Internal Information Quality and Tax-Motivated Income Shifting

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Abstract: This study examines whether the quality of a firm's internal information environment influences its tax-motivated income shifting activities. Although income shifting is an important tax planning strategy, evidence regarding its determinants is limited. We find that higher IIQ is associated with greater tax-motivated income shifting, which suggests that higher IIQ enables managers to better identify and execute income shifting opportunities. We find that the influence of IIQ on tax-motivated income shifting varies with firm characteristics. Specifically, we find that higher IIQ is associated with tax-motivated income shifting for firms with greater uncertainty and greater coordination needs. Overall, these results suggest that the improved information obtained through higher quality internal information environments allows managers to increase tax-motivated income shifting.

Key words: Tax-motivated income shifting; Transfer pricing; Internal information quality; Tax avoidance; International taxation

1. Introduction

Corporation's income shifting activities have recently attracted the attention of both the popular press and politicians (Norris 2013). Indeed, prior research provides compelling evidence that suggests that U.S. multinational corporations (MNCs) engage in specific activities to shift income from high-tax jurisdictions into low-tax jurisdictions (e.g., Klassen and Laplante 2012a). The incentives for corporations to shift income are significant as the strategy potentially reduces cash tax payments, lowers tax expense, and thus, creates higher net income. Although income shifting is an important tax planning activity, evidence on the determinants of firms' income shifting activities is limited. We extend this line of research by examining whether the quality of a firm's internal information environment influences its tax-motivated income shifting activities.

Gallemore and Labro (2015) note that high internal information quality (IIQ) is characterized by accessible, useful, and reliable information that is collected and consumed within the organization. Higher quality internal information environments allows managers to identify and obtain new information to help them make better and more informed decisions (Cheng, Cho, and Yang 2015). Consistent with this notion, prior research finds that higher IIQ is associated with improved internal capital allocation, investment efficiency, and higher firm value (Billett, Chen, Martin, and Wang 2015; Goodman, Neamtiu, Shroff, and White 2013; Heitzman and Huang 2016). In a tax-specific context, Gallemore and Labro (2015) find that higher IIQ is associated with greater levels of overall tax avoidance. However, a firm's overall level of tax avoidance is the product of multiple tax planning activities, each of which have unique features. Accordingly, this study triangulates and extends Gallemore and Labro (2015) by examining whether IIQ influences tax-motivated income shifting, a specific type of tax avoidance activity.

De Simone, Klassen, and Seidman (2016) note that effective income shifting strategies have both an operational and an accounting component. Without frictions, theory predicts MNCs would always shift income to low tax rate jurisdictions (Grubert 2003). However, cross-border and cross-business unit frictions such as geographic, cultural, and operational differences increase information asymmetry between MNCs and their subsidiaries (Roth and O'Donnell 1996) and inhibit information transfer between entities. Further, many countries design their tax laws to limit aggressive income shifting and create significant penalties for income shifting accomplished through inaccurate transfer pricing (IRC §6662). Indeed, the quantity and severity of transfer pricing regulations have increased dramatically over time and countries have increasingly established aggressive audit teams to review transfer pricing compliance (PWC 2013) and restrict income shifting.[1] Thus, extensive documentation is necessary to justify firms' transfer pricing agreements. In combination, internal and external frictions significantly influence firms' income shifting activities.

Prior research suggests that higher IIQ provides managers with the information necessary to make better and more informed decisions (Cheng et al. 2015), suggesting that IIQ potentially allows managers to overcome the frictions that exist across different operational units to identify and execute opportunities for tax-motivated income shifting. In addition, Brazel and Dang (2008) find that IIQ is associated with more timely accounting information, allowing managers to develop the documentation necessary to justify their transfer pricing agreements with the tax authorities. In combination, the above line of reasoning suggests that higher IIQ is associated with greater tax-motivated income shifting.

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[1] In addition, the Organization for Economic Co-operation and Development (OECD) has collaborated with over one hundred countries and jurisdictions to design and implement strategies to reduce base erosion and profit shifting (BEPS) (OECD 2010). The full version of the OECD/ G20 BEPS Package, as well as statements regarding country participation can be found at the OECD website: http://www.oecd.org/tax/beps/beps-about.htm.

However, it is possible that IIQ is not associated with a firm's tax-motivated income shifting. Income shifting strategies require firms to develop and implement appropriate legal and operational structures (Dyreng and Markle 2016). De Simone et al. (2016) argue that modifying existing income shifting structures on a temporary basis is costly. Further, sudden and significant changes in the profitability of subsidiaries in different jurisdictions are likely to expose the firm to additional scrutiny of the tax authorities (PWC 2013). Therefore, regardless of the additional income shifting opportunities identified through higher IIQ, the above arguments suggest that the costs of substantially modifying a firm's income shifting strategy potentially outweigh the benefits. Accordingly, higher IIQ is potentially not associated with greater tax-motivated income shifting.

Using a sample of MNCs from 1996 to 2011, we test the association between IIQ and tax-motivated income shifting. We estimate tax-motivated income shifting following Klassen and Laplante (2012a). From a conceptual perspective, prior research suggests that higher IIQ provides access to relevant accurate information in a timely manner (Hodge, Kennedy, and Maines 2004). Based on this definition, we develop a composite measure that is based on proxies used in prior research (e.g., Gallemore and Labro 2015; Heitzman and Huang 2016). Specifically, we proxy for IIQ using the speed with which earnings are announced and the presence of (or lack thereof) a restatement due to an unintentional error. Thus, our proxy considers firms to have higher IIQ when they announce earnings more quickly and do not have to restate earnings due to an unintentional error. Consistent with our hypothesis that firms will shift income to a greater extent if they have high IIQ, we find a positive association between firms' IIQ and tax-motivated income shifting. Our result suggests that higher IIQ enables managers to better identify and execute income shifting opportunities.

To provide additional insight into our findings, we examine whether the association between IIQ and income shifting varies based on the uncertainty and coordination needs surrounding a firm's operations. First, we investigate whether the relation between IIQ and tax-motivated income shifting varies with uncertainty over the location of a firm's sales. Although the location of sales (foreign or domestic) does not affect pre-tax income on a consolidated basis, the tax implications can be dramatic and impact firm net income. Exploiting income shifting opportunities created by affiliates with varying levels of income and losses can be difficult and costly to implement (De Simone et al. 2016). As a result, a firm's ability to manage its income shifting opportunities in an uncertain environment is influenced by its ability to quickly and accurately process internal information. In contrast, IIQ is not likely to have a significant influence on income shifting for firms with less uncertainty surrounding the location of the firm's income. Consequently, we expect that the influence of IIQ on tax-motivated income shifting is more pronounced among firms with greater uncertainty with respect to foreign sales. We find that higher IIQ is associated with greater income shifting for firms with high foreign sales uncertainty and not for firms with low foreign sales uncertainty. These findings suggest that IIQ is more beneficial to firms whose income shifting environments are more uncertain and is less influential for firms with more predictable income shifting environments.

Next, we examine whether the association between IIQ and income shifting varies with firms' coordination needs. Because income shifting requires coordination across multiple business units located in different geographic regions, we expect that the influence of IIQ to be more pronounced as firms' coordination needs increase. We posit that firms with greater geographic dispersion and higher research and development (R&D) require greater coordination in order to engage in tax-motivated income shifting. Consistent with our expectation, we find

that higher IIQ is associated with tax-motivated income shifting among firms with greater coordination needs. In contrast, we find that IIQ is not associated with tax-motivated income shifting among firms with lower income shifting coordination needs.

Our study contributes to two streams of research. First, the results of our study contribute to the income shifting literature. Prior research that investigates income shifting focuses on accounting and tax regimes (De Simone 2016; Markle 2016) as well as firm characteristics such as affiliate profitability, financial constraints, investment options, and financial reporting incentives (De Simone, Klassen, and Seidman 2016; Dyreng and Markle 2016; Klassen and Laplante 2012b). This study extends prior research by providing evidence on the extent to which a firm's internal processes influence its income shifting strategies.

Second, this study extends the literature that examines the outcomes of high quality internal information environments. Recent research documents that the quality of the internal information environment affects capital resource allocation and investment decisions (Duchin and Sosyura 2013; Billett, Chen, Martin, and Wang 2015; Goodman, Neamtiu, Shroff, and White 2013). Our study extends this line of research by focusing on how internal information quality affects a specific within-firm tax planning strategy: tax-motivated income shifting. Tax planning strategy decisions differ from other internal decisions in that the outcomes are not only reported externally to investors through the impact on net earnings as are other managerial decisions but also directly to government taxing authorities. This additional reporting requirement adds importance to the effect of the quality of internal information because the decision may be scrutinized by taxing authorities in the audit process. Our study also triangulates and extends Gallemore and Labro (2015) who find that higher quality internal information environments are associated with higher levels of tax avoidance. We address the challenge noted in their study to

examine and provide evidence on the channels through which IIQ influences firms tax avoidance activities.

The next section discusses relevant literature and hypothesis development. Section 3 describes the variable measurements. Section 4 outlines the empirical model and sample selection and Section 5 presents the results. Section 6 summarizes additional robustness tests and Section 7 concludes.

2. Prior Literature and Hypothesis Development

2.1. Quality of Internal Information Environment

Internal information quality is defined as "the accessibility, usefulness, reliability, accuracy, quantity, and signal-to-noise ratio of the data and knowledge collected, generated, and consumed within an organization" (Gallemore and Labro 2015, p 149). Accordingly, a high IIQ firm has access to relevant accurate information in a timely manner (Hodge et al. 2004). Prior research has linked higher quality internal information environments to improved internal capital allocation, investment efficiency, reduced lags in reporting earnings, and higher firm value (Brazel and Dang 2008; Billett et al. 2015; Cheng et al. 2015; Goodman et al. 2013; Heitzman and Huang 2016).

Investing and operating decisions may be made at the business unit level or at the corporate level (Brickley, Smith, and Zimmerman 1995). With dispersed and varied operations, effective decision making depends on the efficient and timely transfer of information between business units particularly when decisions are made at the corporate level. Regardless of whether business decisions are centralized or decentralized to business units, administrative functions such as the tax department generally operate at the corporate level (Robinson, Sikes, and Weaver 2010). Tax decisions require compilation of information from business units across jurisdictional

6

and legal entity boundaries and thus provide a setting in which the quality of the internal information environment can have an important effect.

Consistent with IIQ allowing firms to make more effective tax decisions, Gallemore and Labro (2015) find that higher IIQ allows firms to engage in greater tax avoidance. Although they speculate about tax strategies (e.g., transfer pricing, R&D credits, allocation of debt and intellectual property) that may be affected by IIQ, they focus on general tax avoidance (i.e., cash ETRs) and do not investigate any particular strategies that might be facilitated by a higher quality information environment. Because their sample is broad and their method does not identify or concentrate on firms with potential for tax-motivated income shifting, their results cannot be directly attributed to any particular tax strategy, including income shifting. It is important to note that not all tax strategies require a high IIQ to be successful at reducing the tax burden. For example, managers can make tax strategy decisions related to securities investments (e.g., tax-exempt bonds) without a thorough understanding about the operations of various geographic segments of the firm. However, many tax-planning decisions require the transfer of information from various business units in a timely manner to be successful (Robinson et al. 2010). Consequently, IIQ may not influence a firm's operations when the firm's operating and information environments are relatively straightforward. It is also unclear for which tax planning strategies and under what circumstances IIQ is positively associated with general tax avoidance. Accordingly, we investigate tax-motivated income shifting as a strategy for tax planning that may benefit from high IIQ. We also investigate settings in which this relationship may not exist.

2.2. Tax-motivated Income Shifting

We define income shifting as the practice of moving income from one legal jurisdiction to another. Income shifting can be performed between states and provinces (Klassen and

Shackelford 1998) and/or between countries. In this study, we focus on the income shifting of U.S. MNCs between the U.S. and other countries. Corporations domiciled within the U.S. are taxed on their worldwide income. However, income earned overseas is generally not subject to U.S. tax until it has been repatriated. Foreign income designated as permanently reinvested enjoys indefinite deferral of the additional U.S. income tax for both financial reporting and tax purposes. This tax system creates the motivation to strategically shift income to avoid taxes. U.S. MNCs can reduce income taxes by shifting income from high income tax rate countries (i.e., the U.S.) to relatively low income tax rate countries or by shifting expenses from relatively low income tax countries to relatively high income tax rate countries.

Numerous academic studies in both accounting and economics empirically examine tax-motivated income shifting. Early studies documented income shifting consistent with tax minimization using a variety of methods (Grubert and Mutti 1991; Harris, Morck, and Slemrod 1993; Harris 1993; Klassen, Lang, and Wolfson 1993; Hines and Rice 1994; Jacob 1996; Grubert 1998). More recent studies have worked to refine methods to identify tax-motivated income shifting and provide evidence of its economic significance (Huizinga and Laeven 2008; Klassen and Laplante 2012a; Dharmapala and Riedel 2013; Dyreng and Markle 2016; De Simone, Huang, and Krull 2016).

However, through these studies we understand little about the conditions that may affect income shifting. Grubert (2003) develops a theoretical model of tax-motivated income shifting and shows the cost of income shifting is negatively related to a firm's propensity to shift income. Several studies show empirical evidence that increasing regulatory costs of shifting reduce income shifting activity (Klassen and Laplante 2012a; Saunders-Scott 2014). Yet, certain firm specific characteristics should increase a firm's propensity to shift income by attenuating the

negative affect of income shifting costs. Harris (1993) provides introductory evidence of firm characteristics such as interest, research and development (R&D), advertising, and rent expenses, or intangible assets that are associated with income shifting. Other recent work addresses the effect of accounting standards, the profitability of affiliates, the use of e-commerce, financial constraints, and tax regime of the parent country as contributors to income shifting (De Simone 2016; De Simone et al. 2016; Klassen, Laplante, and Carnaghan 2014; Dyreng and Markle 2016; Markle 2016). Barring these studies, there is little evidence on firm characteristics that might facilitate income shifting. One study ties income shifting to firms' external information environments, a fundamentally distinct research question. Chen, Hepfer, Quinn, and Wilson (2015) examine whether income shifting affects firms' external information environment and thus take the perspective that firms' *external* information environment is a consequence or outcome of income shifting. In contrast, we study *internal* information quality as an antecedent to or determinant of tax-motivated income shifting.

Horngren, Foster, Datar, Rajan, Ittner, and Baldwin (2010) argue that high IIQ is associated with improved managerial decision making. High IIQ has also been shown to be associated with improved financial decision making by providing more timely accounting information (Brazel and Dang 2008). In the context of income shifting, IIQ is important because many everyday transactions within a firm's operations present opportunities for tax-motivated income shifting (Klassen and Laplante 2012a). However, to take advantage of income shifting opportunities, firms must obtain relevant information by coordinating across different business and geographic units (e.g., De Simone et al. 2016; Robinson et al. 2010).

For example, if a foreign subsidiary of a firm sells a product overseas the firm must decide how much the U.S. parent company should be compensated for the physical or intangible

development of the product. Regulatory bodies argue that these transactions should be determined as if the related parties were unrelated (an "arm's length" transaction) (OECD 2010). Determining the appropriate arm's length pricing of goods or services sold from one subsidiary to another, referred to as transfer pricing, is not a simple task. Firms often employ teams of specialists and consultants to assist in the pricing of these intra-company transactions while maintaining compliance with transfer pricing regulations, which can vary greatly across countries. In most cases, a broad range of acceptable prices exists for cross-border, intra-company transactions (PWC 2006). Firms can select transfer prices within these acceptable ranges in order to exploit differing tax rates within the countries in which they operate. In the case of transfer pricing strategies, higher IIQ firms can use their information advantage to coordinate across jurisdictions to identify the most advantageous pricing and maintain the necessary documentation for the various taxing authorities where the firm operates. Higher quality information does not necessarily mean firms will select the price at the most favorable extreme of the range, but it can allow them to better assess the costs of doing so and provides better documentation should their choices be questioned by taxing authorities.

Based on the above discussion, we hypothesize that high internal information quality attenuates the effect of frictions associated with income shifting and increases income shifting overall. Stated formally (in alternative form):

H1: *U.S. MNCs engage in tax-motivated income shifting to a greater extent if they have high IIQ.*

Despite the above prediction, it is possible that higher IIQ will not be associated with tax-motivated income shifting. Income shifting strategies require firms to develop and implement appropriate legal and operational structures (Dyreng and Markle 2016). De Simone et al. (2016) argue that modifying existing income shifting structures on a temporary basis is costly.

Furthermore, dramatic changes in the profitability of subsidiaries in different jurisdictions are likely to expose the firm to additional scrutiny of the tax authorities (PWC 2013). Therefore, the incremental costs associated with modifying a firm's income shifting strategy potentially outweigh the tax savings associated with any incremental income shifting opportunities through higher IIQ. Additionally, recent survey evidence suggests that most firms focus on tax compliance rather than tax minimization when establishing a transfer pricing strategy (Klassen, Lisowsky, and Mescall 2016). For these firms, it is possible that high IIQ would improve the accuracy of transfer pricing documentation but not increase the level of tax-motivated income shifting.

2.3 Cross-sectional Predictions

Effective income shifting requires managers to obtain accurate and timely information about the organization's operations, but the effectiveness of accurate and timely information may be mitigated by operational uncertainty. Consistent with this line of reasoning, Gallemore and Labro (2015) provide evidence that suggests that the influence of IIQ on overall tax avoidance is more pronounced as uncertainty increases. However, uncertainty surrounding income shifting may be unique. For example, volatility of a firm's foreign sales can create uncertainty about level and location of income. De Simone et al. (2016) argue that income shifting opportunities created by affiliates with varying levels of income and losses can be difficult and costly to implement.

In the case of income shifting, the ability to predict foreign and domestic income levels is key to an effective income shifting strategy. To illustrate, suppose a firm has operations in the U.S. with a statutory tax rate of 35% and operations in a foreign jurisdiction with statutory tax

rates of 20 percent.[2] The firm earns $100 in each jurisdiction and has no differences between its financial and tax reporting.

Base Case	Pretax Income	Tax Rate	Tax
U.S.	$100	35%	$35
Foreign	$100	20%	$20
Total income	$200	Total Tax Expense	$55

Through transfer pricing, the firm shifts income from the U.S. to the foreign jurisdiction by choosing a transfer price at the low end of the arm's length pricing range. The shift results in $40 reported in the U.S. and $160 reported in the foreign jurisdiction with a corresponding tax decrease of $9 as follows:

Income Shifting	Pretax Income	Tax Rate	Tax
U.S.	$40	35%	$14
Foreign	$160	20%	$32
Total income	$200	Total Tax Expense	$46

Now consider that the firm has low IIQ and high uncertainty about sales levels or pricing in each jurisdiction, such that firm managers are unable to accurately predict changes in income. Managers continue to shift income using the same transfer pricing strategy but product prices or sales levels have dropped significantly in the foreign jurisdiction such that the firm now reports a loss in the foreign jurisdiction. The reported loss in the foreign jurisdiction may cause taxing authorities to scrutinize the transfer pricing thereby increasing the cost of the income shifting strategy rendering it less effective. By and large, uncertainty about foreign income or sales may deter managers from engaging in tax-motivated income shifting. However, to the extent a high

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[2] Note that under ASC 740-30-25-17 (formerly APB 23), when firms designate unremitted foreign earnings as permanently or indefinitely reinvested, they are not required to accrue deferred tax expense on those earnings.

quality internal information environment can help identify and facilitate the flow of new relevant information in a timely manner, firms with high uncertainty would be better equipped to manage a dynamic income shifting situation. Indeed, for firms operating with a sufficiently stable and predictable (low uncertainty) foreign sales, it is likely that IIQ will not significantly aid their income shifting activities because the firm faces fewer surprises with respect to the location of earnings. This discussion leads to our second hypothesis (in alternative form):

H2: ***The relation between IIQ and tax-motivated income shifting is stronger for firms with greater uncertainty in their foreign sales.***

Coordination across different business units is necessary for an effective income shifting strategy because income shifting involves both operational and accounting decisions (De Simone et al. 2016). Organization with more complex operations have greater coordination needs. Daft (2006) notes that complexity can be measured along three dimensions. Vertical complexity is the number of levels in an organizational hierarchy, horizontal complexity is the number of job titles or departments across the organization, and spatial complexity is the number of geographical locations. IIQ is likely to benefit firms with greater income shifting coordination needs by enabling the flow of information throughout the different levels of an organization and across business units and geographic locations. Indeed, Gallemore and Labro (2015) find that the association between IIQ and tax avoidance is most pronounced among firms that have greater coordination needs (measured as geographic dispersion), providing a compelling reason to directly examine tax-motivated income shifting as a tax strategy that requires high information coordination.

H1 is based on the assumption that all firms face high coordination needs. However, some firms may only operate in a few countries or be faced with decidedly uncomplicated income shifting decisions. For these firms the quality of their information environment may have little or

no effect on their level of income shifting. Thus, we anticipate that firms with greater

coordination needs will benefit more from high IIQ and engage in more tax-motivated income

shifting. This discussion leads us to our third hypothesis (in alternative form):

H3: ***The relation between IIQ and tax-motivated income shifting is stronger for firms with greater coordination needs.***

3. Research Design

3.1. Internal Information Quality

From a conceptual perspective, high IIQ provides access to relevant accurate information

in a timely manner (Hodge et al. 2004). Prior research uses a wide variety of proxies for IIQ such

as earnings announcement speed, management forecast accuracy, lack of internal control

weaknesses, lack of restatements, and accrual precision (Gallemore and Labro 2015; Heitzman

and Huang 2016). While each proxy captures different elements of IIQ, we focus our primary

analysis on a composite measure that captures the speed with which a firm processes information

and the accuracy of the processed information.[3]

Consistent with prior research, we proxy for information processing speed by calculating

how quickly firms announce earnings (Gallemore and Labro 2015; Heitzman and Huang 2016).

Calculating annual earnings takes a great deal of within-company coordination, which includes

detailed information gathering and processing. Firms can invest in high-quality accounting

systems and integrate these systems into the overall information environment in order to increase

the speed at which they process internal information (Jennings, Hojun, and Tanlu 2014). Since

most firms have the incentive to announce earnings early, the speed at which a firm announces

earnings should indirectly reflect their relative ability to quickly process internal information.[4]

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[3] We discuss the sensitivity of our results to alternative proxies of IIQ in Section 6.
[4] However, we acknowledge that there are various reasons why a firm might adjust the timing of its earnings announcement other than the consequences of its IIQ. One consistent finding in the earnings announcement

Following prior literature, we measure earnings announcement speed (EAS) as the number of days from the end of the previous fiscal year to the earnings announcement date for that year, divided by 365 (Gallemore and Labro 2015). We multiply EAS by negative one so that larger values represent faster information processing.

Hodge et al. (2004) assert that information accuracy is a critical component of IIQ. To measure accuracy we use the absence of an error related restatement. We distinguish between types of restatements by using unintentional errors as a proxy for low IIQ and note that examples of such errors include; counting and pricing errors, misreporting inventory, and inaccurate credit data (Hennes, Leone, and Miller 2008; Gallemore and Labro 2015). These errors reflect unreliable internal information processes.[5] Firms without a restatement due to unintentional accounting errors during the fiscal year are considered to have relatively accurate internal information.

To create a composite measure that captures both the speed and accuracy of internal information, we rank EAS into deciles by industry (Fama French 17) and year so that the rank of EAS ranges from one to ten. To incorporate information accuracy into our measure, we assign all firm years a value of zero if they have an error restatement for the fiscal year while firms without an error restatement retain their EAS decile ranking.[6] Thus, *IIQ*, is a composite measure that incorporates both information speed and accuracy. To ease interpretation, we scale *IIQ* so that it ranges from zero to one.

literature is that firms intentionally delay the reporting of bad news (Givoly and Palmon 1982; Whittred 1980; Graham, Harvey, and Rajgopal 2005). To help mitigate concerns caused by these conflicting incentives, we limit our sample to profitable firms.

[5] Following Gallemore and Labro (2015) we exclude firms with restatements due to fraud. Intentional financial irregularities suffer from a myriad of confounding factors that make it an inappropriate proxy for IIQ. The relationship between fraud and tax avoidance is outside the scope of this study and is addressed directly by Lennox, Lisowsky, and Pittman (2013).

[6] As a robustness test, we recalculate our composite measure using the average earnings announcement speed over the five years from year *t to t+4* and whether the firm had a restatement in any of these five years. The results are robust to this alternative calculation method.

3.2. Uncertainty and Coordination Needs

Our second hypothesis examines whether the association between IIQ and income shifting is influenced by uncertainty. We measure uncertainty as the standard deviation of foreign sales over five years, scaled by total sales. Firms in the lowest quintile of volatility are considered to have low income shifting uncertainty, while all other firms in the sample are considered to have relatively high income shifting uncertainty.

Our third hypothesis examines whether the relation between IIQ and income shifting is stronger for firms with greater income shifting coordination needs. We use two distinct measures to proxy for a firm's coordination needs. Bushman, Chen, Engel, and Smith (2004) argue that geographically dispersed firms face more complex operating environments because they face cultural and legal diversity across markets and must coordinate organizations that span multiple countries. In the spirit of Bushman et al. (2004), we calculate geographic dispersion as the sum of the squared ratios of firms sales in each geographic segment over total firm sales. We then subtract one from this figure and multiply the result by negative one so that the variable is increasing with geographic dispersion. Our second proxy for coordination needs is research and development (R&D) intensity. Using tax return information from the Treasury corporate tax return files, Grubert (2003) examines a sample of MNCs and their manufacturing subsidiaries and finds that R&D intensive firms engage in significantly more intercompany transactions relative to other firms in an effort to shift income. Consequently, it seems reasonable that firms with greater R&D intensity have greater coordination needs. We measure R&D intensity as as research and development expenses scaled by lagged assets, with R&D set to zero if not reported in Compustat.

3.3. Test of Hypothesis 1 – Income Shifting and IIQ

Income shifting is not directly observable. However, Collins, Kemsley, and Lang (1998)

develop a model to infer income shifting from foreign return on sales. Following Klassen and

Laplante (2012b), we adapt the Collins et al. (1998) annual model to a multi-period model using

five-year averages because multinational income shifting is likely a long-term decision (De

Simone et al. 2016).[7] Specifically, we estimate the following model:

$$FRoS_{i,(t, t+4)} = \beta_0 + \beta_1 RoS_{i,(t, t+4)} + \beta_2 FTR_{i,(t, t+4)} + \beta_3 IIQ_{i,t} + \beta_4 IIQ*FTR + \beta_5 Controls_{i,t}$$

$$+ \sum_{j} \beta_5 Industry_i + \sum_{j} \beta_6 Year_i + \varepsilon_{i,t} \qquad (1)$$

Equation (1) assumes that, absent income shifting incentives, foreign return on sales

(*FRoS*) is approximately equal to worldwide return on sales (*RoS*) (Collins et al. 1998). Thus, the

coefficient on *RoS* captures the correlation between foreign return on sales and worldwide return

on sales and has a theoretical value of one. Equation (1) assumes that any deviation of the

coefficient on *RoS* from one is a result of income shifting (Collins et al. 1998). Both *FRoS* and

RoS are computed as the average foreign (worldwide) return on sales from year *t* to year *t+4*.

FTR proxies for a firm's tax incentives to shift income; thus, the coefficient on *FTR*

represents the extent of tax-motivated income shifting. We define *FTR* as the difference between

the U.S. statutory rate and the firm's average foreign tax rate from year *t* to year *t+4*.

Specifically, the U.S. statutory rate is the average statutory rate from year *t* to year *t+4 (which in*

our sample is always 35%) while the foreign tax rate is the sum of foreign tax expense from year

t to year *t+4* divided by pre-tax foreign income from year *t* to year *t+4* (Klassen and Laplante

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[7] Klassen and Laplante (2012b) argue that income shifting decisions are long-term because adjustment costs prevent income shifting strategies from being easily adjusted, changes in earnings patterns signal changes in transfer pricing calculations and create potential red flags for regulators, and foreign tax credits have carryover provisions smooth incentives created by fluctuating foreign tax rates over time.

2009b).[8] Higher values of *FTR* suggest that the average domestic statutory tax rate exceeds the average foreign tax rate and that the firm has tax-based incentives to shift income abroad.

While we measure *FRoS, RoS,* and *FTR* from year t to $t+4$, we measure *IIQ* at year t to examine the association between IIQ in the current year and firm's long-run income shifting strategy. To test our first hypothesis, we examine the coefficient on the interaction between *IIQ* and *FTR*.[9] H1 predicts that higher IIQ is associated with higher income shifting. Accordingly, we expect that β_4 will be positive and significant.

Because we are interested in the incremental influence of IIQ on income shifting, we include several factors that are likely correlated with both a firm's ability to shift income and our IIQ measure. *Controls* is a vector of variables that includes firm size, return on assets, and firm age. We define firm size (*Size*) as the natural logarithm of the market value of equity. We define return on assets (*ROA*) as pre-tax income divided by total assets at the end of year *t-1*. We define firm age as the natural logarithm of the length of time the firm is listed in Compustat.[10] Finally, we include industry and year fixed effects to control for both industry-specific and macroeconomic events. [11] Appendix A provides a summary of the variables used in our tests.

3.4. Tests of Hypothesis 2 and 3 – Cross-sectional Tests

Hypothesis 2 predicts a stronger relation between IIQ and tax-motivated income shifting for firms with greater uncertainty over the location of their sales. To test H2, we estimate equation (1) once for our subsample of firm-years with low foreign sales uncertainty and again for our subsample of firm-years with relatively high foreign sales uncertainty. We classify firms

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[8] In untabulated analyses, we perform all of our tests using data aggregated from year *t*-4 to *t* for *FRoS, RoS,* and *FTR.* Our inferences remain the same.

[9] We do not make a prediction on the main effect of *IIQ*.

[10] In untabulated results we include additional control variables, such as leverage and NOL. Our results hold after including these additional controls.

[11] We use Fama-French 17 industry specification. However, the results are robust to alternative specification of industry, such as Fama-French 48 and two digit SIC.

as having low foreign sales uncertainty if foreign sales volatility is in the bottom quintile in a given year. All other observations are considered to have high foreign sales uncertainty. We then compare the coefficient on *IIQ*FTR* across the two models and expect the coefficient on *IIQ*FTR* will be more pronounced in the high uncertainty subsample. We employ a similar test for our third hypothesis, which predicts a stronger relation between IIQ and tax-motivated income shifting for firms with greater coordination needs. We estimate equation (1) for each of our subsamples of firms with high and low coordination needs. We classify firms as having low coordination needs if geographic dispersion (R&D intensity) is in the bottom quintile in a given year. All other observations are considered to have high coordination needs. To test H3, we compare the coefficient on *IIQ*FTR* across the two models and expect that the coefficient on *IIQ*FTR* will be more pronounced in the subsample with high income shifting coordination needs.

4. Sample Selection and Descriptive Statistics

Our sample consists of U.S. firms with foreign sales and five consecutive years of available data from fiscal years 1996 through 2011 in the Compustat and Compustat Segments databases. Because the income shifting incentive and return on sales figures are based on a five-year forward looking calculations, the variables use data through 2015. Consistent with prior literature we exclude financial and utility firms because of revenue recognition and regulatory differences. We exclude loss firms because their income shifting incentives are unclear (Klassen and Laplante 2012a; De Simone et al. 2016) and because loss firms have incentive to delay earnings announcements (Givoly and Palmon 1982; Whittred 1980; Graham et al. 2005). After excluding firms missing required IIQ data, we have a sample of 5,021 firm-year observations. Additional sample selection details are shown in Table 1, Panel A.

[Insert Table 1 here]

Table 1, Panel B shows the descriptive statistics for the sample. Total sales, pretax income, and return on sales figures are larger than in prior literature primarily because we use more recent data. The median earnings announcement speed is -0.096, which represents approximately 35 days from the end of the fiscal year. The faster firms (95th percentile) announce in 20 days and the slower firms (5th percentile) in 67 days. About 89 percent of firm-years do not have an error related restatement, which means that roughly 11 percent of firm-year observations receive a composite IIQ score of zero. The median composite IIQ score is 0.5 with the distribution between 0 and 1.0 based on the presence of an error related restatement and the decile rank of EAS.

Our sample consists of large, profitable, well-established firms, which is by construction given our sample selection process and data requirements. It is possible that the finding of this paper are not generalizable to smaller, unprofitable, or new firms. We present variable correlations in Table 1, Panel C. The correlations between variables used to measure income shifting are consistent with prior literature (e.g., Klassen and Laplante 2012a). Also consistent with prior literature, earnings announcement speed and the absence of an error related restatement are not highly correlated, consistent with the theory that these proxies capture two distinct aspects of IIQ.

5. Results

Table 2, presents the results for the test of our first hypothesis. In all tables, standard errors are clustered by firm (Petersen 2009). Column (1) presents the results of estimating Equation (1) without accounting for IIQ. Consistent with prior research, we find that the coefficient on total return on sales (RoS) is positive and significant ($p < 0.01$), suggesting that

greater overall profitability is associated with higher foreign profitability. We also find that the coefficient on *FTR* is positive and significant ($p < 0.01$), indicating that firms respond to tax incentives and shift income. In column (2), we estimate the full version of Equation (1) that includes IIQ. Consistent with our first hypothesis, the coefficient on the interaction between *IIQ* and *FTR* is positive and significant ($p < 0.01$), suggesting that firms with high IIQ engage in higher levels of tax-motivated income shifting.

[Insert Table 2 here]

Table 3 presents the results for the test of second hypothesis regarding income shifting uncertainty. For firms with greater foreign sales volatility (i.e., greater uncertainty about the location of their sales), we find that the association between IIQ and income shifting is positive and significant, consistent with the results of our main analysis. However, the relation between IIQ and income shifting for firms with low foreign sales volatility is not statistically different from zero. Consistent with our second hypothesis, we find that the estimates for β_4 for each test are statistically different from each other ($p < 0.10$) across the two subsamples, suggesting that the association between IIQ and tax-motivated income shifting is stronger for firms with greater income shifting uncertainty. In combination, these results suggest that IIQ helps firms with greater uncertainty manage their income shifting opportunities, but has little impact on the income shifting of firms where the foreign sales levels are more predictable.

[Insert Table 3 here]

Table 4 presents the results for the test of our third hypothesis when geographic dispersion serves as our proxy for income shifting coordination needs. To test this hypothesis we compare the IIQ and income shifting relation for low geographic dispersion and high geographic dispersion firms. Among firms with greater geographic dispersion the relation between tax-

motivated income shifting and IIQ is positive and significant, as estimated by β_4 ($p < 0.01$). For firms with low geographic dispersion, β_4 is not statistically significant, indicating that IIQ is not an important determinant of tax-motivated income shifting for these firms ($p > 0.10$). The IIQ and income shifting relation is significantly different for low versus high geographic dispersion firms ($p < 0.01$). Therefore, consistent with Hypothesis 3, the relation between IIQ and tax-motivated income shifting is stronger for firms with high coordination needs.

[Insert Table 4 here]

Table 5 presents the results of the test of our third hypothesis when R&D intensity serves as our proxy for coordination needs. Among firms with greater R&D intensity the relation between tax-motivated income shifting and IIQ is positive and significant ($p < 0.01$). For low R&D intensity firms, β_4 is not statistically significant indicating that IIQ is not an important determinant of tax-motivated income shifting ($p > 0.10$). The IIQ and income shifting relation is significantly different for low versus high R&D intensity firms ($p < 0.01$).

In combination, the results in Table 4 and Table 5 suggest that IIQ helps firms with greater income shifting coordination needs manage their income shifting opportunities, but is less beneficial for the firms whose income shifting requires less coordination. It is important to note that the results in Tables 3, 4, and 5 do not suggest that firms with predictable income shifting environments and lower coordination needs do not shift income, but it does suggest that IIQ is not an important determinant of income shifting for these firms.

[Insert Table 5 here]

22

6. Robustness Tests

3.1. Variable Measurement

As discussed above, we use a composite measure of IIQ in an effort to capture multiple dimensions of IIQ (speed and accuracy of internal information) in a single proxy. However, prior research uses several alternative proxies for IIQ (e.g., Gallemore and Labro 2015; Heitzman and Huang 2016). Accordingly, we examine whether the results of our main analysis are robust to the following individual proxies for IIQ: management forecast accuracy (MFA), absence of an internal control weakness (ICW), earnings announcement speed, and absence of an error related restatement. In untabulated analysis, we find that IIQ is associated with greater income shifting when the decile rank of MFA serves as our proxy for IIQ ($p < 0.10$).[12] In addition, we find consistent results when the absence of an ICW in year t serves as our proxy for IIQ ($p < 0.01$). Further, our inferences remain the same when earnings announcement speed in year t serves as our proxy for IIQ ($p < 0.10$). Likewise, our inferences remain the same when the absence of an error-related restatement in year t is our proxy for IIQ ($p < 0.10$). In combination, the above analyses suggest that the association between IIQ and tax-motivated income shifting is robust to alternative specifications of IIQ.

The use of five-year average measures creates the potential for survivorship bias and substantial data loss. In an untabulated test, we replicate our analyses using three-year average for all variables (i.e., we measure variable from year t to $t+2$). Our inferences remain the same using this alternative specification. However, we acknowledge certain restrictions to our sample

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[12] Restrictions in data availability associated with MFA and income shifting variables severely limit our sample, which reduces the power of our tests and may affect our ability to accurately measure the relationship between IIQ and income shifting. Prior research documents only sporadic issuance of management guidance: for example, 63 percent of firms (out of 595 firms) issue only one forecast over the 1995-2000 time period and only seven firms issue forecasts in every year (Rogers and Stocken 2005).

may limit the generalizability of our results and we caution readers to apply these findings only to publicly traded, profitable MNCs.

3.2. Correlated omitted variables

Our results suggest that IIQ is associated with a firm's propensity to engage in tax-motivated income shifting. However, there may be observable or unobservable variables omitted from our tests that could affect the results and our inferences. Accordingly, we examine whether an exogenous shock to IIQ is associated with tax-motivated income shifting. Specifically, we follow Gallemore and Labro (2015) and use the Sarbanse-Oxley Act (SOX) as an exogenous shock to IIQ. SOX requires firms to assess and disclose the strength of their internal controls for financial reporting purposes. Following Gallemore and Labro (2015), we examine whether firms that disclosed an internal control weakness in 2004 (initial implementation) but subsequently remediated the weakness, increase their tax-motivated income shifting post-SOX more than firms that did not disclose and remediate a material weakness. Consistent with our main research design, we regress *FRoS* on *RoS* and *FTR.* We add an indicator variable (*Remed*) equal to one if the firm remediated and initially disclosed internal control weakness, zero otherwise. We also add an indicator variable (*Post*) equal one for fiscal years after 2004.[13] In order to test whether remediation firms increased their income shifting activities after the implementation of SOX we examine the three-way interaction between *Remed, Post,* and *FTR*.[14] The estimated coefficient associated with this three-way interaction is positive and significant ($p < 0.05$), suggesting that remediation firms increased their income shifting activities to a greater extent post-SOX when compared with non-remediation firms. Although it is impossible to rule out endogeneity, this

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[13] In the pre-SOX period we do not include observations in which the five-year income shifting measures include 2004.

[14] This is a three-way interaction and all appropriate two-way interactions are included in the model in order for it to be properly specified.

result is consistent with our main analysis and provides some comfort that the association between IIQ and tax-motivated income shifting is not attributable to a correlated omitted variable.

7. Conclusion

This study examines whether the quality of firms' internal information environment influences its tax-motivated income shifting activities. Prior research provides compelling evidence that suggests that corporations engage in specific activities to shift income from high-tax jurisdictions into low-tax jurisdictions (e.g., Klassen and Laplante 2012a). Despite significant incentives for corporations to shift income, evidence on the determinants of firms' income shifting activities is limited. We extend this line of research by examining whether the quality of a firm's internal information environment influences its tax-motivated income shifting activities.

Using a sample of MNCs from 1996 to 2011, we find a positive association between firms' IIQ and tax-motivated income shifting. Our result suggests that higher IIQ enables managers to better identify and execute income shifting opportunities.

To provide additional insight into our findings, we examine whether the association between IIQ and income shifting varies based on the uncertainty and coordination needs surrounding a firm's operations. We find that higher IIQ is associated with greater income shifting for firms with high foreign sales uncertainty and not for firms with low foreign sales uncertainty. These findings suggest that IIQ is more beneficial to firms whose income shifting environments are more uncertain and is less influential for firms with more predictable income shifting environments. We also find that higher IIQ is associated with tax-motivated income shifting among firms with greater coordination needs. In contrast, we find that IIQ is not associated with tax-motivated income shifting among firms with lower coordination needs. In

25

combination, these results suggest that while IIQ is beneficial, its influence on tax-motivated income shifting varies across firms.

Our study contributes to two streams of research. First, the results of our study contribute to the income shifting literature. Prior research that investigates income shifting focuses on accounting and tax regimes (De Simone 2016; Markle 2016) as well as firm characteristics such as affiliate profitability, financial constraints, investment options, and financial reporting incentives (De Simone, Klassen, and Seidman 2016; Dyreng and Markle 2016; Klassen and Laplante 2012b). This study extends prior research by providing evidence on the extent to which a firm's internal processes influence its income shifting strategies.

Second, this study extends the literature that examines the outcomes of high quality internal information environments. Recent research documents that the quality of the internal information environment affects capital resource allocation and investment decisions (Duchin and Sosyura 2013; Billett et al. 2015; Goodman et al. 2013). Our study extends this line of research by focusing on how internal information quality affects a specific within-firm tax planning strategy: tax-motivated income shifting. Our study also triangulates and extends Gallemore and Labro (2015) who find that higher quality internal information environments are associated with higher levels of overall tax avoidance. Because overall tax avoidance is comprised of multiple tax planning activities, the influence of IIQ on specific tax planning activities is not clear. Consequently, our results compliment Gallemore and Labro (2015) by providing additional insights into the influence of IIQ on a specific tax avoidance strategy that is commonly used by multinational corporations.

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Variable	Definition
Foreign Return on Sales (*FRoS*)	Five-year average foreign profit margin by firm from year t to year t+4, measured by the sum of foreign pretax income divided by the sum of foreign sales.
Worldwide Return on Sales (*RoS*)	Five-year average of worldwide profit margin by firm from year t to year t+4, measured by the sum of worldwide pretax income divided by the sum of worldwide sales.
Tax Rate Shifting Incentive (*FTR*)	Five-year average of income shifting incentive by firm from year t to year t+4, measured by the U.S. statutory tax rate minus the sum of foreign total tax expense divided by the sum of by foreign pretax income.
Earnings Announcement Speed (*EAS*)	The number of days between the end of the fiscal year and the firm's earnings annoucement for year t, divided by 365. We then multiple this figure by negative one so that EAS is increasing with announcement speed.
Absence of Error Related Restatement	An indicator variable equal to zero if a firm restated its financial statements for year t due to unintentional error, this variable is assigned a one otherwise. Unintenitional errors are restatements not deemed to be accounting irregularities in Audit Analytics.
Internal Information Quality (*IIQ*)	Composite IIQ variable is measured by ranking EAS into deciles by industry (Fama-French 17) and year, each rank is multiplied by .1 so that the rank of EAS ranges from 0.1 to 1.0 and all firm years receive a value of zero if they have an error related restatement while firms without an error restatement retain their EAS decile ranking.
Foreign Sales Percent	Foreign sales divided by total sales.
Firm Size	The natural log of the market value of equity plus one.
Return on Assets (*ROA*)	Pretax book income less extraordinary items scaled by lagged assets.
Firm Age	The number of years since the first year the firm appeared in the Compustat database. The natural log of firm age is used for regressions.
Geographic Dispersion	The sum of the squared ratios of firms sales in each geographic segment over total firm sales, minus 1, and multiplied by -1.
R&D Intensity	Research and development expenses in year t, scaled by total assets from year t-1.
Foreign Sales Volatility	The standard deviation of foreign sales over the five-year period from year t to t+4, scaled by total sales in year t.

Table 1
Descriptive statistics and correlations

Panel A: Sample

Variable	N
US Firms with foreign sales and available 5-year data from 1996 - 2011	13,891
Remove:	
financial and utilities firm-years	(553)
5-year average and current year loss firm-years	(6,471)
extreme values for tax rate incentive, foreign sales %, geographic dispersion, and return on sales	(223)
firm-years with detected accounting fraud	(32)
firm-years without earnings announcement speed and restatement data	(1,591)
Final Sample	5,021

Panel B: Descriptive statistics

Variable	N	Mean	Std. Dev.	5th Pctl.	Median	95th Pctl.
Total Sales	5,021	6,717	21,463	90	1,351	28,655
Pretax Income	5,021	939	3,531	7	142	3,826
Pretax Foreign Income	5,021	433	2,444	1	37	1,576
Worldwide Return on Sales	5,021	0.125	0.086	0.027	0.104	0.290
Foreign Return on Sales	5,021	0.122	0.105	0.019	0.093	0.319
Incentive to Shift Income	5,021	0.06	0.17	-0.22	0.07	0.32
Earnings Announcement Speed (x -1)	5,021	-0.105	0.041	-0.184	-0.096	-0.055
Absence of Error Related Restatement	5,021	0.892	0.311	0.000	1.000	1.000
Composite IIQ Measure	5,021	0.470	0.314	0.000	0.500	1.000
Foreign Sales Volatility	5,021	0.11	0.11	0.01	0.08	0.34
Geographic Dispersion	5,021	0.45	0.18	0.12	0.47	0.74
R&D Intensity	5,021	0.04	0.06	0.00	0.02	0.16
Size	5,021	7.48	1.90	4.28	7.43	10.87
ROA	5,021	0.14	0.09	0.04	0.12	0.33
Age	5,021	27.95	17.11	5.00	24.00	57.00
Foreign Sales Percent	5,021	0.38	0.20	0.08	0.37	0.75

Panel C: Correlations

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	*Total Sales*	1.00															
2	*Pretax Income*	**0.89**	1.00														
3	*Pretax Foreign Income*	**0.84**	**0.95**	1.00													
4	*Worldwide Return on Sales*	**0.04**	**0.19**	**0.13**	1.00												
5	*Foreign Return on Sales*	**0.09**	**0.20**	**0.17**	**0.58**	1.00											
6	*Incentive to Shift Income*	0.00	0.02	0.02	**0.18**	**0.28**	1.00										
7	*Earnings Announcement Speed (x -1)*	**0.18**	**0.19**	**0.13**	**0.22**	**0.12**	0.06	1.00									
8	*Absence of Error Related Restatement*	0.02	**0.04**	0.03	**0.06**	**0.07**	-0.03	**0.07**	1.00								
9	*Composite IIQ Measure*	**0.18**	**0.19**	**0.13**	**0.22**	**0.16**	**0.07**	**0.74**	**0.52**	1.00							
10	*Foreign Sales Volatility*	**-0.06**	-0.03	0.00	**0.18**	**0.11**	**0.10**	0.01	-0.06	-0.05	1.00						
11	*Geographic Dispersion*	**0.08**	**0.13**	**0.14**	**0.15**	**0.09**	**0.06**	**0.11**	-0.04	**0.07**	**0.17**	1.00					
12	*R&D Intensity*	**-0.07**	-0.01	-0.01	**0.24**	**0.08**	**0.16**	**0.21**	-0.07	**0.15**	**0.26**	**0.08**	1.00				
13	*Size*	**0.47**	**0.46**	**0.33**	**0.37**	**0.29**	**0.09**	**0.50**	**0.06**	**0.45**	-0.08	**0.21**	0.00	1.00			
14	*ROA*	0.01	**0.12**	**0.10**	**0.51**	**0.27**	**0.07**	**0.14**	**0.06**	**0.14**	**0.14**	-0.02	**0.25**	**0.16**	1.00		
15	*Age*	**0.29**	**0.25**	**0.20**	-0.07	-0.03	-0.03	**0.18**	**0.06**	**0.20**	**-0.19**	**0.12**	**-0.21**	**0.41**	**-0.14**	1.00	
16	*Foreign Sales Percent*	**0.07**	**0.12**	**0.12**	**0.22**	0.02	**0.16**	**0.13**	-0.04	**0.09**	**0.40**	**0.59**	**0.29**	**0.19**	**0.07**	**0.05**	1.00

Panel A describes the sample selection process using data available on Compustat. Panel B shows the descriptive statistics for the sample. Panel C shows the Spearman correlations. Significant correlations at the 0.05 level are in bold. Appendix A provides a summary of the variables in this table.

Table 2
IIQ and Tax-Motivated Income Shifting

VARIABLES	Prediction	Without IIQ	Composite IIQ Measure
Worldwide Return on Sales	+	0.584***	0.576***
		(9.659)	(9.427)
Tax Rate Shifting Incentive (FTR)	+	0.125***	0.0725***
		(9.387)	(3.545)
Internal Information Quality (IIQ)	?		-0.00667
			(-0.783)
IIQ * FTR	+		**0.121***
			(3.024)
Firm Clustered SE		YES	YES
Industry FE		YES	YES
Year FE		YES	YES
Controls		YES	YES
Observations		5,021	5,021
R-squared		0.414	0.417

This table presents the results of estimating equation (1) via OLS with Foreign Return on Sales (FRoS) as the dependent variable. The proxy used for IIQ is a composite measure comprising the existence of an error related financial restatement (0) and earnings announcement speed (decile rank from 0.1 - 1.0) from year t. Five-year averages are used for foreign return-on-sales, worldwide return-on-sales, and tax rate shifting incentive from year t to t+4. Coefficients are estimated using firm clustered standard errors with t-values in parentheses. ***, **, and * denote significance at a 1,5, and 10 percent level for one-tailed tests for the interaction of interest and FTR, two-tailed tests otherwise. Controls include the natural log of MVE + 1, ROA, and the natural log of firm age. Appendix A provides a summary of all variable definitions.

Table 3
IIQ, Tax-Motivated Income Shifting, and Foreign Sales Volatility

VARIABLES	Prediction	High Uncertainty	Low Uncertainty
β1 - Worldwide Return on Sales	+	0.584***	0.483***
		(8.645)	(4.519)
β2 - Tax Rate Shifting Incentive (FTR)	+	0.0649***	0.107**
		(3.451)	(2.206)
β3 - Internal Information Quality (IIQ)	?	-0.00358	-0.0241*
		(-0.364)	(-1.945)
β4 - IIQ * FTR	**+**	**0.143***	0.00742**
		(3.424)	**(0.0918)**
β4 - for High Uncertainty >		**0.136***	
β4 - for Low Uncertainty		**(2.59)**	
Firm Clustered SE		YES	YES
Industry FE		YES	YES
Year FE		YES	YES
Controls		YES	YES
Observations		4,011	1,010
R-squared		0.458	0.238

This table presents the results of estimating equation (1) via OLS for subsamples based on the level of uncertainty surrounding foreign sales. We classify observations with foreign sales volatility in the lowest quintile as having low uncertainty needs while all other observations are considered to have high uncertainty. The proxy used for IIQ is a composite measure comprising the existence of an error related financial restatement (0) and earnings announcement speed (decile rank from 0.1 - 1.0) from year t. Five-year averages are used for foreign return-on-sales, worldwide return-on-sales, and tax rate shifting incentive from year *t* to *t+4*. Coefficients are estimated using firm clustered standard errors with t-values in parentheses. ***, **, and * denote significance at a 1,5, and 10 percent level for one-tailed tests for the interaction of interest and FTR, two-tailed tests otherwise. Controls include the natural log of MVE + 1, ROA, and the natural log of firm age. Appendix A provides a summary of all variable definitions.

Table 4
IIQ, Tax-Motivated Income Shifting, and Geographic Dispersion

VARIABLES	Prediction	High Coordination Needs	Low Coordination Needs
β1 - Worldwide Return on Sales	+	0.589***	0.487***
		(8.677)	(4.525)
β2 - Tax Rate Shifting Incentive (FTR)	+	0.0473***	0.161***
		(2.779)	(3.396)
β3 - Internal Information Quality (IIQ)	?	-0.000756	-0.0259**
		(-0.0781)	(-2.000)
β4 - IIQ * FTR	**+**	**0.168***	**-0.0879**
		(4.019)	**(-1.161)**
β4 - for High Complexity >		**0.256***	
β4 - for Low Complexity		**(9.83)**	
Firm Clustered SE		YES	YES
Industry FE		YES	YES
Year FE		YES	YES
Controls		YES	YES
Observations		4,016	1,005
R-squared		0.489	0.268

This table presents the results of estimating equation (1) via OLS for subsamples based on coordination needs. We classify observations with geographic dispersion in the lowest quintile as having low coordination needs while all other observations are considered to have higher coordination needs. The proxy used for IIQ is a composite measure comprising the existence of an error related financial restatement (0) and earnings announcement speed (decile rank from 0.1 - 1.0) from year *t*. Five-year averages are used for foreign return-on-sales, worldwide return-on-sales, and tax rate shifting incentive from year *t* to *t+4*. Coefficients are estimated using firm clustered standard errors with t-values in parentheses. ***, **, and * denote significance at a 1,5, and 10 percent level for one-tailed tests for the interaction of interest and FTR, two-tailed tests otherwise. Controls include the natural log of MVE + 1, ROA, and the natural log of firm age. Appendix A provides a summary of all variable definitions.

Table 5
IIQ, Tax-Motivated Income Shifting, and R&D Intensity

VARIABLES	Prediction	High Coordination Needs	Low Coordination Needs
$\beta 1$ - *Worldwide Return on Sales*	+	0.488***	0.730***
		(6.946)	(8.146)
$\beta 2$ - *Tax Rate Shifting Incentive (FTR)*	+	0.0564***	0.102**
		(2.865)	(2.566)
$\beta 3$ - *Internal Information Quality (IIQ)*	?	-0.00914	-0.00736
		(-1.018)	(-0.428)
$\beta 4$ - IIQ * FTR	+	**0.179*****	**-0.00576**
		(4.355)	**(-0.0667)**
$\beta 4$ - for High Complexity >		**0.185****	
$\beta 4$ - for Low Complexity		**(3.96)**	
Firm Clustered SE		YES	YES
Industry FE		YES	YES
Year FE		YES	YES
Controls		YES	YES
Observations		3,526	1,495
R-squared		0.433	0.434

This table presents the results of estimating equation (1) via OLS for subsamples based on coordination needs. We classify observations with R&D intensity in the lowest quintile as having low coordination needs while all other observations are considered to have higher coordination needs. The proxy used for IIQ is a composite measure comprising the existence of an error related financial restatement (0) and earnings announcement speed (decile rank from 0.1 - 1.0) from year t. Five-year averages are used for foreign return-on-sales, worldwide return-on-sales, and tax rate shifting incentive from year *t* to *t+4*. Coefficients are estimated using firm clustered standard errors with *t*-values in parentheses. ***, **, and * denote significance at a 1,5, and 10 percent level for one-tailed tests for the interaction of interest and FTR, two-tailed tests otherwise. Controls include the natural log of MVE + 1, ROA, and the natural log of firm age. Appendix A provides a summary of all variable definitions.