \beta_4 * NOL + \beta_5 * Leverage + \beta_6 * DiscAcc + \beta_7 * Big5 + \beta_8 * LogExamTime + \varepsilon$$

IRSAuditOutcome=	<i>Settle%</i>	<i>AdjETR</i>	<i>SavingsLost</i>
	(1)	(2)	(3)
<i>IncomeMobile</i>	-0.0513 *	-0.0495 ***	-0.0176 ***
	(0.026)	(0.007)	(0.007)
<i>PT_ROA</i>	0.5113 ***	0.1321 ***	-0.1970 ***
	(0.181)	(0.038)	(0.043)
<i>Size</i>	-0.0004	-0.0102 ***	-0.0111 ***
	(0.008)	(0.002)	(0.002)
<i>NOL</i>	-0.4129 ***	-0.0740	-0.1244 ***
	(0.135)	(0.066)	(0.022)
<i>Leverage</i>	0.0603	0.0064	-0.0533 **
	(0.085)	(0.022)	(0.025)
<i>DiscAcc</i>	0.0751	-0.0730 ***	-0.0351
	(0.128)	(0.023)	(0.043)
<i>Big5</i>	0.0619	-0.0054	0.0107
	(0.050)	(0.008)	(0.012)
<i>LogExamTime</i>	-0.0055	-0.0045 ***	0.0041 **
	(0.007)	(0.002)	(0.002)
Fixed Effects	Year	Year	Year
Cluster	Firm	Firm	Firm
No. Obs.	1,135	3,657	3,426
R ²	0.045	0.020	0.035

Settle% is the percentage of disputed deficiency the taxpayer pays at appeals and counsel. This measure represents how successfully the taxpayer defends its contested positions at risk of repayment during the appeals and counsel phase of audit. *AdjETR* is total taxes paid scaled by *TaxableIncome*. This measure represents the final ETR of the firm after considering additional payments required as a result of IRS examination. *SavingsLost* is the percentage of tax benefits originally claimed that the taxpayer loses during the audit process. *IncomeMobile* is an indicator variable equal to 1 if the sum of the annual rank of *R&D* (XRD/AT), *Advertising* (XAD/AT), *PctForeignSales* and *PctGP* (GP/SALE) plus *HighTech**4 is in the top quintile by year. Once a firm is classified as income mobile, we set *IncomeMobile* to 1 for all subsequent firm-years. *PT_ROA* is pre-tax return on assets (PI/AT). *Size* is the natural log of total sales (SALE). *NOL* is tax loss carryforward (TLCF) scaled by assets. *Leverage* is total debt (DLTT + DLC) scaled by assets. *DiscAcc* is performance adjusted discretionary accruals. *Big5* is an indicator variable equal to one if the financial statement auditor is Arthur Anderson, Deloitte, EY, KPMG or PwC and zero otherwise. *LogExamTime* is the natural logarithm of *ExamTime*, which is the total amount of IRS agent-days spent examining the return. .***, ** and * represent significance at 1%, 5% and 10%, respectively. Standard errors are clustered by firm.

Table 6, Panel A:
Multivariate Analysis of Whether the IRS Achieves Different Efficiency when Auditing Income Mobile Firms

$$AuditEfficiency = \beta_1 * IncomeMobile + \beta_2 * PT_ROA + \beta_3 * Size + \beta_4 * NOL + \beta_5 * Leverage + \beta_6 * DiscAcc + \beta_7 * Big5 + \beta_8 * LogSavings + \varepsilon$$

IRS Efficiency =	<i>LogExamEff</i>	<i>LogEnforceEff</i>
	(1)	(2)
<i>IncomeMobile</i>	0.3395 * (0.206)	0.3673 *** (0.124)
<i>PT_ROA</i>	4.9989 *** (1.370)	3.0953 *** (0.697)
<i>Size</i>	0.4210 *** (0.064)	0.4206 *** (0.038)
<i>NOL</i>	0.2286 (1.453)	-0.8564 (0.976)
<i>Leverage</i>	-0.2997 (0.718)	0.2878 (0.359)
<i>DiscAcc</i>	0.5313 (0.861)	-0.6042 (0.468)
<i>Big5</i>	0.1986 (0.270)	0.2967 * (0.165)
<i>LogSavings</i>	-0.0646 *** (0.021)	-0.0201 (0.015)
Fixed Effects	Year	Year
Cluster	Firm	Firm
No. Obs.	3,154	2,554
R ²	0.036	0.121

LogExamEff is the natural logarithm of *ExamTime*, which is the total amount of IRS agent-days spent examining the return. *LogEnforceEff* is the natural logarithm of *EnforcementEfficiency*, which is the ratio of dollars collected during appeals and counsel to *ExamTime*. *IncomeMobile* is an indicator variable equal to 1 if the sum of the annual rank of *R&D* (*XRD/AT*), *Advertising* (*XAD/AT*), *PctForeignSales* and *PctGP* (*GP/SALE*) plus *HighTech**4 is in the top quintile by year. Once a firm is classified as income mobile, we set *IncomeMobile* to 1 for all subsequent firm-years. *PT_ROA* is pre-tax return on assets (*PI/AT*). *Size* is the natural log of total sales (*SALE*). *NOL* is tax loss carryforward (*TLCF*) scaled by assets. *Leverage* is total debt (*DLTT* + *DLC*) scaled by total assets. *DiscAcc* is performance adjusted discretionary accruals. *Big5* is an indicator variable equal to one if the financial statement auditor is Arthur Anderson, Deloitte, EY, KPMG or PwC and zero otherwise. *LogSavings* is the natural log *Savings*. ***, ** and * represent significance at 1%, 5% and 10%, respectively. Standard errors are clustered by firm.

Table 6, Panel B:
Effect of FIN 48 on IRS Audit Scrutiny and Outcomes

$$IRSAudit = F(\beta_1 * IncomeMobile + \beta_2 * PostFIN48 + \beta_3 * IM * PostFIN48 + Controls + \varepsilon)$$

IRSAudit=	<i>Pr(Audit=1)</i>	<i>Pr(DefGTZero=1)</i>	<i>Settle%</i>	<i>AdjETR</i>	<i>LogExamEff</i>	<i>LogEnforceEff</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>IncomeMobile</i>	-3.3733 *** (0.118)	-1.1952 *** (0.139)	-0.0334 (0.032)	-0.0471 *** (0.009)	0.3358 (0.267)	0.4437 *** (0.151)
<i>PostFIN48</i>	-0.6021 *** (0.056)	-0.0884 (0.069)	-0.1534 *** (0.043)	-0.0240 (0.016)	1.0225 * (0.545)	0.1125 (0.584)
<i>IncomeMobile*PostFIN48</i>	-0.0139 (0.090)	0.2180 *** (0.069)	-0.0760 * (0.042)	-0.0074 (0.011)	0.0109 (0.346)	-0.2311 (0.204)
<i>PT_ROA</i>	1.4341 *** (0.323)	2.1029 *** (0.387)	0.5082 *** (0.180)	0.1311 *** (0.038)	5.0005 *** (1.360)	3.0641 (0.697)
<i>Size</i>	0.5812 *** (0.019)	0.1393 *** (0.019)	-0.0007 (0.008)	-0.0102 *** (0.002)	0.4210 *** (0.064)	0.4201 *** (0.038)
<i>NOL</i>	-0.7611 *** (0.224)	-0.8734 *** (0.239)	-0.3789 *** (0.134)	-0.0737 (0.066)	0.2279 (1.450)	-0.8436 (0.975)
<i>Leverage</i>	-0.2073 (0.155)	0.0217 (0.193)	0.0681 (0.086)	0.0068 (0.022)	-0.3001 (0.720)	0.2907 (0.359)
<i>DiscAcc</i>	-0.1407 (0.167)	-0.4601 ** (0.209)	0.0783 (0.130)	-0.0730 *** (0.023)	0.5315 (0.861)	-0.6056 (0.469)
<i>Big5</i>	-0.4461 *** (0.069)	-0.2824 *** (0.094)	0.0583 (0.049)	-0.0054 (0.008)	0.1987 (0.271)	0.2977 * (0.164)
<i>LogExamTime</i>			-0.0051 (0.007)	-0.0045 *** (0.002)		
<i>LogSavings</i>					-0.0646 *** (0.021)	-0.0200 (0.015)
Fixed Effects	No	No	Year	Year	Year	Year
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
No. Obs.	17,462	8,528	1,135	3,298	3,154	2,554
R ²	0.237	0.030	0.046	0.069	0.036	0.121

Audit is an indicator variable equal to 1 if the IRS selects the tax return for year *t* for audit and zero otherwise. *DefGTZero* is an indicator variable equal to 1 if the IRS proposes deficiencies for year *t* and zero otherwise. *Settle%* is the percentage of disputed deficiency the taxpayer pays at appeals and counsel. This measure represents how successfully the taxpayer defends its contested positions at risk of repayment during the appeals and counsel phase of audit. *AdjETR* is total taxes paid scaled by *TaxableIncome*. This measure represents the final ETR of the firm after considering additional payments required as a result of IRS examination. *LogExamEff* is the natural logarithm of *ExamTime*, which is the total amount of IRS agent-days spent examining the return. *LogEnforceEff* is the natural logarithm of *EnforcementEfficiency*, which is the ratio of dollars collected during appeals and counsel to *ExamTime*. *IncomeMobile* is an indicator variable equal to 1 if the sum of the annual rank of *R&D* (*XRD/AT*), *Advertising* (*XAD/AT*), *PctForeignSales* and *PctGP* (*GP/SALE*) plus *HighTech**4 is in the top quintile by year. Once a firm is classified as income mobile, we set *IncomeMobile* to 1 for all subsequent firm-years. *PostFIN48* is an indicator variable for years following enactment of FIN 48. *PT_ROA* is pre-tax return on assets (*PI/AT*). *Size* is the natural log of total sales (*SALE*). *NOL* is tax loss carryforward (*TLCF*) scaled by assets. *Leverage* is total debt (*DLTT + DLC*) scaled by assets. *DiscAcc* is performance adjusted discretionary accruals. *Big5* is an indicator variable equal to one if the financial statement auditor is Arthur Anderson, Deloitte, EY, KPMG or PwC and zero otherwise. *LogExamTime* is the natural logarithm of *ExamTime*. *LogSavings* is the natural log *Savings*. ***, ** and * represent significance at 1%, 5% and 10%, respectively. Standard errors are clustered by firm.

**Table 6, Panel C:
Multivariate Analysis of Whether Financial Reporting Measures of Tax Avoidance Differ for
Income Mobile Firms**

$$TaxAvoidance = \beta_1 * IncomeMobile + \beta_2 * PT_ROA + \beta_3 * Size + \beta_4 * NOL + \beta_5 * Leverage + \beta_6 * DiscAcc + \beta_7 * Growth + \beta_8 * MTB + \beta_9 * SGA + \varepsilon$$

TaxAvoidance =	<i>CETR5</i>	<i>UTB</i>
	(1)	(4)
<i>IncomeMobile</i>	-0.0174 *** (0.004)	0.0086 *** (0.001)
<i>PT_ROA</i>	0.0742 *** (0.026)	0.0001 (0.006)
<i>Size</i>	0.0040 *** (0.001)	0.0022 *** (0.000)
<i>NOL</i>	-0.1727 *** (0.019)	0.0122 *** (0.003)
<i>Leverage</i>	-0.0150 (0.014)	-0.0116 *** (0.002)
<i>DiscAcc</i>	0.0411 *** (0.014)	-0.0030 (0.003)
<i>Growth</i>	-0.0417 *** (0.003)	-0.0033 *** (0.001)
<i>MTB</i>	-0.0063 *** (0.001)	0.0004 *** (0.000)
<i>SGA</i>	0.1142 *** (0.009)	0.0017 (0.002)
Fixed Effects	Year	Year
Cluster	Firm	Firm
No. Obs.	18,086	5,585
Adj. R ²	0.092	0.191

CETR5 is the sum of taxes paid (TXPD) in years $t-4$ through t scaled by the sum of pre-tax income (PI) in years $t-4$ through year t . *UTB* is the reserve for unrecognized tax benefits at the end of year t scaled by total asset. Reserve data is from the IRS registry database. *IncomeMobile* is an indicator variable equal to 1 if the sum of the annual rank of *R&D* (XRD/AT), *Advertising* (XAD/AT), *PctForeignSales* and *PctGP* (GP/SALE) plus *HighTech**4 is in the top quintile by year. Once a firm is classified as income mobile, we set *IncomeMobile* to 1 for all subsequent firm-years. *PT_ROA* is pre-tax return on assets (PI/AT). *Size* is the natural log of total sales (SALE). *NOL* is tax loss carryforward (TLCF) scaled by assets. *Leverage* is total debt (DLTT + DLC) scaled by assets. *DiscAcc* is performance adjusted discretionary accruals. *Growth* is the average percentage three-year sales growth ending in year t . *MTB* is the market to book ratio (PRCC_F*CSHO/AT). *SGA* is selling, general and administrative expenses, scaled by assets. ***, ** and * represent significance at 1%, 5% and 10%, respectively. Standard errors are clustered by firm.

Table 6, Panel D:
Multivariate Analysis of Whether Financial Reporting Measures of Tax Avoidance Explain IRS Audit Outcomes

$$IRSAuditOutcome = \beta_1 * TaxAvoidance + \beta_2 * PT_ROA + \beta_3 * Size + \beta_4 * NOL + \beta_5 * Leverage + \beta_6 * DiscAcc + \beta_7 * Big5 + \beta_8 * LogExamTime + \varepsilon$$

IRSAuditOutcome=	<i>Settle%</i>	<i>AdjETR</i>	<i>SavingsLost</i>
TaxAvoidance	(1)	(2)	(3)
CETR5*(-1)	-0.0183 (0.088)	-0.0543 (0.029)	-0.1321 (0.031)
UTB	-2.4458 (1.215)	-1.1041 (0.490)	-0.3675 (0.372)

Settle% is the percentage of disputed deficiency the taxpayer pays at appeals and counsel. This measure represents how successfully the taxpayer defends its contested positions at risk of repayment during the appeals and counsel phase of audit. *AdjETR* is total taxes paid scaled by *TaxableIncome*. This measure represents the final ETR of the firm after considering additional payments required as a result of IRS examination. *SavingsLost* is the percentage of tax benefits originally claimed that the taxpayer loses during the audit process. *CETR5* is the sum of taxes paid (TXPD) in years *t-4* through *t* scaled by the sum of pre-tax income (PI) in years *t-4* through year *t*. We multiply *CETR5* by negative 1 so that it is increasing in tax risk. *UTB* is the reserve for unrecognized tax benefits at the end of year *t* scaled by total assets. Reserve data is from the IRS registry database. *PT_ROA* is pre-tax return on assets (PI/AT). *Size* is the natural log of total sales (SALE). *NOL* is tax loss carryforward (TLCF) scaled by assets. *Leverage* is total debt (DLTT + DLC) scaled by total assets. *DiscAcc* is performance adjusted discretionary accruals. *Big5* is an indicator variable equal to one if the financial statement auditor is Arthur Anderson, Deloitte, EY, KPMG or PwC and zero otherwise. *LogExamTime* is the natural logarithm of *ExamTime*, which is the total amount of IRS agent-days spent examining the return. ***, ** and * represent significance at 1%, 5% and 10%, respectively. Standard errors are clustered by firm. Control variables are included in the estimation but not tabulated for parsimony.