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**Does a Common Set of Accounting Standards Affect Tax-Motivated
Income Shifting for Multinational Firms?**

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by

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Dedication

To my wonderful family, friends, cohort, and furry kids who helped me see this through.

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Does a Common Set of Accounting Standards Affect Tax-Motivated Income Shifting for Multinational Firms?

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The University of Texas at Austin, 2013

Supervisor: Lillian Mills

I examine an unintended consequence of countries permitting or requiring a common set of accounting standards for unconsolidated financial reporting. Specifically, I test whether adoption of IFRS facilitates income tax-motivated profit shifting by multinational entities (MNEs). MNEs often justify transfer prices to tax authorities by benchmarking intercompany profit allocations against a range of profit rates reported by economically comparable, independent firms that use similar accounting standards. A larger set of qualifying benchmark firms resulting from IFRS adoption could allow opportunistic managers to support more tax-advantaged transfer prices. I use a database of EU unconsolidated financial and ownership information to identify tax-motivated income shifting over 2001 to 2010. I estimate a statistically and economically significant 17.5 percent tax-motivated change in reported pre-tax profits following affiliate IFRS adoption, relative to no change in income shifting behavior for non-adopters. The magnitude of this effect increases in expansions to the set of potential benchmark firms upon affiliate IFRS adoption.

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Chapter 1: Introduction

Multinational entities (MNEs) face tax incentives to shift income from high-tax jurisdictions to low-tax jurisdictions by strategically valuing intercompany transactions. To mitigate tax-motivated manipulations of intercompany transfer prices for goods, services, intellectual property and debt, tax authorities require that transfer prices be “arm’s length,” or comparable to prices charged between independent enterprises (Organisation for Economic Cooperation and Development (OECD) [2010]). Because arm’s length contractual prices are generally unobservable, MNEs often benchmark transfer prices by identifying a set of economically comparable, independent companies that use similar accounting standards. They then calculate a range of profit rates reported by these benchmark firms and demonstrate that affiliate profits are within this benchmark range. Adoption across jurisdictions of a common set of accounting standards, such as International Financial Reporting Standards (IFRS), expands the set of potential benchmark firms and could allow MNEs more flexibility to support tax-advantaged transfer prices. However, tax authorities could use a larger set of potential benchmarks to enforce tighter comparability classifications, resulting in narrower profit ranges.

I examine tax-motivated income shifting across jurisdictions following affiliate adoption of a common set of accounting standards for unconsolidated financial reporting. My study is unique because it investigates an unintended consequence of countries permitting or requiring IFRS for unconsolidated financial reporting. I consider how an accounting change interacts with tax incentives to affect managerial behavior. The European Union (EU) is a powerful setting to address this research question due to

significant variation in unconsolidated IFRS reporting rules by country, year and entity type.

All EU member countries follow guidance published by the OECD for substantiating intercompany transfer prices.¹ These Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations state that, for the purposes of benchmarking intercompany prices, an “important aspect of comparability is accounting consistency” (OECD [2010], p. 72). Thus, holding economic comparability of potential benchmark firms constant, only those firms using similar accounting standards meet the OECD definition of comparability for justifying arm’s length transfer prices. Private discussions with global transfer pricing professionals suggest that upon audit, tax authorities in the EU have historically rejected potential benchmark firms that use different accounting standards (i.e., foreign firms using local GAAP), but that in the years following EU countries permitting or requiring IFRS for unconsolidated financial reporting, MNEs increasingly rely on multinational (e.g., pan-European) sets of benchmark firms to justify intercompany prices.

Permitted or mandated use of a common set of accounting standards in the EU expands the set of potential benchmark firms available to MNEs for substantiating transfer prices. This larger set of potential benchmark firms allows MNEs to opportunistically choose more favorable benchmarks that support a tax-advantaged transfer price. Figure 1 depicts how affiliate IFRS adoption expands the benchmark set,

¹ OECD policy guidelines are non-binding. The European Commission (EC) has the authority to enforce tax policies on EU member states, however to date the EC has allowed member states to choose their own tax policies so long as they respect a general set of EU rules. Virtually every member country in the EU substantially adopted the OECD Guidelines and enacted them into law.

potentially resulting in more optimal transfer prices. For example, MNEs with an affiliate in a high-tax jurisdiction could “cherry-pick” among potential benchmark firms and select less profitable firms to substantiate low profits for their high-tax affiliate. Tax-motivated income shifting by MNEs could therefore increase following affiliate adoption of IFRS.

However, tax-motivated income shifting may not increase following affiliate IFRS adoption for the following reasons. First, tax authorities can also use the larger set of potential benchmark firms to challenge taxpayer-favored transfer prices upon examination, cherry-picking benchmarks that increase taxable income in their jurisdiction or enforcing stricter comparability criteria to reduce transfer pricing flexibility. For example, consider an affiliate that searches for potential benchmark firms within their own country prior to IFRS adoption by identifying independent firms within the same two-digit industrial code. Newly available potential benchmarks across the EU after IFRS adoption may allow the affiliate to narrow its search to the same three-digit industrial code. Enforcing narrower industry classifications could tighten the benchmark range of profits. Second, increased financial statement transparency upon IFRS adoption could limit tax-motivated income shifting. Finally, costs associated with optimizing transfer pricing strategies may be prohibitive, resulting in no change to taxpayer behavior.

EU law requires MNE affiliates to disclose unconsolidated financial statements. Between 2003 and 2007, many European MNE affiliates changed accounting methods as several EU member states first permitted or required IFRS for unconsolidated financial reports. I use Bureau van Dijk’s Amadeus database, comprised of European

unconsolidated financial and ownership information. This unique database provides unconsolidated financial information required to estimate affiliate-level tax incentives and their effect on reported affiliate-level profits, neither of which can be measured using consolidated financial statements or reported segment information.² Amadeus also provides financial reporting standards used by affiliates and affiliate ownership linkages required to identify the effect of a common set of accounting standards on tax-motivated income shifting among affiliated firms.

Using a sample of 50,166 profitable affiliate-year observations over the period 2001 to 2010, I document that IFRS adopters experience a substantial increase in the number of potential benchmark firms and the range of possible benchmark profits. I next estimate the effects of tax incentives and affiliate IFRS adoption on reported affiliate pre-tax profits, other things equal. Following Hines and Rice [1994], I estimate affiliate reported pre-tax income as a function of statutory tax rates, affiliate tangible fixed assets, affiliate compensation expense, and per capita GDP. The average IFRS adopter in my sample changes from shifting no significant amount of income prior to adopting IFRS, to shifting 17.5 percent of pre-tax income following affiliate adoption of IFRS and in response to a differential statutory tax rate change of 0.1. In contrast, non-adopters experience no change in income shifting behavior over the same period. Further, I find that the magnitude of the change in income shifting behavior for IFRS adopters is increasing in changes to potential benchmark firm set size and profit ranges. These results are supported by a significantly lower average effective tax rate reported by IFRS

² I use the term “affiliate” to refer to parents or subsidiaries of controlled groups.

adopters after adoption, but no change in the average effective tax rate reported by non-adopter affiliates.

My study makes several contributions to the literature. First, I shed light on a real effect of accounting choices made by both jurisdictional standards setters and MNE managers, positing that accounting methods, tax incentives, and managerial incentives likely interact to affect MNE income shifting behavior. A change in tax-motivated income shifting behavior is an unintended consequence of jurisdictions permitting or requiring IFRS, potentially resulting in tax revenue transfers between jurisdictions and lower corporate tax burdens. In addition, tax incentives could affect the choice of accounting standards for managers in countries that permit (but do not require) IFRS for unconsolidated reporting. Finally, changes to affiliated group profit allocations post-adoption could affect managerial compensation and performance.

Second, this study begins to fill a gap in the literature by extending and combining two existing lines of research that examine the economic consequences of jurisdictions permitting or requiring IFRS and of tax-motivated income shifting. Much of the research evaluating the economic consequences of IFRS focuses on the intended benefits of standards setters permitting or mandating a common set of accounting standards for consolidated financial reporting, including financial statement comparability and quality, capital markets effects, and economic network benefits.³ In

³ For empirical evidence on the effect of IFRS on financial statement comparability and quality, see Barth et al. [2008], Barth et al. [2011], Brochet et al. [2012], Christensen et al. [2012], Christensen et al. [2008], Lang et al. [2010], Liao et al. [2011], Yip and Young [2012] and Wang [2011]. Studies examining capital markets effects of IFRS include Armstrong et al. [2012], Beneish et al. [2012], Christensen et al. [2012], Daske et al. [2012, 2008] and Horton and Serafeim [2008]. Ramanna and Sletten [2012] examine the role

contrast, I evaluate the unintended (and potentially undesired) consequence of individual affiliate adoption of IFRS for unconsolidated financial reporting on the pricing of multinational transactions designed to garner tax benefits. This study also extends research on income shifting, which generally demonstrates that firms respond to tax incentives when structuring transactions and reporting profits.⁴ My study is unique in that it spans both lines of research, investigating a previously unexplored effect of countries permitting or requiring IFRS for unconsolidated affiliate reporting.

Third, my finding of a positive relation between affiliate IFRS adoption and income shifting has potential implications for future tax-motivated, cross-border investments. Complex tax-efficient supply chain structures, such as the so-called “Double Irish Dutch Sandwich” intangible property structure implemented by Google and others, often represent investments of human, physical, and financial capital in tax-advantaged jurisdictions. More taxpayer-advantaged transfer prices following affiliate adoption of IFRS could lead to an increase in investments intended to substantiate further income shifting.⁵ Tax authorities and researchers should be interested in tax-motivated changes to cross-border investments following jurisdictions permitting or requiring IFRS.

of economic network effects in a country’s decision to permit or require IFRS. Other examples of IFRS studies include examinations of cross-border investment (e.g., DeFond et al. [2011]) and analyst coverage and forecasts (e.g., Byard et al. [2011], Horton et al. [2012] and Tan et al. [2012]).

⁴ See, for example, Bartelsman and Beetsma [2003], Clausing [2003], Collins and Shackelford [1998], Collins et al. [1998], Desai et al. [2004a], Dharmapala and Riedel [2011], Grubert [1998], Grubert and Mutti [1991], Harris [1993], Hines and Rice [1994], Huizinga and Laeven [2008], Huizinga et al. [2008], Klassen et al. [1993], Klassen and Laplante [2012a], Mills and Newberry [2004] and Rego [2003].

⁵ Grubert and Slemrod [1993] suggest tax-motivated investment and income shifting decisions are jointly determined. Other studies investigating tax-motivated investments by multinational corporations include Altshuler et al. [1998], Desai et al. [2004b], Grubert and Mutti [2000], Hines [1996], and Kemsley [1998].

This study proceeds as follows. Chapter 2 provides background information on arm's length transfer pricing and IFRS. Chapter 3 presents my hypothesis and Chapter 4 presents my research design. In Chapter 5, I discuss main results. Chapter 6 presents robustness tests. Chapter 7 concludes.

Chapter 2: Background

2.1 TAX-MOTIVATED INCOME SHIFTING

Firms shift income in response to tax incentives via the strategic valuation of intercompany sales of goods, services, debt and intangibles. To constrain tax-motivated income shifting by MNEs, many countries adopt formal rules to regulate intercompany pricing. A 2009 Ernst & Young Global Transfer Pricing Survey reports that between 2006 and 2009, more than ten countries introduced new transfer pricing documentation requirements, including EU members Greece and Slovakia. The number of countries with formal transfer pricing requirements increased to 42 by the end of 2012. Many of these countries adopt the transfer pricing guidelines published by the OECD.⁶

The OECD Guidelines define the “arm’s length principle” as the basis for substantiating appropriate transfer prices. The arm’s length principle specifies that intercompany prices should be comparable to prices charged by unrelated firms (i.e., firms held at “arm’s length”) for substantially similar transactions entered into under similar terms and economic conditions. To comply with this principle, taxpayers ideally obtain information on contractual terms for comparable transactions entered into by unrelated enterprises. However, such information is often unavailable because the types of transactions entered into by related parties do not frequently occur between unrelated parties. For example, parent companies typically provide management services to their subsidiaries, including high-level decisions about corporate policy and strategy. However, the parent company rarely provides such services for unrelated companies.

⁶ The OECD has 34 member states, including 21 EU member countries as of 2010.

As a result of limited data availability, MNEs frequently use transfer pricing methods that compare the rate of profit earned on an intercompany transaction to profits earned by comparable independent enterprises.⁷ Profit metrics include markup on cost, gross margin, operating margin, and net profit. In the case of management services, for example, a firm would compare the markup on the cost of management services incurred by the parent against the markup on cost achieved by an independent management consulting firm operating in similar economic conditions.

The OECD Guidelines list functions, risks, assets, and economic conditions as primary determinants of comparability. However, the OECD Guidelines also note that an “important aspect of comparability is accounting consistency” (OECD [2010], p. 73), and that “the key is to compare like with like and follow the same accounting principles for the taxpayer and for the comparables” (OECD [2010], p. 87). Therefore, different accounting standards can limit the ability of a taxpayer to find independent firms deemed suitably comparable for use in determining an arm’s length transfer price. According to Ernst & Young transfer pricing professionals in the United States, Canada, and the United Kingdom (UK), many tax authorities upon audit historically challenged the use of foreign benchmark firms that followed different accounting standards.⁸ Typically, potential benchmark firms must therefore have publicly available financial information reported using the same financial reporting standards as those of the taxpayer.

⁷ For example, the use of external benchmarks to apply the resale price method, the cost plus method, and the transactional net margin method described in the OECD Guidelines follow this approach.

⁸ Helpful comments by Martin Thomsen and Robert Ullmann of the University of Muenster further confirm that prior to EU jurisdictions permitting or requiring IFRS, EU tax authorities rejected potential benchmark firms based on insufficient similarity of local accounting standards.

Frequently, firms use multiple independent companies to construct a benchmark range of profitability. Taxpayers can target any point within the benchmark range and be compliant with the arm's length standard, however the most tax-advantaged points in the range are often the endpoints. For example, if the foreign affiliate is located in a relatively high-tax jurisdiction, the lowest profit supported by the arm's length range is optimal for tax minimization purposes.⁹

Numerous studies document a negative relation between tax rates and transfer prices or reported profits in broad cross-sections of firms, and that the magnitude of tax-motivated income shifting is economically significant. Focusing on investments, Grubert and Mutti [2000] estimate that nearly 19 percent of investments are redistributed based on tax incentives. Huizinga and Laeven [2008] estimate that an increase in the top statutory tax rate by one percentage point is on average associated with a 1.3 percent decrease in pre-tax profits for European affiliates of European MNEs, resulting in the erosion of up to 13.6 percent of the tax base in Germany, for example.

Similar to this study, several studies address differences in multinational income shifting across firms. Desai et al. [2006] examine cross-sectional determinants of the use of tax havens to shift income. Markle [2012] finds that firms shift more income under territorial systems than worldwide systems. Klassen and Laplante [2012b] provide

⁹ The OECD Guidelines suggest using an interquartile range to mitigate the effect of outliers and updating benchmark ranges annually. Tax audit adjustments to the benchmark set that generate a new range unsupportive of chosen prices generally result in an adjustment of the transfer price to the median of the new range. Taxpayers may make tax-only adjustments to transfer prices after closing the financial books but prior to filing the tax return. My research design uses unconsolidated financial statement information, which do not reflect tax-only adjustments, thus adding noise to my analysis and biasing against finding a result.

evidence that firms with financial reporting incentives to defer the recognition of tax expense on foreign earnings shift more income to low-tax jurisdictions. Swenson [2001] and Blouin et al. [2012] study the effect of conflicting customs duty and income tax incentives on MNE transfer prices and income shifting behavior.

Other studies document how MNEs shift income. For example, Collins and Shackelford [1998] find that taxes are positively associated with dividend, royalty, and interest payments between the 7,500 largest foreign affiliates of US firms in 1990. Other studies examining how MNEs shift income include Desai et al. [2004a], Grubert [1998], and Huizinga, Laeven and Nicodeme [2008].

2.2 INTERNATIONAL FINANCIAL REPORTING STANDARDS

The development of a common set of international reporting standards has long been the goal of the International Accounting Standards Board (IASB) and its predecessor, the International Accounting Standards Committee (IASC) to enhance financial statement comparability across jurisdictions (IASB Conceptual Framework [2008]). In the absence of a global standard, each country sets local generally accepted accounting principles (local GAAP) for companies required to publicly report their financial results (typically companies that publicly trade debt instruments or securities within that jurisdiction). Because these standards differ by country, it is difficult to compare companies reporting in different jurisdictions.

The declaration by Frits Bolkestein, European Commissioner for the Internal Market, that “investors and other stakeholders will be able to compare like with like” highlights that a primary goal and anticipated outcome of IFRS is increased

comparability of financial information reported by companies in different jurisdictions (GAAP Convergence [2002], p. 1).¹⁰ However, the IASB [2008] also acknowledges that IFRS will not necessarily result in increased comparability, due to the principles-based nature of the standards, as well as cross-sectional and timing differences in implementation.

For example, Table 1 provides unconsolidated IFRS reporting rules in the EU by country. Although the EU mandated IFRS for consolidated financial reporting in 2005, countries varied in mandating or permitting IFRS for unconsolidated financial reporting. As of 2011, 14 of the 27 EU member states require IFRS for unconsolidated financial reporting of certain firms, nine countries allow IFRS for certain firms, and four countries do not allow IFRS.¹¹ Countries also varied in their timing of requiring or allowing IFRS for unconsolidated financial reporting.

Several studies document actual increases in financial statement comparability. DeFond et al. [2011] develop measures of the extent to which uniform accounting standards are adopted and credibly implemented across countries, finding that mutual funds are more likely to invest in foreign companies after mandatory IFRS adoption (high uniformity), and that high uniformity interacts with credible implementation of IFRS at the country-level to encourage investment. Daske et al. [2008] find that market liquidity, costs of capital, and firm value generally increase upon mandatory IFRS adoption.

¹⁰ The IASB (2008) defines comparability as “the quality of information that enables users to identify similarities in and differences between two sets of economic phenomena.”

¹¹ EU countries requiring IFRS for unconsolidated reporting include Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Greece, Italy, Latvia, Lithuania, Malta, Portugal, Slovakia and Spain. Germany, Hungary, Ireland, Luxembourg, the Netherlands, Poland, Romania, Slovenia, and the UK permit IFRS for unconsolidated reporting.

Several papers examine analyst forecast errors and dispersion for IFRS adopters (e.g., Byard et al. [2011], Horton et al. [2012], and Tan et al. [2012]), finding evidence of increased comparability for IFRS adopters. Other papers measuring financial statement comparability as the relative ability of financial statement information to predict economic outcomes such as stock price, returns, and cash flows generally find greater comparability for mandatory IFRS adopters and high enforcement countries (e.g., Barth et al. [2011], Liao et al. [2011] and Yip and Young [2012]).¹² Alternatively, some papers find evidence that IFRS does not increase financial statement comparability (Lang et al. [2010]) or that results are more consistent with increases in financial reporting quality (e.g., Christensen et al. [2012] and Beneish et al. [2012]) or firm incentives (self-selection) (e.g., Christensen et al. [2008]). Regardless of the actual impact of IFRS on economic comparability, tax authorities allowing the use of IFRS profits to benchmark transfer prices provides the opportunity for MNEs to increase income shifting behavior.

Although IFRS and financial statement comparability are the subject of many studies, research examining the link between IFRS and tax avoidance is limited. Chan, Lin and Mo [2010] provide evidence that book-tax differences are increasingly associated with audit adjustments over a period in which China converged to IFRS. Because historical Chinese reporting standards did not differentiate between book and tax accounting, convergence to IFRS in China results in decreased book-tax conformity. Their study investigates the impact of IFRS on tax adjustments in China. In contrast, my

¹² Measures of financial statement comparability are the subject of many studies (see e.g., De Franco et al. [2011], Kim et al. [2012], Bradshaw et al. [2004], Bradshaw et al. [2009], Joos and Lang [1994], and Land and Lang [2002]) and outside the scope of this paper.

study investigates whether affiliate adoption of IFRS in the EU enhances the ability of MNEs to engage in tax-motivated income shifting.

Chapter 3: Hypothesis Development

Increased affiliate adoption of IFRS throughout Europe for unconsolidated financial reporting, culminating in mandatory adoption by some EU countries after 2005, increases the set of potential benchmark firms available for inclusion in arm's length ranges. As a result, MNEs could increase income shifting by selecting more advantageous benchmarks (i.e., "cherry picking"), or broaden their selection of benchmark firms to widen the arm's length range. A wider range provides more flexibility to MNEs with multiple affiliates engaged in similar functions but facing differing tax incentives.

For example, an MNE purchasing goods from a manufacturing affiliate located in a high-tax jurisdiction and a manufacturing affiliate in a low-tax jurisdiction simultaneously faces incentives to both minimize and maximize the transfer price of the manufactured goods, respectively. The firm optimally selects the lowest price in the benchmark range for sales from the high-tax affiliate and the highest point in the range for sales from the low-tax affiliate. Because any point in the arm's length range complies with the arm's length principle, a wider range allows the firm to select more advantageous endpoints to optimize transfer prices in multiple jurisdictions with differing tax incentives.

Alternatively, there are a number of reasons why tax-motivated income shifting may not increase following affiliate adoption of IFRS. First, affiliate adoption of IFRS also provides tax authorities with a larger set of potential benchmarks. Upon audit, tax authorities could cherry-pick benchmark firms to maximize MNE tax burdens. Second,

upon gaining a larger set of potential benchmarks through IFRS adoption, scrutiny and enforcement of transfer pricing rules may allow tax authorities to require firms to more narrowly select economic comparability criteria, which could limit the ability of firms to implement tax-advantaged transfer prices.

Third, one of the expectations of IFRS is increased financial reporting transparency. Increased transparency resulting from IFRS could hinder the ability of MNEs to shift profits by reducing their ability to hide transactions that lack “business purpose,” such as tax-motivated income shifting. Finally, Huizinga and Laeven [2008] estimate that the costs of income shifting are approximately 0.6 percent of the tax base. These costs include substantial compliance in the form of studies documenting the methods used to determine benchmark prices, which are often required by jurisdictions with transfer pricing rules or guidelines. For some firms, the costs of revamping their transfer pricing strategies to use a new set of benchmark firms may outweigh any potential tax benefits and therefore mitigate their incentive to change income shifting behavior.

Due to these competing arguments, I make no directional prediction for tax-motivated income shifting activity following affiliate adoption of IFRS and state my hypothesis in the null form.

H1₀: Tax-motivated income shifting behavior does not change following affiliate adoption of IFRS.

I predict that if IFRS adoption at the affiliate level affects income shifting behavior, then the level of income shifting following affiliate adoption of IFRS will be

different from the level of income shifting prior to affiliate adoption of IFRS. Further, this change should be different than any change in income shifting behavior exhibited by non-adopters. Thus I first examine how levels of tax-motivated income shifting change from the pre-IFRS period to the post-IFRS period for IFRS adopters, as compared to non-adopters.

I also test my theory that an expanded set of potential benchmark firms affects tax-motivated income shifting by measuring changes in potential benchmark set size across affiliates. This approach takes into consideration that IFRS adoption may impact potential benchmark firm set sizes differently across countries, industries and years. I predict that the effects of IFRS adoption on tax-motivated income shifting behavior should be associated with changes in set size as a result of affiliate adoption of IFRS. In Section 6.4, I discuss robustness tests related to changes in the range of profit margins reported by potential benchmark sets.

Another way of measuring changes to the size of the set of potential benchmark firms is to compare mandatory and voluntary IFRS adopters. By voluntarily choosing to adopt IFRS prior to any mandate, MNEs may actually reduce their set of potential benchmark firms if relatively few other firms across the EU also adopt IFRS. Thus, early voluntary IFRS adopters likely limit their ability to engage in income shifting behavior. Alternatively, after IFRS adoption rates reach a critical mass, voluntary IFRS adoption should increase opportunities to shift income. If managers are aware of this opportunity, later voluntary adopters could exhibit an increase in income shifting behavior. Further,

this increase may be larger than a potential increase in tax-motivated income shifting exhibited by non-voluntary adopters.

Chapter 4: Research Design

4.1 INCOME SHIFTING MODEL

I adapt the model developed by Hines and Rice [1994] and expanded by Huizinga and Laeven [2008] to estimate the effect of affiliate adoption of IFRS on tax-motivated income shifting. This model is a transformation of the Cobb-Douglas production function, an economic model of production as a function of productive assets: capital assets, labor, and productivity. Equation (1) provides this model.

$$(1) \text{LogPTI} = b_0 + b_1 C + b_2 \text{LogAssets} + b_3 \text{LogComp} + b_4 \text{LogGDP} + \text{FixedEffects} + e$$

The dependent variable *LogPTI* is the natural logarithm of affiliate profits before taxes (Amadeus variable *PLBT*). *C* is the tax incentive variable derived by Huizinga and Laeven [2008], defined as follows:

$$C_i = \frac{1}{(1 - \tau_i)} \frac{\sum_{k \neq i}^n \frac{B_k(\tau_i - \tau_k)}{1 - \tau_k}}{\sum_{k=1}^n \frac{B_k}{1 - \tau_k}}$$

where τ_i is the statutory tax rate and B_k is total revenues (*OPRE*) for affiliate k . By taking into account the revenue-weighted statutory differential tax rate of all affiliates, this measure captures whether a firm has both the incentive and opportunity to shift income into or out of a particular affiliate. I provide example calculations of C in Appendix B. Positive values of C represent a firm's incentive to shift income out of the affiliate because a positive C suggests that the affiliate faces a high tax rate relative to other affiliates in the controlled group in the same year. Therefore, prior income shifting

models predict and find a negative coefficient on C (Huizinga and Laeven [2008], Huizinga, Laeven and Nicodeme [2008], and Markle [2012]), reflecting lower pre-tax profits for high-tax affiliates and vice versa.

LogAssets and LogComp are the natural logarithms of affiliate fixed tangible assets ($TFAS$) and affiliate compensation expense ($STAF$), respectively.¹³ These variables serve as proxies for capital assets and labor. I discuss using number of employees (Amadeus variable $EMPL$) as an alternative proxy for labor in Section 6.5. LogGDP is the natural logarithm of the affiliate country's per capita GDP (European Commission [2012]) and serves as the proxy for productivity.

4.2 SAMPLE SELECTION

I use the Bureau van Dijk Amadeus database containing unconsolidated financial statement and ownership information for European companies from 2001 to 2010. I limit the sample to EU-domiciled parents and their affiliates. I further restrict my sample to controlled group-years with at least one non-domestic EU affiliated firm because these controlled groups have the opportunity to shift income within the EU. These search criteria yield 98,880 affiliate-year observations. I use these affiliate-year observations to calculate the tax incentive variable C . Table 2, Panel A details corporate statutory tax rates by EU country and year used to calculate C . Table 2, Panel B details corporate statutory tax rates by non-EU country (i.e., for non-EU European affiliates of controlled groups in my sample) and year used to calculate C .

¹³ $STAF$ captures the cost of employees for all types of companies (e.g., instead of being included in cost of goods sold for manufacturing companies).

Next, I limit my sample to affiliate-year observations within the 27 EU countries and exclude observations missing information necessary to calculate all variables used in estimation. Because my dependent variable is the natural logarithm of pre-tax profits (*LogPTI*), this step requires excluding affiliate-year observations with zero or negative pre-tax income, which is consistent with other income shifting studies.¹⁴ The resulting sample is 50,166 profitable affiliate-year observations, representing 1,173 unique parents and 17,721 unique subsidiaries. This final sample represents 23 of the 27 EU member states. Table 3, Panel A details sample selection criteria.

In Table 3, Panel B I provide the number of observations by year, country, and IFRS adoption. With the exception of 2010, which is not yet fully populated in Amadeus, the affiliate-year observations in my sample are relatively balanced across years. France has the most observations at 10,174, whereas Malta has the fewest observations at three. The average number of affiliate-year observations by country is 1,858. 2005 is the first year of voluntary or mandatory IFRS adoption. In that year, five affiliates voluntarily adopted IFRS, all located in Italy. Also in 2005, 72 affiliates adopted IFRS by mandate in Bulgaria and Slovakia. The largest increase in IFRS adoption occurs in 2007, when Spain permitted voluntary adoption of IFRS for unconsolidated financial reporting.

Spanish affiliates represent a majority of all IFRS observations in my sample; I discuss the sensitivity of results to Spanish observations in Section 6.1. IFRS adopters

¹⁴ Consistent with Markle [2011], although my research design precludes the testing of loss affiliates, I include these observations to calculate the tax incentive variable. Blouin et al. [2011] argue that MNEs with loss affiliates have income shifting incentives uncorrelated with statutory tax rates because amounts shifted into a loss affiliate yield zero additional tax burden (up to the affiliate's break-even point). Thus, I would expect no relation between a tax incentive variable and pre-tax income for loss affiliates.

represent 8,658 affiliate-year observations in my sample, during 3,320 of which they report their unconsolidated financials based on IFRS.

4.3 IFRS ADOPTION TESTS

To capture the effect of affiliate adoption of IFRS on income shifting, I adapt the income shifting model from Huizinga and Laeven [2008] and incorporate a difference-in-differences approach, estimating Equation (2) below.

$$(2) \text{LogPTI} = b_0 + b_1C + b_2\text{PostIFRS} + b_3\text{Adopter} + b_4C*\text{PostIFRS} + b_5C*\text{Adopter} + b_6\text{PostIFRS}*\text{Adopter} + b_7C*\text{PostIFRS}*\text{Adopter} + b_8\text{LogAssets} + b_9\text{LogComp} + b_{10}\text{LogGDP} + \text{Controls} + \text{Fixed Effects} + e$$

The coefficient b_7 on the interaction between C , PostIFRS , and Adopter is my primary variable of interest. A significant coefficient b_7 indicates that, other things equal, IFRS adopters change their income shifting behavior after IFRS adoption, and that this change differs from any change exhibited by non-adopters. Specifically, a negative b_7 is evidence of more income shifting by IFRS adopters following adoption, relative to non-adopters, while a positive b_7 provides evidence of less income shifting.

The coefficient b_1 provides the estimated main effect of the revenue-weighted statutory tax incentive variable C . I expect a negative coefficient on C , consistent with prior evidence of tax-motivated income shifting. This is because a negative coefficient on C suggests lower than expected pre-tax profits reported by affiliates facing relatively high statutory tax rates as compared to other affiliates in the controlled group, and vice versa.

PostIFRS is an indicator variable equal to one for affiliate-years in which IFRS adoption is required or permitted for unconsolidated financial reporting. For countries that do not allow IFRS for unconsolidated financial reporting, I set PostIFRS equal to 1 in

years 2005 and after. Defining *PostIFRS* in this way allows me to compare tax-motivated income shifting of IFRS adopters to pre-adoption behavior as well as to changes in tax-motivated income shifting of non-adopters (some of which are not permitted to adopt IFRS) over the same period. I discuss an alternative research design choice for *PostIFRS* in Section 6.7. The change in accounting standards used by IFRS adopters could lead to mechanical and systematic changes in reported pre-tax income. Because I have no prediction for which direction IFRS adoption should change reported pre-tax income, I make no prediction for the sign of the coefficient on *PostIFRS* (b_2).

Adopter is an affiliate-level indicator variable set equal to 1 for firms that adopt IFRS at some point in the sample period. Consistent with IFRS adoption rules targeting parents and listed firms, the coefficient on *Adopter* (b_3) may be positive, reflecting that IFRS adopters may be more profitable on average than non-adopters.

The interaction of *C* and *PostIFRS* tests whether there is a change in tax-motivated income shifting behavior exhibited by all affiliates (adopters and non-adopters) in the latter years of my sample period, during which many countries allowed or required IFRS adoption for unconsolidated financial reporting. The interaction of *C* and *Adopter* captures any difference in tax-motivated income shifting behavior between adopters and non-adopters over the full sample period. The interaction between *PostIFRS* and *Adopter* examines whether there is any change in pre-tax income by IFRS adopters following IFRS adoption, relative to their own pre-adoption levels. This variable helps control for changes in reported pre-tax income caused by different measurement and reporting rules required under IFRS. I make no prediction for the coefficients on these interactions.

LogAssets, *LogComp* and *LogGDP* control for factors of production expected to predict true pre-tax income. *LogAssets* and *LogComp* also help control for any potential differences in size between the IFRS adopters and non-adopters. I expect the coefficients on these control variables to be positive, consistent with economic theory that production increases in productive assets and country-year productivity.

To account for potential differences in accounting rules and financial reporting incentives for parents and listed affiliates, in some specifications I also include indicator control variables *Parent* and *Listed*. I make no prediction for how these controls affect pre-tax income. I also control for country and/or industry fixed effects. Following on Petersen [2009], Gow et al. [2010] suggest that clustering by firm and year to correct for cross-sectional and time-series dependence produces more well-specified test statistics in accounting research. I therefore cluster standard errors by controlled group (parent) and year.

4.4 SET SIZE TESTS

I next examine whether the effect of affiliate adoption of IFRS on income shifting will be different for firms in countries and industries that experience the greatest expansions to benchmark set sizes upon IFRS adoption. To test whether tax-motivated income shifting increases in set size expansions resulting from IFRS adoption, I re-estimate Equation (2), substituting *SetSizeRatio* for the indicator variable *Adopter* to yield Equation (3). *SetSizeRatio* is equal to $SetSizeRatio_{t+i}$ for IFRS adopters and zero for non-adopters. $SetSizeRatio_{t+i}$ is an affiliate-level measure capturing the change in the number of potential benchmark firms *PostIFRS*. Following DeFond et al. [2011], *SetSizeRatio* is

the number of independent EU firms in the affiliate's industry using the same accounting standards *PostIFRS*, divided by the number of independent firms in the affiliate's country and industry using local GAAP in the last year prior to the *PostIFRS* period.¹⁵

Because potential benchmark firms must be independent firms, I measure the set of potential benchmark firms using out-of-sample (i.e., non-affiliate) firms available in Amadeus that are not majority owned (i.e., with an independence indicator of “B” or greater). I use two-digit NACE industry classifications. I discuss alternative industry classifications in Section 6.9. A *SetSizeRatio* greater than one indicates that an IFRS adopter experienced an increase in the number of potential benchmark firms upon affiliate IFRS adoption, whereas a ratio less than one indicates that the affiliate experienced a decrease. I measure *SetSizeRatio*_{*t+i*} for the first three years of the *PostIFRS* period. I provide example calculations of *SetSizeRatio*_{*t+i*} in Appendix B.

$$(3) \text{LogPTI} = b_0 + b_1C + b_2\text{PostIFRS} + b_3\text{SetSizeRatio} + b_4C*\text{PostIFRS} + b_5C*\text{SetSizeRatio} + b_6\text{PostIFRS}*\text{SetSizeRatio} + b_7C*\text{PostIFRS}*\text{SetSizeRatio} + b_8\text{LogAssets} + b_9\text{LogComp} + b_{10}\text{LogGDP} + \text{Controls} + \text{FixedEffects} + e$$

Again, the coefficient on the three-way interaction (b_7) is of primary interest. A statistically significant coefficient supports a differential effect of affiliate adoption of IFRS on tax-motivated income shifting corresponding to changes in the set of available potential benchmarks upon IFRS adoption.

All other variables and predicted coefficients are as discussed with respect to Equation (2). To account for potential differences in accounting rules and financial

¹⁵ DeFond et al. [2011] call this measure “uniformity.”

reporting incentives, I also include indicator control variables *Parent* and *Listed*. I make no prediction for how these controls affect pre-tax income. I control for country and/or industry fixed effects and cluster standard errors by controlled group (parent) and year.

4.5 VOLUNTARY VERSUS MANDATORY ADOPTION ENDOGENEITY TESTS

Changes to the size of the set of potential benchmark firms may also vary between mandatory and voluntary adopters. Especially early in the sample period, voluntary adopters may experience a decrease in the number of potential benchmark firms using IFRS across the EU if early adoption rates are low. However, income shifting benefits could provide an incentive for affiliates to voluntarily adopt IFRS in countries where permitted, and voluntary adopters may as a result experience the largest increases to the potential benchmark set size. Because of this potential endogeneity, I examine whether the effect of affiliate IFRS adoption on income shifting is different between voluntary and mandatory adopters by estimating Equation (4) below.

$$(4) \text{LogPTI} = b_0 + b_1C + b_2\text{Early} + b_3\text{FirstTimeMandatory} + b_4\text{Voluntary} + b_5C*\text{Early} + b_6C*\text{FirstTimeMandatory} + b_7C*\text{Voluntary} + b_8\text{LogAssets} + b_9\text{LogComp} + b_{10}\text{LogGDP} + \text{Controls} + \text{FixedEffects} + e$$

The coefficients on the interactions with C (b_5 , b_6 , b_7) are of primary interest. Statistically significant coefficients provide evidence of a differential effect of affiliate IFRS adoption on tax-motivated income shifting corresponding to voluntary versus mandatory adoption. Following Daske et al. [2008], *Early* is an indicator variable equal to 1 for IFRS affiliate-years if the affiliate is located in a country with mandated IFRS adoption, but the affiliate voluntarily adopted IFRS prior to the effective date of the mandate. *FirstTimeMandatory* is an indicator variable equal to 1 for IFRS affiliate-years

if the affiliate only adopted IFRS upon the effective date of the mandate. *Voluntary* is an indicator variable equal to 1 for IFRS affiliate-years of voluntary adopters located in countries without a mandate. As before, I include *Parent* and *Listed* as control variables, as well as country and/or industry fixed effects. I cluster standard errors by controlled group (parent) and year.

Chapter 5: Results

5.1 DESCRIPTIVE STATISTICS AND UNIVARIATE TESTS

Table 3, Panel C provides descriptive statistics. I winsorize all continuous variables at the 1 percent level to mitigate the effects of outliers on my inferences. The full sample of 50,166 profitable affiliate-years reported median (mean) revenues of \$18.9 million (\$161 million), and pre-tax income of \$1.1 million (\$16.8 million) over the period 2001 to 2010. These firms also reported median (mean) tangible fixed assets of \$1.2 million (\$34.3 million) and compensation expense of \$2.7 million (\$18.3 million). On average, these firms have a revenue-weighted differential tax rate C of -0.01, representing a tax incentive to increase profits in the jurisdiction. The median tax incentive variable C is zero. Global ultimate owners (parents) of a controlled group represent 6.7 percent of affiliates in the sample, 57.2 percent of affiliates have a parent that is listed on a stock exchange (or are the listed parent), and 4.2 percent of affiliates are themselves listed.

Table 3, Panel C also compares firm characteristics of IFRS adopters to those of non-adopters. Median revenues of IFRS adopters (\$16.3 million) are less than median revenues of non-adopters (\$19.5 million), and median pre-tax income is lower for IFRS adopters than non-adopters. The relation reverses at the mean level however; IFRS adopters have larger mean revenues and PTI than non-adopters. IFRS adopters also have larger mean and median assets than non-adopters. These differences are statistically significant. These figures provide some support that IFRS adopters are generally larger than non-adopters on average. IFRS adopters are more likely to be parents and listed

affiliates than non-adopters. These univariate results are consistent with EU unconsolidated financial reporting rules that focus primarily on listed firms.

I next examine whether there is a differential change to the set of potential benchmark firms for IFRS adopters as compared to non-adopters. $\Delta SetSize_{t+i}$ is the number of independent firms in the i th year of the *PostIFRS* period using the same accounting standards and in the same industry as the affiliate, less the number of independent firms in the last year prior to the *PostIFRS* period using the same accounting standards and in the same industry as the affiliate.¹⁶ For example, for a non-adopter permitted to adopt IFRS in 2007, $\Delta SetSize_{t+1}$ is the number of local GAAP independent firms in the affiliate's country and industry in 2007 less the number of local GAAP independent firms in the affiliate's country and industry in 2006. Thus, $\Delta SetSize_{t+i}$ measures the absolute change in the number of potential benchmark firms available to an affiliate in the first three years *PostIFRS*. This change is significantly greater for IFRS adopters than non-adopters, both at the mean and median level. For example, in the initial year of the *PostIFRS* period, IFRS adopters experience a median (mean) increase in the number of potential benchmark firms of 788 (2,904), compared to a median (mean) increase of 13 (146) for non-adopters.

IFRS adopters also experience a significant increase in the range of pre-tax profit margins (pre-tax profit scaled by revenues) of independent firms operating in the same two-digit NACE industry classification. $\Delta SetMarginRange_{t+1}$ is the full range (maximum

¹⁶ The set of independent firms comprises out-of-sample firm-years available in Amadeus that are not majority owned (i.e., with an independence indicator of "B" or greater).

value less minimum value) of pre-tax profit margins earned by the affiliate's potential benchmark set in the i th year of the *PostIFRS* period less the full range of pre-tax profit margins earned by the affiliate's potential benchmark set in the year prior to the *PostIFRS* period. In the first year of affiliate IFRS adoption, the mean change in the range of profit margins of potential benchmark firms for IFRS adopters ($\Delta SetMarginRange_{t+1}$) is an increase of 17.6 percent. This is significantly different than the mean change in the range of pre-tax profits experienced by non-adopters of less than 1.1 percent.

I calculate $SetSizeRatio_{t+i}$ for both non-adopters and adopters, finding in each year that the ratio of potential benchmark firms in the *PostIFRS* period to the number of potential benchmark firms in the last year prior to the *PostIFRS* period is significantly greater for IFRS adopters than non-adopters at both the median and mean level. Together, these univariate results document that IFRS adopters generally experience a substantial increase in the number of potential benchmark firms and the range of possible benchmark profits upon IFRS adoption.

In untabulated univariate tests, I examine reported effective tax rates of adopters and non-adopters before and after the *PostIFRS* period. Specifically, I calculate $TaxExp/PTI$ as reported tax expense scaled by pre-tax income before and after the *PostIFRS* period for both adopter and non-adopter affiliates. Mean $TaxExp/PTI$ reported by IFRS adopter affiliates decreases from 23.7 percent before IFRS adoption to 17.7 percent after IFRS adoption. This difference is statistically significant at the five percent level and consistent with the theory that IFRS adopters engage in more tax-motivated income shifting behavior after adopting IFRS for unconsolidated reporting. In contrast,

non-adopters report no statistically significant difference in mean *TaxExp/PTI* before and after the *PostIFRS* period. I next examine whether IFRS adopters change their tax-motivated income shifting behavior following the expansion to their set of potential benchmark firms upon IFRS adoption.

5.2 IFRS ADOPTION TESTS

Table 4 provides results for testing whether there is a change in tax-motivated income shifting behavior for IFRS adopters following affiliate IFRS adoption as compared to non-adopters (H1). In column (a) I replicate Huizinga and Laeven's [2008] income shifting model, finding a negative and statistically significant coefficient on the tax incentive variable *C*. This result is consistent with tax-motivated income shifting behavior because it suggests lower than expected pre-tax income for affiliates with relatively high statutory tax rates as compared to other affiliates in their controlled group, and vice versa. Similarly, I find positive and statistically significant coefficients on *LogAssets*, *LogComp*, and *LogGDP* consistent with assets, labor, and productivity contributing to an affiliate's productive output as measured by pre-tax income. The signs and magnitudes of these results are consistent with prior studies (Huizinga and Laeven [2008], Huizinga, Laeven and Nicodeme [2008], and Markle [2012]).

Columns (b) through (e) include my variables of interest for testing whether there is a greater change in tax-motivated income shifting behavior for IFRS adopters than non-adopters over the *PostIFRS* period (H1). All specifications include industry fixed effects, and the columns vary by inclusion of country fixed effects as well as controls for whether the observation is a parent or listed affiliate. The coefficient on my primary

variable of interest, the interaction between *C*, *PostIFRS* and *Adopter*, is negative and significant across all four columns. These results suggest an increase in tax-motivated income shifting by IFRS adopters upon adoption, relative to non-adopters.

Focusing on column (b), which controls for industry fixed effects, the primary coefficient of interest is -2.282 and is statistically significant at the 1 percent level. First differences suggest that the average IFRS adopter in my sample shifts no income in the pre-IFRS period. In contrast, as an affiliate's revenue-weighted differential statutory tax rate increases from 0 to 0.1, representing an incentive to shift income out of the affiliate, the average IFRS adopter in my sample shifts \$184,206 (17.5 percent) of pre-tax income following affiliate adoption of IFRS. In contrast, non-adopter affiliates engage in significant income shifting in the pre-IFRS period and experience no statistically significant change in income shifting behavior in the post-IFRS period. The difference-in-differences is \$320,767 lower pre-tax income reported by IFRS affiliates following affiliate adoption of IFRS, or a 27.6 percent decrease. These magnitudes are in line with estimates of income shifting provided by Huizinga and Laeven [2008], which range from 1.1 percent to 26.3 percent across Europe.

The coefficient on the main effect of tax incentives on the log of pre-tax income is -1.147, representing a negative association between pre-tax income and affiliate differential statutory tax rates. The estimated coefficient on the main effect of *PostIFRS* is positive and statistically significant, suggesting that profits generally increase for all firms in the *PostIFRS* period. The estimated coefficient on the main effect of *Adopter* is statistically significant in two out of the four columns, suggesting that IFRS adopters

report higher profits than non-adopters. Similarly, the estimated coefficients on the interaction between C and $PostIFRS$ is positive and significant in two out of four columns. The interaction between $PostIFRS$ and $Adopter$ is negative and statistically significant, suggesting that IFRS adopters report less income in the post-adoption period. The interaction between C and $Adopter$ is not statistically different from zero in any column.

An analysis of first differences by adopter type in column (b) suggests a statistically significant increase in tax-motivated income shifting for adopters after IFRS adoption (F-test statistic of 4.47). The sum of the coefficients that include C ($b_1 + b_4 + b_5 + b_7$) is negative and significant (F-test statistic of 5.72), indicating that the total amount of income shifting done by IFRS adopters in the $PostIFRS$ period is statistically different from zero.

Consistent with prior work, the coefficients on $LogAssets$, $LogComp$, and $LogGDP$ are positive and significant. Further, as expected the magnitudes of these coefficients are similar to those found in prior studies. When included in the estimation, controls for parent and listed affiliates are positive and statistically significant, consistent with parent and listed affiliates generally being larger and more profitable than other affiliates.

5.3 SET SIZE TESTS

Table 5 provides results for testing the effect of changes in the size of the set of potential benchmark firms on tax-motivated income shifting (H1). All specifications include industry fixed effects, control for whether the affiliate is a parent or listed, and

cluster standard errors by controlled group (parent) and year. The columns of Table 5 differ by the year of the *PostIFRS* period for which I calculate *SetSizeRatio* and the inclusion of country fixed effects. The coefficient on my primary variable of interest, the interaction between *C*, *SetSizeRatio* and *PostIFRS*, is negative and significant at at least the five percent level across all six columns. These results support that tax-motivated income shifting of IFRS adopters increases in potential benchmark firm set size expansions resulting from IFRS adoption, relative to non-adopters.

The coefficient on the primary variable of interest in the first column, which uses $SetSizeRatio_{t+1}$, is -0.092. This coefficient suggests that as an affiliate's average differential tax rate increases from 0 to 0.1, representing an increased incentive to shift income out of the affiliate, the difference in differences using the adopter mean value of $SetSizeRatio_{t+1}$ is a decrease in the natural logarithm of pre-tax income of .022. This corresponds to a 5.3 percent decrease in pre-tax income, or a decrease of \$63,360. These results provide support that IFRS adopters increase tax-motivated income shifting in the post-IFRS period relative to non-adopters. Further, these results suggest that the magnitude of the change in income shifting behavior is associated with the magnitude of the change to the size of the potential benchmark set experienced by IFRS adopters upon adoption.

The main effect of tax incentives to shift income (*C*) on pre-tax income is negative and significant across three of the six columns, as predicted. In a robustness test, I separately estimate Equation (3) for adopters and non-adopters, finding a larger and

more statistically significant effect of potential benchmark firm set size on income shifting for IFRS adopters.

5.4 VOLUNTARY VERSUS MANDATORY ADOPTION ENDOGENEITY TESTS

Table 6 provides results of testing whether there is a differential effect of IFRS on tax-motivated income shifting between voluntary and mandatory adopters (H1). All specifications include industry fixed effects and controls for whether the affiliate is a parent or listed. Standard errors are clustered by controlled group (parent) and year. In columns (a) and (b), I compare tax-motivated income shifting across four subsamples: IFRS affiliate-years of affiliates that voluntarily adopt IFRS prior to a mandate, IFRS affiliate-years of affiliates that adopt IFRS upon mandate, IFRS affiliate-years of affiliates that voluntarily adopt IFRS in countries without a mandate, and non-IFRS affiliate-years. In columns (c) and (d), I group all voluntary adoption affiliate-years (early mandatory and non-mandatory) together. Each pair of columns differs by the inclusion of country fixed effects.

Of the primary variables of interest, only the interaction between *C* and *FirstTimeMandatory* is statistically significant. This interaction is negative and significant across all columns, and significantly different from the interaction between *C* and *Voluntary* in three out of four columns. These results provide some support that income shifting advantages accrue more for mandatory IFRS adopters. If voluntary IFRS adoption decisions were motivated by the opportunity to increase income shifting behavior, I would expect results to be driven by voluntary adopters. Because this selection theory biases against my findings that results are driven by mandatory adopters.

I do not include a voluntary IFRS selection model in my research design. However, I include in my list of future work additional analyses of voluntary adopters. I therefore interpret the statistically significant coefficient on the interaction between *C* and *FirstTimeMandatory*, coupled with no significant coefficient on the interaction between *C* and *Voluntary*, as inconsistent with the endogenous choice of voluntary adopters driving my results.

Chapter 6: Robustness and Additional Analyses

6.1 SENSITIVITY TO SPANISH OBSERVATIONS

Because a large portion of sample IFRS adopters are located in Spain, I re-estimate Equation (2) randomly including a number of Spanish affiliates consistent with the number of affiliates represented by other countries in the sample. In untabulated tests, results are robust to this approach. However, inferences are not robust to excluding all Spanish affiliates. Results from restricting the sample to include only Spanish affiliates are largely consistent with tabulated results. I find an increase in tax-motivated income shifting by Spanish affiliates upon affiliate adoption of IFRS and that this effect is both larger and more statistically significant for affiliates that adopt IFRS only upon mandate.

6.2 CORRELATION BETWEEN COUNTRY TAX RATES, TAX ENFORCEMENT, AND DECISION TO PERMIT OR REQUIRE IFRS

It is possible that countries predicted the effect of permitting or requiring IFRS for unconsolidated financial reporting on multinational tax-motivated income shifting. This possibility suggests that any resulting change in MNE income shifting behavior was anticipated and even intended by countries that decided to permit or require IFRS for unconsolidated financial reporting. If true, countries with higher expected benefits from an increase in multinational income shifting would be more likely to permit or require IFRS, whereas countries with higher expected costs would be less likely to permit or require IFRS. In the context of this study, the largest cost/benefit at the country-level is a change in tax revenues collected by the country. As such, countries with relatively high tax rates and high tax enforcement should be less likely to permit or require IFRS for

unconsolidated reporting because this would allow more income to be shifted out of the country and result in lower collected tax revenues. The opposite should be true for countries with relatively low tax rates and relatively low tax enforcement.

In comparing Tables 1 and 2, several counter-examples emerge. For example, the UK has both a relatively high tax rate and is considered a relatively high-tax-enforcement country, but the UK has permitted IFRS for unconsolidated financial reporting since 2005. Other relatively high-tax countries that permit or require IFRS include Denmark, Finland, and the Netherlands. Relatively low-tax countries that do not allow IFRS include Hungary and Romania. I also examine the correlation between the statutory tax rate and a country-year indicator variable set equal to one if the country permits or requires IFRS for unconsolidated reporting (for any entity type) in that year. For the years 2003, 2004 and 2005, during which most countries decided whether to prohibit, permit or require IFRS for unconsolidated financial reporting, I calculate a Pearson correlation coefficient of -0.078 ($p=0.489$), suggesting no statistically significant correlation between statutory tax rates and countries' IFRS adoption decisions.

6.3 ALTERNATIVE PROXY FOR TAX INCENTIVES

The tax incentive variable C derived by Huizinga and Laeven [2008] weights affiliate statutory tax rates by revenues. Because revenues may be distorted as a result of income shifting, this tax incentive variable may introduce endogeneity to the specification. I therefore re-estimate Equations (2), (3), and (4) using an alternative tax incentive variable $RankSTR$. $RankSTR$ is the rank of the affiliate's statutory tax rate

relative to all other affiliates in the controlled group in the same year. Specifically, *RankSTR5* ranks the statutory tax rates of an affiliated group-year into quintiles and *RankSTR10* ranks the statutory tax rates of an affiliated group-year into deciles. I center both *RankSTR5* and *RankSTR10* around zero. As *RankSTR* increases, this represents that the affiliate faces a relatively high statutory tax rate as compared to other affiliates in the same controlled group-year, and that the controlled group has a tax incentive to shift income out the affiliate. I therefore predict a negative coefficient on *RankSTR*, similar to the tax incentive variable *C*.

Table 7, Panel A reports results of re-estimating Equation (2) using *RankSTR*. Equation (2) tests whether there is a change in tax-motivated income shifting behavior for IFRS adopters following affiliate IFRS adoption as compared to non-adopters. All specifications include controls for whether the affiliate-year observation is a parent or listed on a stock exchange as well as industry fixed effects. The second and fourth columns also include country fixed effects. Standard errors are clustered by controlled group (parent) and year. Results are generally consistent with those reported in Table 4, which estimates Equation (2) using the tax incentive variable *C*. I find a negative and statistically significant coefficient on the primary variable of interest, the interaction between *RankSTR*, *PostIFRS*, and *Adopter*. The negative and significant coefficient suggests that IFRS adopters shift more income after IFRS adoption relative to the pre-adoption period and non-adopters.

Table 7, Panel B reports the results of re-estimating Equation (3) using *RankSTR*. Equation (3) tests the effect of changes in the size of the set of potential benchmark firms on tax-motivated income shifting. All specifications include controls for whether the affiliate-year observation is a parent or listed on a stock exchange as well as industry fixed effects. Columns vary by the year in which *SetSizeRatio* is measured and the inclusion of country fixed effects. Standard errors are clustered by controlled group (parent) and year. Results are generally consistent with those reported in Table 5 using the tax incentive variable *C*. I find a negative and statistically significant interaction between *RankSTR5*, *PostIFRS*, and *SetSizeRatio* across all specifications, suggesting that IFRS adopters shift more income following adoption and that this effect is increasing in expansions to the size of their benchmark set. In untabulated tests, I also find negative and statistically significant coefficients on the interaction between *RankSTR10*, *PostIFRS* and *SetSizeRatio* across all specifications.

Table 7, Panel C reports results of re-estimating Equation (4) using *RankSTR*. Equation (4) tests whether there is a differential effect of IFRS on tax-motivated income shifting between voluntary and mandatory adopters. All specifications include controls for whether the affiliate-year observation is a parent or listed on a stock exchange as well as industry fixed effects. Columns vary by the inclusion of country fixed effects and whether statutory tax rates are ranked into quintiles or deciles. Standard errors are clustered by controlled group (parent) and year. Results are generally consistent with those reported in Table 6, which estimates Equation (4) using the tax incentive variable

C. I find a negative and statistically significant interaction between *RankSTR* and *FirstTimeMandatory* across all four columns, however no other significant interactions. These results provide further support that my findings are not driven by voluntary adopters and therefore are generalizable.

6.4 ALTERNATIVE PROXY FOR CHANGES TO POTENTIAL BENCHMARK SET

SetSizeRatio estimates changes in size to the potential benchmark set in the post-adoption period. I also estimate changes to the range of pre-tax profits earned by the potential benchmark set. Specifically, $\Delta SetMarginRange$ is the full range (maximum value less minimum value) of pre-tax profit margins earned by the affiliate's potential benchmark set in the ith year of the *PostIFRS* period less the full range of pre-tax profit margins earned by the affiliate's potential benchmark set in the year prior to the *PostIFRS* period.¹⁷ Descriptive statistics for this variable are reported in Table 3, Panel C.

I re-estimate Equation (3) using $\Delta SetMarginRange$ instead of *SetSizeRatio* to test whether changes in income shifting behavior exhibited by IFRS adopters after adoption are increasing in changes to the range of benchmark profits available to affiliates to justify arm's length transfer prices. I winsorize continuous observations at 1 percent, cluster by multinational group (parent) and year, and include industry fixed effects.

Table 8 reports the results of re-estimating Equation (3) using $\Delta SetMarginRange$. Equation (3) tests the effect of changes to the set of potential benchmark firms on tax-

¹⁷ The OECD Guidelines suggest using an interquartile range of benchmark profit rates to mitigate the effect of outliers. However, because MNEs choose which firms to include in their benchmark range from the full population of potential benchmark firms, changes to the full range of potential profit rates (and specifically changes to the tails of the range) lead to more income shifting flexibility.

motivated income shifting. I test $\Delta SetMarginRange$ in the first, second, and third years of the *PostIFRS* period. Each pair of columns differs by the inclusion of country fixed effects. Consistent with results reported in Table 5, I estimate a negative and significant coefficient on the interaction between *C*, *PostIFRS*, and $\Delta SetMarginRange$ across all six columns. These results further support the theory that not only do IFRS adopters increase income shifting behavior after adoption, but that the magnitude of the change in income shifting is increasing in changes to the range of profits reported by potential benchmark firms.

6.5 ALTERNATIVE SAMPLE USING NUMBER OF EMPLOYEES

Following Huizinga and Laeven [2008], I use number of employees (Amadeus variable *EMPL*) as an alternative proxy for labor. Table 9, Panel A details the sample selection criteria using number of employees instead of compensation expense. The resulting sample comprises 46,965 affiliate-year observations. Table 9, Panel B provides observations by country and year. Although restricting the sample to observations for which the number of employees is greater than or equal to zero results in a smaller overall sample than when using compensation expense (46,965 versus 50,166), the alternative sample provides observations in all 27 EU countries and more IFRS-adoption affiliate-years. Specifically, the new sample using number of employees includes observations for Cyprus, Greece, Ireland, and Lithuania, and mandatory adoption affiliate-years as early as 2003.

Table 9, Panel C provides descriptive statistics of the alternative sample. Inferences about the size of adopters versus non-adopters are similar to those regarding the main sample. Mean (median) number of employees for the full sample is 20 (3). Mean (median) number of employees for non-adopters is also 20 (3), and mean (median) number of employees for adopters is 20 (2).

I re-estimate Equations (2), (3) and (4) using this alternative sample. As before, I winsorize continuous observations at 1 percent, cluster standard errors by multinational group (parent) and year, and include industry and country fixed effects. Equation (2) tests whether there is a change in tax-motivated income shifting behavior for IFRS adopters following affiliate IFRS adoption as compared to non-adopters. Table 10, Panel A reports the results of re-estimating Equation (2). Columns (c) and (d) differ from columns (a) and (b) in that they control for whether the affiliate is the global ultimate parent and listed on a stock exchange. Results are generally consistent with Table 4, which reports results of estimating Equation (2) using the main sample. Specifically, the coefficient of interest (the interaction between *C*, *PostIFRS*, and *Adopter*) is negative and significant across all four columns and consistent in magnitude with those reported in Table 4. These results provide further support that IFRS adopters increase income shifting behavior following IFRS adoption, relative to the pre-adoption period and non-adopters. The fit of the model using number of employees, however, is lower as evidenced by lower R-squareds across all four columns as compared to those reported in Table 4.

Table 10, Panel B reports the results of re-estimating Equation (3) using number of employees instead of compensation expense. As before, I estimate Equation (3) using *SetSizeRatio* calculated for adopters in the first, second and third years of IFRS adoption. All specifications include indicator variables *Parent* and *Listed* as well as industry fixed effects. Reported standard errors are clustered by multinational group (parent) and year. Each pair of columns differs by the inclusion of country fixed effects. Inferences remain consistent with estimating Equation (3) using the main sample as reported in Table 5, however results are weaker. Specifically, while the coefficient on the main variable of interest for $SetSizeRatio_{t+1}$ is negative and significant, the coefficient on the main variable of interest for $SetSizeRatio_{t+2}$ and $SetSizeRatio_{t+3}$ are no longer statistically different from zero in three out of four columns. Overall, however, these results provide further support that the magnitude of the increase in income shifting activity exhibited by IFRS adopters after adoption is correlated with the magnitude of the change in the potential benchmark set size.

Table 10, Panel C reports the results of re-estimating Equation (4) using number of employees instead of compensation expense. Equation (4) tests whether there is a differential effect of IFRS on tax-motivated income shifting between voluntary and mandatory adopters. All specifications include industry fixed effects and controls for whether the affiliate is a parent or listed. Standard errors are clustered by controlled group (parent) and year. Columns differ by the inclusion of year and country fixed effects. I compare tax-motivated income shifting across four subsamples: IFRS affiliate-

years of affiliates that voluntarily adopt IFRS prior to a mandate, IFRS affiliate-years of affiliates that adopt IFRS upon mandate, IFRS affiliate-years of affiliates that voluntarily adopt IFRS in countries without a mandate, and non-IFRS affiliate-years. Consistent with main results reported in Table 6, I estimate a negative and significant coefficient across all specifications for the interaction between *C* and *FirstTimeMandatory*. Inconsistent with main results, I also find that the interaction between *C* and *Voluntary* is weakly significant in two of the four columns. Nonetheless, these results provide further support that the endogenous choice by voluntary adopters to adopt IFRS does not fully explain main results that group voluntary and mandatory adopters together.

6.6 SENSITIVITY TO PARENT OBSERVATIONS

Because parent affiliates are more likely to own intangible property and potentially face different accounting rules associated with minority interests and consolidations, I drop all parents and re-estimate Equation (2). In untabulated tests, results are robust to excluding parents from the sample.

6.7 ALTERNATIVE *PostIFRS* FOR NON-ADOPTERS

The difference-in-differences estimation approach (Equations 2 and 3) requires assigning a post-IFRS period to affiliates not permitted to adopt IFRS. To eliminate the need to assign a post-IFRS period to non-adopters, I use the approach provided by Equation (4) to re-estimate the effect of affiliate IFRS adoption on tax-motivated income shifting. This approach compares all IFRS affiliate-years to all pre-adoption and non-

adopter affiliate-years. Results remain consistent with an increase in tax-motivated income shifting following affiliate IFRS adoption.

6.8 TWO-EVENT TEST FOR VOLUNTARY ADOPTERS

Finally, early voluntary IFRS adopters may face an initial reduction to their potential benchmark set size, which would reverse upon wider IFRS adoption (such as upon a mandate). To investigate the impact of a later mandate on the tax-motivated income shifting behavior of early voluntary adopters, I follow Daske et al. [2008] and include interaction terms in Equation (4) for *Early*Mandatory* and *C*Early*Mandatory*, where *Mandatory* is an indicator variable set equal to one for years in which voluntary IFRS adopters would otherwise be required to adopt IFRS. Preliminary results provide no evidence of a change in tax-motivated income shifting behavior exhibited by voluntary adopters as a result of this secondary IFRS adoption event.

6.9 ALTERNATIVE INDUSTRY CLASSIFICATION FOR INDEPENDENT BENCHMARK FIRMS

In robustness tests, I examine the effects measuring *SetSizeRatio* using alternative industry classifications. Recall that *SetSizeRatio* is the number of independent EU firms in the affiliate's industry using the same accounting standards *PostIFRS*, divided by the number of independent firms in the affiliate's country and industry using local GAAP in the last year prior to the *PostIFRS* period. I use two-digit NACE industry classifications to identify independent benchmark firms in the main set of results. In untabulated tests, I alternatively measure *SetSizeRatio* using three-digit and four-digit NACE industry classifications. The results of these tests are generally similar to the main set of results reported, and inferences remain unchanged.

Chapter 7: Conclusions and Future Work

This study examines whether tax-motivated income shifting of MNEs changes with affiliate adoption of IFRS in the EU. Using a database of EU firm unconsolidated financial and ownership information required to identify tax-motivated income shifting among affiliated firms over 2001 to 2010, I estimate differences in income shifting between IFRS adopters and non-adopters in three ways. First, I examine how tax-motivated income shifting behavior in the post-IFRS period compares to income shifting behavior in the pre-IFRS period, and whether the change is greater for IFRS adopters. Second, I test whether the magnitude of changes in income shifting behavior is increasing in changes to benchmark firm set size upon affiliate IFRS adoption. Third, I examine whether there is a differential effect between mandatory or voluntary IFRS adopters. The results of all three tests suggest that income shifting behavior increases following affiliate IFRS adoption, that this effect is greatest for affiliates experiencing increases to the potential benchmark set upon affiliate IFRS adoption, and that this effect is greatest for mandatory adopters.

Future work on this topic will include examining time series effects of affiliate IFRS adoption on tax-motivated income shifting. Although I find little evidence of income shifting benefits accruing for voluntary adopters, I predict a stronger association between income shifting and voluntary IFRS adoption later in the sample period as managers become aware of the increased opportunity to shift income and a critical mass of adopters is achieved. I also intend to examine cross-sectional variation related to

differences in tax enforcement or IFRS implementation by country, as well as firm characteristics.

Future work will also examine three important implications of this study. First, countries with relatively high tax rates and high rates of tax enforcement should experience a reduction in collected tax revenues as a result of increased multinational income shifting. Similarly, countries with relatively low tax rates and low rates of tax enforcement should experience an increase in collected tax revenues. Second, to the extent incentive compensation for managers is based on income net of income-shifting activity, the change in income shifting behavior following affiliate adoption of IFRS could distort managerial compensation, and therefore managerial performance. Third, Grubert and Slemrod [1998] develop a model in which tax-motivated income shifting decisions are made jointly with tax-motivated investment decisions. For example, firms wishing to shift income into a low-tax jurisdiction will be better able to justify that decision by also increasing investment in that jurisdiction, and vice versa. With an increase in multinational income shifting following affiliate adoption of IFRS, multinational firms should also be shifting levels of investment in affected jurisdictions.

Figures

Figure 1, Panel A: Pre-IFRS Benchmark Range

Panel A depicts the range of profits achieved by eight hypothetical benchmark firms, each marked on the number line with an “X.” Managers of MNEs generally desire low-profit benchmarks (i.e., those firms on the left hand side of the number line) to substantiate transfer prices for high-tax affiliates. Similarly, MNEs prefer high-profit benchmarks to justify transfer prices for low-tax affiliates. These eight hypothetical benchmark firms yield an interquartile range of profitability that falls on the left hand side of the number line. The OECD Guidelines recommend, and many countries require, use of an interquartile range to more narrowly identify the central tendency of profitability.

Figure 1, Panel B: Post-IFRS Benchmark Range

Panel B depicts the eight hypothetical benchmark firms from Panel A, each marked with an “X.” In addition, Panel B shows 11 new hypothetical firms, newly deemed sufficiently comparable for transfer pricing purposes due to IFRS adoption, each marked with an “O.” The addition of the new firms expands both the lower and upper boundaries of the full and interquartile ranges of profits. MNEs with a foreign affiliated distributor in a high-tax jurisdiction could “cherry-pick” and select less profitable benchmark firms to substantiate low profits for their affiliate. Conversely, MNEs could select highly profitable benchmark firms to justify prices with affiliates in low-tax jurisdictions. MNEs engaging in the same transaction with both high- and low-tax affiliates face an incentive to choose benchmark firms with a wide range of profits to support a more flexible transfer pricing structure. A wider range of benchmark profits allows MNEs to simultaneously substantiate both high and low profits earned by affiliates in low- and high-tax jurisdictions, respectively, on the same transaction.

Tables

Table 1: Unconsolidated Financial Reporting Rules by Country

EU Country	Listed Parent Companies		Unlisted Parent Companies		Subsidiaries of Listed Parents		Subsidiaries of Unlisted Parents	
	IFRS Required	IFRS Permitted	IFRS Required	IFRS Permitted	IFRS Required	IFRS Permitted	IFRS Required	IFRS Permitted
Austria								
Belgium								
Bulgaria	2005		+2005	++2005	+2005	++2005	+2005	++2005
Cyprus	2005		2005		2005		2005	
Czech Republic	2005			2011		2011		2011
Denmark	*2005 - 2009	2004		2004		2004		2004
Estonia	2005	2003		2003		2003		2003
Finland	*2005	2004		2004		2004		2004
France								
Germany								
Greece	2003			2004	2005	2004		
Hungary								
Ireland		2005		2005		2005		2005
Italy	2006	2005		2005		2005		2005
Latvia	*2005	2005	**2005	2005	**2005	2005	**2005	2005
Lithuania	2005			2008	2005	2005		
Luxembourg		2005		2005		2005		2005
Malta	2005	2004	+2005	2004	2005	2004	2005	2004
Netherlands		2005		2005		2005		2005
Poland		2005		**2005		**2005		**2005
Portugal	2005		*2005	**2005		**2005		**2005
Romania								
Slovakia	2005		+2005		2005		2005	
Slovenia		2005		2005		2005		2005
Spain	2008	2007	2008	2007	2008	2007	2008	2007
Sweden								
United Kingdom		2005				2005		2005

Table 1 (Continued): Unconsolidated Financial Reporting Rules by Country

Sources: Deloitte IAS Plus, PWC. This table provides IFRS adoption rules for unconsolidated financial reporting by EU country. Rules vary depending on whether the firm is the ultimate owner (“parent”) and listed on a stock exchange, an unlisted parent company, the subsidiary of a listed parent, or the subsidiary of an unlisted parent. I provide the year in which IFRS adoption is first required or first permitted. Countries with missing values do not permit unconsolidated IFRS reporting for any type of firm in any year. Additional conditions are denoted as follows. *Applies to firms that do not file any consolidated financial statements. **Applies to firms that file consolidated financial reports using IFRS. +Applies to large firms only. ++Applies to small and medium firms only.

Table 2, Panel A: European Union Tax Rates by Country and Year

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	34.00	34.00	34.00	34.00	25.00	25.00	25.00	25.00	25.00	25.00
Belgium	40.17	40.17	33.99	33.99	33.99	33.99	33.99	33.99	33.99	33.99
Bulgaria	23.50	23.50	23.50	19.50	15.00	15.00	10.00	10.00	10.00	10.00
Cyprus	28.00	28.00	15.00	15.00	10.00	10.00	10.00	10.00	10.00	10.00
Czech Republic	31.00	31.00	31.00	28.00	26.00	24.00	24.00	21.00	20.00	19.00
Denmark	30.00	30.00	30.00	30.00	28.00	28.00	25.00	25.00	25.00	25.00
Estonia	26.00	26.00	26.00	26.00	24.00	23.00	22.00	21.00	21.00	21.00
Finland	29.00	29.00	29.00	29.00	26.00	26.00	26.00	26.00	26.00	26.00
France	35.33	34.33	34.33	34.33	33.83	33.33	33.33	33.33	33.33	33.33
Germany	38.36	38.36	39.58	38.29	38.31	38.34	38.36	29.51	29.44	29.41
Greece	37.50	35.00	35.00	35.00	32.00	29.00	25.00	25.00	25.00	24.00
Hungary	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	19.00
Ireland	20.00	16.00	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50
Italy	40.25	40.25	38.25	37.25	37.25	37.25	37.25	31.40	31.40	31.40
Latvia	25.00	22.00	19.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Lithuania	24.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	20.00	15.00
Luxembourg	37.45	30.38	30.38	30.38	30.38	29.63	29.63	29.63	28.59	28.59
Malta	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Netherlands	35.00	34.50	33.00	34.50	31.50	29.60	25.50	25.50	25.50	25.50
Poland	28.00	28.00	27.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00
Portugal	35.20	33.00	25.00	27.50	27.50	27.50	25.00	25.00	25.00	25.00
Romania	25.00	25.00	25.00	25.00	16.00	16.00	16.00	16.00	16.00	16.00
Slovakia	29.00	25.00	25.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00
Slovenia	25.00	25.00	35.00	25.00	25.00	25.00	23.00	22.00	21.00	20.00
Spain	35.00	35.00	35.00	35.00	35.00	35.00	32.50	30.00	30.00	30.00
Sweden	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	26.30	26.30
United Kingdom	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	28.00	28.00

Source: KPMG International [2011]. This table provides cumulative national and subnational statutory tax rates by EU country and year for the 98,880 European affiliate-year observations used to calculate tax incentive variables *C* and *RankSTR*.

Table 2, Panel B: Other European Tax Rates Used to Calculate *C* by Country and Year

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bosnia Herzegovina	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Croatia	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Iceland	30.00	18.00	18.00	18.00	18.00	18.00	18.00	15.00	15.00	18.00
Macedonia	15.00	15.00	15.00	15.00	15.00	15.00	12.00	10.00	10.00	10.00
Montenegro					9.00	9.00	9.00	9.00	9.00	9.00
Norway	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Serbia		20.00	14.00	12.33	10.00	10.00	10.00	10.00	10.00	10.00
Switzerland	24.70	24.50	25.00	24.10	21.30	21.30	21.32	21.17	21.17	21.17

Source: KPMG International [2011]. This table provides cumulative national and subnational (i.e., state or province) statutory tax rates by non-EU country and year for the 98,880 European affiliate-year observations used to calculate tax incentive variables *C* and *RankSTR*.

Table 3, Panel A: Sample Selection Using Compensation Expense

Parent affiliate-years in Bureau van Dijk's Amadeus database with at least one foreign EU affiliate and not missing revenues 2001 to 2010	6,559
Plus: Subsidiary affiliate-years not missing revenues 2001 to 2010	92,321
Affiliate-years used for calculation of <i>C</i>	98,880
Less: Missing pre-tax income (Amadeus variable <i>PLBT</i>)	1,831
Less: Missing NACE code (Amadeus variable <i>NACPRI</i>)	1,158
Less: Banks and insurance company (NACE codes 64, 65 or 66)	4,432
Less: Missing assets (Amadeus variable <i>TFAS</i>)	713
Less: Assets less than or equal to zero (Amadeus variable <i>TFAS</i>)	8,174
Less: Missing compensation expense (Amadeus variable <i>STAF</i>)	13,432
Less: Compensation expense less than zero (Amadeus variable <i>STAF</i>)	84
Less: Pre-tax income less than or equal to zero (Amadeus variable <i>PLBT</i>)	18,890
Affiliate-years used for estimation	50,166

The resulting sample comprises 50,166 affiliate-year observations from global ultimate parents located in the 27 EU countries between 2001 and 2010 with at least one foreign affiliate within the EU and sufficient data from Amadeus and the European Commission for estimation.

Table 3, Panel B: Compensation Expense Sample Affiliate-year Observations by Country, Year and IFRS Adoption

	Years with No IFRS Adopters				Years with IFRS Adopters											
	2001	2002	2003	2004	2005				2006				2007			
	All	All	All	All	All	Non-Adopter	Voluntary Adopter	Mandatory Adopter	All	Non-Adopter	Voluntary Adopter	Mandatory Adopter	All	Non-Adopter	Voluntary Adopter	Mandatory Adopter
Austria	-	-	-	11	55	55	-	-	74	74	-	-	63	63	-	-
Belgium	337	348	411	420	424	424	-	-	508	508	-	-	535	535	-	-
Bulgaria	24	23	25	21	26	-	-	26	38	2	-	36	35	2	-	33
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Czech Republic	69	94	107	124	135	135	-	-	151	151	-	-	166	166	-	-
Denmark	-	-	-	-	-	-	-	-	120	120	-	-	126	126	-	-
Estonia	25	28	26	34	32	32	-	-	42	42	-	-	40	40	-	-
Finland	235	258	253	285	304	304	-	-	334	334	-	-	337	337	-	-
France	823	982	1,030	1,092	1,181	1,181	-	-	1,220	1,220	-	-	1,307	1,307	-	-
Germany	183	257	346	431	601	601	-	-	722	720	2	-	741	741	-	-
Greece	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hungary	55	72	83	106	118	118	-	-	124	124	-	-	132	132	-	-
Ireland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Italy	413	548	568	810	837	832	5	-	1,010	981	22	7	1,115	1,079	26	10
Latvia	1	2	2	1	2	2	-	-	3	3	-	-	3	3	-	-
Lithuania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luxembourg	7	5	11	15	21	21	-	-	26	26	-	-	33	33	-	-
Malta	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Netherlands	11	11	18	25	22	22	-	-	34	33	1	-	35	35	-	-
Poland	66	91	99	139	157	157	-	-	203	203	-	-	227	224	3	-
Portugal	62	83	97	104	150	150	-	-	157	156	-	1	146	144	-	2
Romania	35	36	47	59	61	61	-	-	57	57	-	-	61	61	-	-
Slovakia	12	25	31	36	48	2	-	46	55	3	-	52	54	2	-	52
Slovenia	-	22	33	36	45	45	-	-	45	45	-	-	55	55	-	-
Spain	657	643	736	826	949	949	-	-	1,035	1,035	-	-	1,063	131	932	-
Sweden	268	287	304	186	205	205	-	-	252	252	-	-	292	292	-	-
United Kingdom	228	244	262	273	279	279	-	-	304	304	-	-	339	339	-	-
Total	3,511	4,059	4,489	5,034	5,652	5,575	5	72	6,514	6,393	25	96	6,906	5,847	961	98

Table 3, Panel B (Continued): Compensation Expense Sample Affiliate-year Observations by Country, Year and IFRS Adoption

	Years with IFRS Adopters												All Years			
	2008				2009				2010							
	Non-Adopter		Voluntary Adopter	Mandatory Adopter	Non-Adopter		Voluntary Adopter	Mandatory Adopter	Non-Adopter		Voluntary Adopter	Mandatory Adopter	Non-Adopter		Voluntary Adopter	Mandatory Adopter
	All	Adopter	Adopter	Adopter	All	Adopter	Adopter	Adopter	All	Adopter	Adopter	Adopter	All	Adopter	Adopter	Adopter
Austria	54	54	-	-	44	44	-	-	4	4	-	-	305	305	-	-
Belgium	501	501	-	-	461	461	-	-	277	277	-	-	4,222	4,222	-	-
Bulgaria	31	1	-	30	28	1	-	27	6	-	-	6	257	99	-	158
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Czech Republic	155	155	-	-	139	139	-	-	39	39	-	-	1,179	1,179	-	-
Denmark	118	118	-	-	110	110	-	-	115	115	-	-	589	589	-	-
Estonia	39	39	-	-	26	26	-	-	15	15	-	-	307	307	-	-
Finland	323	323	-	-	289	289	-	-	272	272	-	-	2,890	2,890	-	-
France	1,218	1,218	-	-	1,035	1,035	-	-	286	286	-	-	10,174	10,174	-	-
Germany	721	721	-	-	602	602	-	-	159	159	-	-	4,763	4,761	2	-
Greece	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hungary	95	95	-	-	125	125	-	-	15	15	-	-	925	925	-	-
Ireland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Italy	972	943	22	7	902	873	22	7	309	299	3	7	7,484	7,346	100	38
Latvia	4	4	-	-	1	1	-	-	1	1	-	-	20	20	-	-
Lithuania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luxembourg	21	21	-	-	24	24	-	-	9	9	-	-	172	172	-	-
Malta	1	-	-	1	1	-	-	1	-	-	-	-	3	-	-	3
Netherlands	30	30	-	-	24	24	-	-	8	8	-	-	218	217	1	-
Poland	219	214	5	-	203	197	6	-	40	37	3	-	1,444	1,427	17	-
Portugal	152	151	-	1	140	138	-	2	-	-	-	-	1,091	1,085	-	6
Romania	51	51	-	-	43	43	-	-	-	-	-	-	450	450	-	-
Slovakia	40	2	-	38	36	1	-	35	4	-	-	4	341	114	-	227
Slovenia	42	42	-	-	31	31	-	-	17	17	-	-	326	326	-	-
Spain	943	-	-	943	806	-	-	806	56	-	-	56	7,714	4,977	932	1,805
Sweden	288	288	-	-	270	270	-	-	182	182	-	-	2,534	2,534	-	-
United Kingdom	330	330	-	-	333	329	4	-	166	139	27	-	2,758	2,727	31	-
Total	6,348	5,301	27	1,020	5,673	4,763	32	878	1,980	1,874	33	73	50,166	46,846	1,083	2,237

The sample comprises 50,166 affiliate-year observations from global ultimate parents located in the 27 EU countries between 2001 and 2010 with at least one foreign affiliate within the EU and sufficient data from Amadeus and the European Commission for estimation. I report the total number of affiliate-year observations by country and year. There are no affiliate-year observations using IFRS from 2001 to 2004. From 2005 to 2010, I also report the number of affiliate-year observations not using IFRS, voluntarily using IFRS, and using IFRS by mandate.

Table 3, Panel C: Sample Descriptive Statistics

	Full Sample (n = 50,166)					Non-Adopters (n = 41,508)					IFRS Adopters (n = 8,658)				
	P50	Mean	St Dev	P25	P75	P50	Mean	St Dev	P25	P75	P50	Mean	St Dev	P25	P75
Revenues	18.9	161	533	4.92	76.2	19.5	157	516	5.06	77.0	16.3 ***	183 ***	611	4.36	71.6
PTI	1.07	16.8	64.6	0.21	5.12	1.07	15.8	61.3	0.22	5.10	1.03	21.2 ***	78.2	0.20	5.18
Assets	1.22	34.3	142	0.14	8.63	1.11	31.6	134	0.13	7.77	1.88 ***	47.7 ***	176	0.22	12.9
Comp	2.73	18.3	52.6	0.78	10.8	2.80	18.2	51.7	0.80	11.0	2.35 ***	19.2	56.8	0.67	9.84
C	0.00	(0.01)	0.06	(0.01)	0.01	0.00	(0.01)	0.06	(0.02)	0.02	0.00 **	(0.01)	0.05	(0.00)	0.01
TaxExp/PTI	28.4%	33.3%	368%	10.8%	37.6%	28.3%	35.9%	399%	10.5%	39.5%	29.0% ***	21.2% ***	150%	12.3%	34.5%
TaxExp/Revenues	1.34%	6.76%	679%	0.25%	3.19%	1.35%	7.50%	746%	0.26%	3.14%	1.28% *	3.23% ***	73.6%	0.23%	3.50%
Is Parent		6.66%					6.50%					7.42% ***			
Has Listed Parent		57.2%					57.3%					56.8%			
Is Listed Affiliate		4.21%					3.89%					5.73% ***			
Early		4.79%										27.8%			
FirstTimeMandatory		1.50%										8.67%			
Voluntary		0.33%										1.89%			
$\Delta \text{SetSize}_{t+1}$	26.0	658	2,214	1.00	283	13.0	146	480	0.00	105	788 ***	2,904 ***	4,380	242	3,604
$\Delta \text{SetSize}_{t+2}$	53.0	783	2,237	4.00	484	26.0	321	964	1.00	182	666 ***	2,776 ***	4,208	197	3,554
$\Delta \text{SetSize}_{t+3}$	53.0	859	2,332	4.00	480	29.0	585	1,791	2.00	283	480 ***	2,253 ***	3,809	124	2,546
$\Delta \text{SetMarginRange}_{t+1}$	0.00%	4.14%	22.8%	0.00%	1.36%	0.00%	1.07%	20.3%	-0.11%	0.16%	0.00% ***	17.6% ***	27.9%	0.00%	34.9%
$\Delta \text{SetMarginRange}_{t+2}$	0.00%	5.99%	26.0%	0.00%	9.46%	0.00%	3.35%	24.9%	-0.02%	5.03%	0.00% ***	17.4% ***	27.7%	0.00%	31.3%
$\Delta \text{SetMarginRange}_{t+3}$	0.00%	7.33%	25.9%	0.00%	10.2%	0.00%	6.48%	25.2%	0.00%	9.29%	0.00% ***	11.6% ***	28.9%	0.00%	16.3%
$\text{SetSizeRatio}_{t+1}$	1.10	2.35	5.16	1.01	1.31	1.07	1.11	0.32	1.00	1.15	2.35 ***	7.75 ***	10.3	1.87	10.0
$\text{SetSizeRatio}_{t+2}$	1.17	2.40	5.11	1.07	1.51	1.14	1.21	0.52	1.03	1.26	2.28 ***	7.52 ***	10.3	1.74	10.3
$\text{SetSizeRatio}_{t+3}$	1.25	2.25	7.10	1.10	1.48	1.21	1.31	0.61	1.07	1.37	1.72 ***	7.04 ***	16.7	1.47	2.37

Table 3, Panel C (Continued): Sample Descriptive Statistics

The sample comprises 50,166 affiliate-years from parents located in the 27 EU countries between 2001 and 2010 with at least one foreign affiliate within the EU and sufficient data from Amadeus and the European Commission for estimation. *Revenues*, *PTI*, *Assets*, and *Comp* are reported in USD Millions. *Revenues* is affiliate operating revenues. *PTI* is affiliate pre-tax income. *Assets* is affiliate total tangible fixed assets. *Comp* is affiliate compensation expense. *C* is the revenue-weighted differential tax rate derived by Huizinga and Laeven [2008] and increases in tax incentives to shift income out of an affiliate (see Appendix B). *TaxExp/PTI* is total tax expense scaled by *PTI*. *TaxExp/Revenues* is total tax expense scaled by *Revenues*. *Is Parent* indicates that the affiliate-year observation is the global ultimate owner of the controlled group. *Has Listed Parent* indicates that the affiliate has a global ultimate owner listed on a stock exchange. *Listed Affiliate* indicates that the affiliate itself is listed on a stock exchange. *Early* is an indicator variable equal to 1 for affiliate-years using IFRS if the affiliate voluntarily adopted IFRS prior to a mandate. *FirstTimeMandatory* is an indicator variable equal to 1 for affiliate-years using IFRS only upon mandate. *Voluntary* is an indicator variable equal to 1 for affiliate-years using IFRS if the affiliate voluntarily adopted IFRS in a country without a mandate. *PostIFRS* is an indicator variable equal to 1 for 2005 and later or for country-years requiring or permitting IFRS for unconsolidated financial reporting. *SetSize_t* is the number of independent firms in the affiliate's two-digit NACE code and country using the same financial accounting standards in the last year prior to the *PostIFRS* period. *SetSize_{t+i}* is the number of EU independent firms in the affiliate's two-digit NACE code using the same financial accounting standards in the *i*th year *PostIFRS*. $\Delta SetSize_{t+i}$ is *SetSize_{t+i}* less *SetSize_t*. $\Delta SetMarginRange_{t+i}$ is the change in the full range (maximum value less minimum value) of pre-tax profit margins (*PTI/Revenues*), calculated as the range of *PTI/Revenues* in the *i*th year of the *PostIFRS* period less the range of *PTI/Revenues* in the last year prior to the *PostIFRS* period. *SetSizeRatio_{t+i}* is *SetSize_{t+i}* divided by *SetSize_t* (see Appendix C). *, **, and *** represent two-tailed statistical significance of differences between IFRS adopters and non-adopters at the 10%, 5%, and 1% levels, respectively.

Table 4: The Effect of IFRS Adoption on Tax-Motivated Income Shifting

$$\text{LogPTI} = b_0 + b_1C + b_2\text{PostIFRS} + b_3\text{Adopter} + b_4C*\text{PostIFRS} + b_5C*\text{Adopter} + b_6\text{PostIFRS}*\text{Adopter} + b_7C*\text{PostIFRS}*\text{Adopter} + \text{Controls} + \text{FE}$$

	Predicted	(a)	(b)	(c)	(d)	(e)
C	-	-0.919 *** (0.275)	-1.147 *** (0.338)	-0.615 (0.405)	-1.213 *** (0.349)	-0.582 (0.402)
PostIFRS	?		0.126 *** (0.013)	0.135 *** (0.025)	0.135 *** (0.017)	0.148 *** (0.028)
Adopter	?		0.0733 (0.061)	0.402 *** (0.124)	0.0553 (0.063)	0.244 ** (0.108)
C*PostIFRS	?		0.350 (0.225)	0.787 *** (0.210)	0.318 (0.228)	0.763 *** (0.196)
C*Adopter	?		1.160 (0.884)	1.428 (1.059)	0.806 (0.843)	0.673 (1.008)
PostIFRS*Adopter	?		-0.0824 * (0.045)	-0.107 *** (0.041)	-0.0942 ** (0.048)	-0.116 *** (0.043)
C*PostIFRS*Adopter	?		-2.282 *** (0.764)	-2.414 *** (0.709)	-2.279 *** (0.772)	-2.435 *** (0.736)
LogAssets	+	0.233 *** (0.014)	0.234 *** (0.014)	0.237 *** (0.014)	0.227 *** (0.014)	0.23 *** (0.013)
LogComp	+	0.969 *** (0.029)	0.964 *** (0.029)	0.942 *** (0.027)	0.937 *** (0.029)	0.916 *** (0.026)
LogGDP	+	0.168 ** (0.083)	0.188 ** (0.082)	0.596 ** (0.256)	0.195 ** (0.082)	0.664 *** (0.257)
Additional Controls	No	No	No	No	Parent, Listed	Parent, Listed
Fixed Effects	Industry	Industry	Industry	Industry, Country	Industry	Industry, Country
R-squared		0.604	0.604	0.608	0.611	0.615
F-test Statistic ($b_1+b_4+b_5+b_7=0$)			5.72 **	0.59	8.98 ***	2.34

Table 4 (Continued): The Effect of IFRS Adoption on Tax-Motivated Income Shifting

The sample comprises 50,166 affiliate-years from parents located in the 27 EU countries between 2001 and 2010 with at least one EU foreign affiliate and sufficient data from Amadeus and the European Commission for estimation. The dependent variable *LogPTI* is the natural log of affiliate pre-tax income. *C* is the revenue-weighted differential tax rate derived by Huizinga and Laeven [2008] and increases in tax incentives to shift income out of an affiliate (see Appendix B). *PostIFRS* is an indicator variable equal to 1 for 2005 and later or for country-years requiring or permitting IFRS for unconsolidated financial reporting. *Adopter* is an indicator variable equal to 1 for affiliates that adopt IFRS. *LogAssets* is the natural log of affiliate fixed tangible assets. *LogComp* is the natural log of affiliate compensation expense. *LogGDP* is per capita GDP of the affiliate's country as reported by the European Commission. *Parent* is an indicator variable equal to 1 for observations that are listed as the global ultimate owner of the controlled group. *Listed* is an indicator variable equal to 1 for observations that are listed. Column (a) replicates the model provided by Huizinga and Laeven [2008] and all remaining columns test H1. F-test Statistic reports results of jointly testing the sum of the indicated coefficients. The table reports OLS coefficient estimates and (in parentheses) robust standard errors clustered by parent and year. *, **, and *** represent two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5: The Effect of SetSize on Tax-Motivated Income Shifting

$$\text{LogPTI} = b_0 + b_1C + b_2\text{PostIFRS} + b_3\text{SetSizeRatio} + b_4C*\text{PostIFRS} + b_5C*\text{SetSizeRatio} + b_6\text{PostIFRS}*\text{SetSizeRatio} + b_7C*\text{PostIFRS}*\text{SetSizeRatio} + \text{Controls} + \text{FE}$$

	Predicted	SetSizeRatio _{t+1}		SetSizeRatio _{t+2}		SetSizeRatio _{t+3}	
C	-	-0.937 *** (0.354)	-0.319 (0.390)	-0.966 *** (0.348)	-0.354 (0.386)	-0.993 *** (0.343)	-0.324 (0.386)
PostIFRS	?	0.108 *** (0.031)	0.131 *** (0.028)	0.107 *** (0.031)	0.130 *** (0.029)	0.114 *** (0.026)	0.136 *** (0.029)
SetSizeRatio	?	-0.003 (0.005)	-0.008 (0.006)	-0.003 (0.005)	-0.008 (0.006)	0.022 (0.023)	0.010 (0.028)
C*PostIFRS	?	0.074 (0.252)	0.573 ** (0.234)	0.108 (0.244)	0.608 *** (0.229)	0.132 (0.238)	0.659 *** (0.216)
C*SetSizeRatio	?	-0.078 (0.059)	-0.150 ** (0.070)	-0.060 (0.060)	-0.126 * (0.074)	0.088 (0.153)	-0.079 (0.109)
PostIFRS*SetSizeRatio	?	-0.013 *** (0.004)	-0.015 *** (0.003)	-0.014 *** (0.004)	-0.016 *** (0.003)	-0.040 *** (0.012)	-0.039 *** (0.006)
C*PostIFRS*SetSizeRatio	?	-0.092 ** (0.043)	-0.092 ** (0.043)	-0.116 *** (0.043)	-0.118 *** (0.043)	-0.308 *** (0.095)	-0.277 *** (0.069)
LogAssets	+	0.230 *** (0.014)	0.232 *** (0.014)	0.230 *** (0.014)	0.232 *** (0.014)	0.229 *** (0.014)	0.231 *** (0.014)
LogComp	+	0.936 *** (0.030)	0.918 *** (0.027)	0.937 *** (0.030)	0.918 *** (0.027)	0.937 *** (0.030)	0.918 *** (0.027)
LogGDP	+	0.180 ** (0.080)	0.649 *** (0.241)	0.182 ** (0.081)	0.665 *** (0.242)	0.197 ** (0.083)	0.758 *** (0.244)
Additional Controls		Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed
Fixed Effects		Industry	Industry, Country	Industry	Industry, Country	Industry	Industry, Country
N		48,911	48,911	48,851	48,851	47,770	47,770
R-squared		0.610	0.615	0.610	0.615	0.612	0.616

Table 5 (Continued): The Effect of SetSize on Tax-Motivated Income Shifting

The full sample comprises 50,166 affiliate-years from parents located in the 27 EU countries between 2001 and 2010 with at least one EU foreign affiliate and sufficient data from Amadeus. The dependent variable *LogPTI* is the natural log of affiliate pre-tax income. *C* is the revenue-weighted differential tax rate derived by Huizinga and Laeven [2008] and increases in tax incentives to shift income out of an affiliate (see Appendix B). *PostIFRS* is an indicator variable equal to 1 for 2005 and later or for country-years requiring or permitting IFRS for unconsolidated financial reporting. *SetSizeRatio* is equal to $SetSizeRatio_{t+i}$ for IFRS adopters and zero for non-adopters. $SetSizeRatio_{t+i}$ is the number of independent EU firms in the affiliate's two-digit NACE code using the same accounting standards in the *i*th year *PostIFRS*, divided by the number of independent firms in the affiliate's country and two-digit NACE code using local GAAP in the last year prior to the *PostIFRS* period (see Appendix C). *LogAssets* is the natural log of affiliate fixed tangible assets. *LogComp* is the natural log of affiliate compensation expense. *LogGDP* is per capita GDP of the affiliate's country. *Parent* is an indicator variable equal to 1 for observations that are listed as the global ultimate owner of the controlled group. *Listed* is an indicator variable equal to 1 for observations that are listed. The table reports OLS coefficient estimates and (in parentheses) robust standard errors clustered by parent and year. *, **, and *** represent two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6: Voluntary versus Mandatory IFRS Adoption and Tax-Motivated Income Shifting

$$\text{LogPTI} = b_0 + b_1C + b_2\text{Early} + b_3\text{FirstTimeMandatory} + b_4\text{Voluntary} + b_5C*\text{Early} + b_6C*\text{FirstTimeMandatory} + b_7C*\text{Voluntary} + \text{Controls} + \text{FE}$$

LogPTI = b ₀ + b ₁ C + b ₂ Early + b ₃ FirstTimeMandatory + b ₄ Voluntary + b ₅ C*Early + b ₆ C*FirstTimeMandatory + b ₇ C*Voluntary + Controls						
	Predicted	(a)	(b)	(c)	(d)	
C	-	-0.978 *** (0.280)	-0.071 (0.359)	-0.961 *** (0.280)	-0.056 (0.362)	
Early	?	0.043 (0.095)	0.090 (0.067)			
FirstTimeMandatory	?	-0.344 *** (0.098)	-0.303 *** (0.102)	-0.345 *** (0.097)	-0.308 *** (0.099)	
Voluntary	?	0.244 * (0.137)	0.409 *** (0.154)	0.129 *** (0.041)	0.184	
C*Early	?	2.592 (2.123)	1.692 (2.134)			
C*FirstTimeMandatory	?	-3.585 *** (0.879)	-4.092 *** (0.923)	-3.589 *** (0.876)	-4.128 *** (0.912)	
C*Voluntary	?	-1.628 (2.467)	0.724 (2.275)	0.533 (1.910)	0.684 (1.375)	
LogAssets	+	0.225 *** (0.014)	0.228 *** (0.013)	0.225 *** (0.014)	0.228 *** (0.013)	
LogComp	+	0.943 *** (0.028)	0.923 *** (0.026)	0.943 *** (0.028)	0.924 *** (0.026)	
LogGDP	+	0.178 ** (0.080)	0.199 (0.244)	0.174 ** (0.080)	0.183 (0.251)	
Additional Controls		Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed	
Fixed Effects		Industry	Industry, Country	Industry	Industry, Country	
R-squared		0.610	0.614	0.610	0.614	
F-test Statistic (b ₆ =b ₇)		0.46	3.32 *	3.09 *	6.79 ***	

Table 6 (Continued): Voluntary versus Mandatory IFRS Adoption and Tax-Motivated Income Shifting

The sample comprises 50,166 affiliate-years from parents located in the 27 EU countries between 2001 and 2010 with at least one EU foreign affiliate and sufficient data from Amadeus and the European Commission for estimation. The dependent variable *LogPTI* is the natural log of affiliate pre-tax income. *C* is the revenue-weighted differential tax rate derived by Huizinga and Laeven [2008] and increases in tax incentives to shift income out of an affiliate (see Appendix B). *Early* is an indicator variable equal to 1 for IFRS affiliate-years if the affiliate voluntarily adopted IFRS prior to a mandate. *FirstTimeMandatory* is an indicator variable equal to 1 for IFRS years of affiliates that adopted IFRS only upon mandate. In columns (a) and (b), *Voluntary* is an indicator variable equal to 1 for IFRS affiliate-years if the affiliate voluntarily adopted IFRS in a country without a mandate. In columns (c) and (d), I also set *Voluntary* equal to 1 for affiliate-years using IFRS if the affiliate voluntarily adopted IFRS before adoption became mandatory (i.e., *Early*=1). *LogAssets* is the natural log of affiliate fixed tangible assets. *LogComp* is the natural log of affiliate compensation expense. *LogGDP* is per capita GDP of the affiliate's country as reported by the European Commission. *Parent* is an indicator variable equal to 1 for observations that are listed as the global ultimate owner of the controlled group. *Listed* is an indicator variable equal to 1 for observations that are listed. F-test Statistic reports results associated with testing the null hypothesis that $b_6=b_7$. The table reports OLS coefficient estimates and (in parentheses) robust standard errors clustered by parent and year. *, **, and *** represent two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7, Panel A: The Effect of IFRS Adoption on Tax-Motivated Income Shifting Using *RankSTR*

$$\text{LogPTI} = b_0 + b_1\text{RankSTR} + b_2\text{PostIFRS} + b_3\text{Adopter} + b_4\text{RankSTR*PostIFRS} + b_5\text{RankSTR*Adopter} + b_6\text{PostIFRS*Adopter} + b_7\text{RankSTR*PostIFRS*Adopter} + \text{Controls} + \text{FE}$$

	Predicted	RankSTR5	RankSTR5	RankSTR10	RankSTR10
RankSTR	-	-0.034 ** (0.014)	0.007 (0.017)	-0.018 *** (0.007)	0.005 (0.008)
PostIFRS	?	0.130 *** (0.017)	0.140 *** (0.030)	0.130 *** (0.018)	0.139 *** (0.030)
Adopter	?	0.029 (0.064)	0.239 ** (0.107)	0.025 (0.063)	0.234 ** (0.107)
RankSTR*PostIFRS	?	0.021 ** (0.010)	0.041 *** (0.011)	0.006 (0.004)	0.016 *** (0.005)
RankSTR*Adopter	?	0.060 (0.039)	0.037 (0.042)	0.036 ** (0.018)	0.026 (0.020)
PostIFRS*Adopter	?	-0.060 (0.047)	-0.088 ** (0.043)	-0.049 (0.045)	-0.076 * (0.041)
RankSTR*PostIFRS*Adopter	?	-0.130 *** (0.050)	-0.123 ** (0.048)	-0.055 ** (0.027)	-0.049 * (0.026)
LogAssets	+	0.228 *** (0.013)	0.230 *** (0.013)	0.228 *** (0.013)	0.230 *** (0.013)
LogComp	+	0.937 *** (0.029)	0.915 *** (0.026)	0.937 *** (0.029)	0.915 *** (0.026)
LogGDP	+	0.086 (0.077)	0.704 ** (0.284) *	0.096 (0.077)	0.675 ** (0.283)
Additional Controls		Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed
Fixed Effects		Industry	Industry, Country	Industry	Industry, Country
R-squared		0.610	0.615	0.610	0.615

Table 7, Panel A (Continued): The Effect of IFRS Adoption on Tax-Motivated Income Shifting Using *RankSTR*

The sample comprises 50,166 affiliate-years from parents located in the 27 EU countries between 2001 and 2010 with at least one EU foreign affiliate and sufficient data from Amadeus and the European Commission for estimation. The dependent variable *LogPTI* is the natural log of affiliate pre-tax income. *RankSTR* is the rank of the affiliate's statutory tax rate relative to all affiliated firms in the controlled group in the same year. *RankSTR5* ranks statutory tax rates into quintiles and *RankSTR10* ranks statutory tax rates into deciles. *PostIFRS* is an indicator variable equal to 1 for 2005 and later or for country-years requiring or permitting IFRS for unconsolidated financial reporting. *Adopter* is an indicator variable equal to 1 for affiliates that adopt IFRS. *LogAssets* is the natural log of affiliate fixed tangible assets. *LogComp* is the natural log of affiliate compensation expense. *LogGDP* is per capita GDP of the affiliate's country as reported by the European Commission. *Parent* is an indicator variable equal to 1 for observations that are listed as the global ultimate owner of the controlled group. *Listed* is an indicator variable equal to 1 for observations that are listed. The table reports OLS coefficient estimates and (in parentheses) robust standard errors clustered by parent and year. *, **, and *** represent two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7, Panel B: The Effect of SetSize on Tax-Motivated Income Shifting Using *RankSTR*

$$\text{LogPTI} = b_0 + b_1\text{RankSTR} + b_2\text{PostIFRS} + b_3\text{SetSizeRatio} + b_4\text{RankSTR*PostIFRS} + b_5\text{RankSTR*SetSizeRatio} + b_6\text{PostIFRS*SetSizeRatio} + b_7\text{RankSTR*PostIFRS*SetSizeRatio} + \text{Controls} + \text{FE}$$

	Predicted	SetSizeRatio _{t+1}		SetSizeRatio _{t+2}		SetSizeRatio _{t+3}	
RankSTR5	-	-0.020 (0.015)	0.016 (0.017)	-0.021 (0.015)	0.015 (0.017)	-0.027 ** (0.014)	0.013 (0.017)
PostIFRS	?	0.107 *** (0.030)	0.126 *** (0.030)	0.106 *** (0.029)	0.124 *** (0.030)	0.115 *** (0.024)	0.132 *** (0.031)
SetSizeRatio	?	-0.002 (0.005)	-0.007 (0.006)	-0.002 (0.005)	-0.007 (0.007)	0.028 (0.022)	0.018 (0.027)
RankSTR5*PostIFRS	?	0.007 (0.013)	0.031 ** (0.013)	0.008 (0.013)	0.032 ** (0.013)	0.012 (0.011)	0.036 *** (0.012)
RankSTR5*SetSizeRatio	?	-0.001 (0.003)	-0.003 (0.004)	0.000 (0.004)	-0.002 (0.004)	0.014 (0.012)	0.000 (0.010)
PostIFRS5*SetSizeRatio	?	-0.012 *** (0.004)	-0.015 *** (0.003)	-0.013 *** (0.005)	-0.016 *** (0.004)	-0.046 *** (0.008)	-0.047 *** (0.006)
RankSTR5*PostIFRS*SetSizeRatio	?	-0.011 *** (0.004)	-0.011 *** (0.004)	-0.012 *** (0.004)	-0.012 *** (0.004)	-0.034 *** (0.007)	-0.031 *** (0.007)
LogAssets	+	0.230 *** (0.014)	0.232 *** (0.014)	0.230 *** (0.014)	0.232 *** (0.014)	0.229 *** (0.014)	0.231 *** (0.014)
LogComp	+	0.936 *** (0.030)	0.916 *** (0.027)	0.937 *** (0.030)	0.916 *** (0.027)	0.938 *** (0.030)	0.916 *** (0.027)
LogGDP	+	0.076 (0.075)	0.648 ** (0.260)	0.079 (0.075)	0.660 ** (0.262)	0.105 (0.077)	0.758 *** (0.264)
Additional Controls		Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed
Fixed Effects		Industry	Industry, Country	Industry	Industry, Country	Industry	Industry, Country
N		48,911	48,911	48,851	48,851	47,770	47,770
R-squared		0.610	0.615	0.610	0.615	0.612	0.617

Table 7, Panel B (Continued): The Effect of SetSize on Tax-Motivated Income Shifting Using *RankSTR*

The full sample comprises 50,166 affiliate-years from parents located in the 27 EU countries between 2001 and 2010 with at least one EU foreign affiliate and sufficient data from Amadeus. The dependent variable *LogPTI* is the natural log of affiliate pre-tax income. *RankSTR* is the rank of the affiliate's statutory tax rate relative to all affiliated firms in the controlled group in the same year. *RankSTR5* ranks statutory tax rates into quintiles. *PostIFRS* is an indicator variable equal to 1 for 2005 and later or for country-years requiring or permitting IFRS for unconsolidated financial reporting. *SetSizeRatio* is equal to $SetSizeRatio_{t+i}$ for IFRS adopters and zero for non-adopters. $SetSizeRatio_{t+i}$ is the number of independent EU firms in the affiliate's two-digit NACE code using the same accounting standards in the i th year *PostIFRS*, divided by the number of independent firms in the affiliate's country and two-digit NACE code using local GAAP in the last year prior to the *PostIFRS* period (see Appendix B). *LogAssets* is the natural log of affiliate fixed tangible assets. *LogComp* is the natural log of affiliate compensation expense. *LogGDP* is per capita GDP of the affiliate's country. *Parent* is an indicator variable equal to 1 for observations that are listed as the global ultimate owner of the controlled group. *Listed* is an indicator variable equal to 1 for observations that are listed. The table reports OLS coefficient estimates and (in parentheses) robust standard errors clustered by parent and year. *, **, and *** represent two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7, Panel C: Voluntary versus Mandatory IFRS Adoption and Tax-Motivated Income Shifting Using *RankSTR*

$$\text{LogPTI} = b_0 + b_1\text{RankSTR} + b_2\text{Early} + b_3\text{FirstTimeMandatory} + b_4\text{Voluntary} + b_5\text{RankSTR*Early} + b_6\text{RankSTR*FirstTimeMandatory} + b_7\text{RankSTR*Voluntary} + \text{Controls} + \text{FE}$$

	Predicted	RankSTR5	RankSTR5	RankSTR10	RankSTR10
RankSTR	-	-0.019 (0.012)	0.034 ** (0.016)	-0.013 ** (0.006)	0.016 ** (0.007)
Early	?	0.035 (0.096)	0.102 (0.066)	0.031 (0.094)	0.100 (0.065)
FirstTimeMandatory	?	0.262 * (0.152)	0.406 ** (0.163)	0.263 * (0.159)	0.399 ** (0.168)
Voluntary	?	-0.257 *** (0.078)	-0.223 *** (0.079)	-0.268 *** (0.078)	-0.227 (0.079)
RankSTR*Early	?	0.020 (0.064)	-0.033 (0.065)	0.044 (0.038)	0.016 (0.039)
RankSTR*FirstTimeMandatory	?	-0.228 *** (0.077)	-0.219 ** (0.089)	-0.122 *** (0.039)	-0.123 *** (0.045)
RankSTR*Voluntary	?	-0.019 (0.134)	0.069 (0.128)	0.004 (0.078)	0.065 (0.076)
LogAssets	+	0.226 *** (0.013)	0.228 *** (0.013)	0.226 *** (0.013)	0.228 *** (0.013)
LogComp	+	0.943 *** (0.028)	0.922 *** (0.026)	0.943 *** (0.028)	0.922 *** (0.026)
LogGDP	+	0.075 (0.076)	0.259 (0.221)	0.091 (0.076)	0.241 (0.221)
Additional Controls		Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed
Fixed Effects		Industry	Industry, Country	Industry	Industry, Country
R-squared		0.610	0.614	0.610	0.614

Table 7, Panel C (Continued): Voluntary versus Mandatory IFRS Adoption and Tax-Motivated Income Shifting Using *RankSTR*

The sample comprises 50,166 affiliate-years from parents located in the 27 EU countries between 2001 and 2010 with at least one EU foreign affiliate and sufficient data from Amadeus and the European Commission for estimation. The dependent variable *LogPTI* is the natural log of affiliate pre-tax income. *RankSTR5* ranks statutory tax rates into quintiles and *RankSTR10* ranks statutory tax rates into deciles. *Early* is an indicator variable equal to 1 for IFRS affiliate-years if the affiliate voluntarily adopted IFRS prior to a mandate. *FirstTimeMandatory* is an indicator variable equal to 1 for IFRS years of affiliates that adopted IFRS only upon mandate. In columns (a) and (b), *Voluntary* is an indicator variable equal to 1 for IFRS affiliate-years if the affiliate voluntarily adopted IFRS in a country without a mandate. In columns (c) and (d), I also set *Voluntary* equal to 1 for affiliate-years using IFRS if the affiliate voluntarily adopted IFRS before adoption became mandatory (i.e., *Early*=1). *LogAssets* is the natural log of affiliate fixed tangible assets. *LogComp* is the natural log of affiliate compensation expense. *LogGDP* is per capita GDP of the affiliate's country as reported by the European Commission. *Parent* is an indicator variable equal to 1 for observations that are listed as the global ultimate owner of the controlled group. *Listed* is an indicator variable equal to 1 for observations that are listed. The table reports OLS coefficient estimates and (in parentheses) robust standard errors clustered by parent and year. *, **, and *** represent two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 8: The Effect of $\Delta SetMarginRange$ on Tax-Motivated Income Shifting

$$\text{LogPTI} = b_0 + b_1C + b_2\text{PostIFRS} + b_3\Delta\text{SetMarginRange} + b_4C*\text{PostIFRS} + b_5C*\Delta\text{SetMarginRange} + b_6\text{PostIFRS}*\Delta\text{SetMarginRange} + b_7C*\text{PostIFRS}*\Delta\text{SetMarginRange} + \text{Controls} + \text{FE}$$

Predicted		$\Delta\text{SetMarginRange}_{t+1}$		$\Delta\text{SetMarginRange}_{t+2}$		$\Delta\text{SetMarginRange}_{t+3}$	
C	-	-1.012 *** (0.354)	-0.429 (0.398)	-1.046 *** (0.356)	-0.473 (0.400)	-0.956 *** (0.363)	-0.414 (0.398)
PostIFRS	?	0.110 *** (0.029)	0.130 *** (0.029)	0.111 *** (0.028)	0.131 *** (0.029)	0.103 *** (0.033)	0.126 *** (0.028)
SetSizeRatio	?	0.057 (0.159)	-0.111 (0.191)	0.119 (0.144)	-0.014 (0.172)	0.039 (0.139)	-0.097 (0.169)
C*PostIFRS	?	0.057 (0.263)	0.528 ** (0.233)	0.104 (0.278)	0.585 ** (0.249)	0.025 (0.273)	0.504 ** (0.242)
C* $\Delta\text{SetMarginRange}$	?	-0.515 (2.277)	-1.695 (2.586)	2.286 (1.929)	1.261 (2.068)	0.096 (1.968)	-0.516 (2.353)
PostIFRS* $\Delta\text{SetMarginRange}$	?	-0.434 *** (0.137)	-0.508 *** (0.140)	-0.518 *** (0.112)	-0.583 *** (0.118)	-0.356 *** (0.077)	-0.428 *** (0.100)
C*PostIFRS* $\Delta\text{SetMarginRange}$	?	-2.971 * (1.622)	-3.134 * (1.657)	-0.842 *** (0.189)	-0.872 *** (0.202)	-3.105 *** (1.152)	-3.304 *** (1.267)
LogAssets	+	0.230 *** (0.014)	0.232 *** (0.014)	0.230 *** (0.014)	0.232 *** (0.014)	0.229 *** (0.014)	0.231 *** (0.014)
LogComp	+	0.936 *** (0.030)	0.917 *** (0.027)	0.937 *** (0.030)	0.918 *** (0.027)	0.938 *** (0.030)	0.919 *** (0.027)
LogGDP	+	0.179 ** (0.082)	0.643 ** (0.264)	0.181 ** (0.083)	0.673 ** (0.267)	0.171 ** (0.084)	0.636 ** (0.256)
Additional Controls		Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed
Fixed Effects		Industry	Industry, Country	Industry	Industry, Country	Industry	Industry, Country
N		48,911	48,911	48,819	48,819	47,770	47,770
R-squared		0.610	0.614	0.610	0.615	0.612	0.616

Table 8 (Continued): The Effect of $\Delta SetMarginRange$ on Tax-Motivated Income Shifting

The full sample comprises 50,166 affiliate-years from parents located in the 27 EU countries between 2001 and 2010 with at least one EU foreign affiliate and sufficient data from Amadeus. The dependent variable $LogPTI$ is the natural log of affiliate pre-tax income. C is the revenue-weighted differential tax rate derived by Huizinga and Laeven [2008] and increases in tax incentives to shift income out of an affiliate (see Appendix B). $PostIFRS$ is an indicator variable equal to 1 for 2005 and later or for country-years requiring or permitting IFRS for unconsolidated financial reporting. $SetSizeRatio$ is equal to $SetSizeRatio_{t+i}$ for IFRS adopters and zero for non-adopters. $\Delta SetMarginRange_{t+i}$ is the change in the full range (maximum value less minimum value) of pre-tax profit margins ($PTI/Revenues$) earned by independent EU firms in the affiliate's two-digit NACE code using the same accounting standards in the i th year $PostIFRS$, less the range of pre-tax profit margins earned by independent firms in the affiliate's country and two-digit NACE code using local GAAP in the last year prior to the $PostIFRS$ period. $LogAssets$ is the natural log of affiliate fixed tangible assets. $LogComp$ is the natural log of affiliate compensation expense. $LogGDP$ is per capita GDP of the affiliate's country. $Parent$ is an indicator variable equal to 1 for observations that are listed as the global ultimate owner of the controlled group. $Listed$ is an indicator variable equal to 1 for observations that are listed. The table reports OLS coefficient estimates and (in parentheses) robust standard errors clustered by parent and year. *, **, and *** represent two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 9, Panel A: Sample Selection Using Number of Employees

Sample Selection	
Parent affiliate-years in Bureau van Dijk's Amadeus database with at least one foreign EU affiliate and not missing revenues 2001 to 2010	6,559
Plus: Subsidiary affiliate-years not missing revenues 2001 to 2010	92,321
Affiliate-years used for calculation of <i>C</i>	98,880
Less: Missing pre-tax income (Amadeus variable <i>PLBT</i>)	1,831
Less: Missing NACE code (Amadeus variable <i>NACPRI</i>)	1,158
Less: Banks and insurance company (NACE codes 64, 65 or 66)	4,432
Less: Missing assets (Amadeus variable <i>TFAS</i>)	713
Less: Assets less than or equal to zero (Amadeus variable <i>TFAS</i>)	8,174
Less: Missing number of employees (Amadeus variable <i>EMPL</i>)	18,029
Less: Number of employees less than zero (Amadeus variable <i>EMPL</i>)	-
Less: Pre-tax income less than or equal to zero (Amadeus variable <i>PLBT</i>)	17,578
Affiliate-years used for estimation	46,965

This table provides the sample selection criteria using number of employees (Amadeus variable *EMPL*) as an alternative proxy for labor. The resulting sample comprises 46,965 affiliate-year observations from global ultimate parents located in the 27 EU countries between 2001 and 2010 with at least one foreign affiliate within the EU and sufficient data from Amadeus and the European Commission for estimation.

Table 9, Panel B: Number of Employees Sample Affiliate-year Observations by Country, Year and IFRS Adoption

	No IFRS Adopters		Years with IFRS Adopters											
	2001	2002	2003				2004				2005			
	All	All	All	Non- Adopter	Voluntary Adopter	Mandatory Adopter	All	Non- Adopter	Voluntary Adopter	Mandatory Adopter	All	Non- Adopter	Voluntary Adopter	Mandatory Adopter
Austria	-	-	-	-	-	-	8	8	-	-	41	41	-	-
Belgium	332	343	408	408	-	-	415	415	-	-	417	417	-	-
Bulgaria	24	23	25	25	-	-	24	24	-	-	28	-	-	28
Cyprus	-	-	-	-	-	-	-	-	-	-	2	-	-	2
Czech Republic	67	90	103	103	-	-	122	122	-	-	135	135	-	-
Denmark	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Estonia	36	38	38	38	-	-	48	48	-	-	45	45	-	-
Finland	218	233	235	235	-	-	276	276	-	-	293	293	-	-
France	679	838	853	853	-	-	914	914	-	-	978	978	-	-
Germany	116	156	189	189	-	-	226	226	-	-	398	398	-	-
Greece	54	48	69	63	-	6	60	32	25	3	68	8	4	56
Hungary	1	2	1	1	-	-	6	6	-	-	24	24	-	-
Ireland	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Italy	434	570	510	510	-	-	527	527	-	-	552	547	5	-
Latvia	17	18	25	25	-	-	24	24	-	-	27	21	-	6
Lithuania	7	9	13	13	-	-	15	15	-	-	18	7	-	11
Luxembourg	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Malta	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	19	21	31	31	-	-	41	41	-	-	28	28	-	-
Poland	92	123	137	137	-	-	172	172	-	-	197	190	7	-
Portugal	14	16	28	28	-	-	16	16	-	-	23	23	-	-
Romania	34	32	45	45	-	-	58	58	-	-	61	61	-	-
Slovakia	11	21	24	24	-	-	25	25	-	-	47	2	-	45
Slovenia	-	22	32	32	-	-	36	36	-	-	45	45	-	-
Spain	606	600	688	688	-	-	794	794	-	-	906	906	-	-
Sweden	295	306	339	339	-	-	393	393	-	-	423	423	-	-
United Kingdom	227	242	259	259	-	-	269	269	-	-	276	276	-	-
Total	3,285	3,751	4,052	4,046	-	6	4,469	4,441	25	3	5,032	4,868	16	148

Table 9, Panel B (Continued): Number of Employees Sample Affiliate-year Observations by Country, Year and IFRS Adoption

	No IFRS Adopters		Years with IFRS Adopters											
	2001	2002	2003				2004				2005			
	All	All	All	Non- Adopter	Voluntary Adopter	Mandatory Adopter	All	Non- Adopter	Voluntary Adopter	Mandatory Adopter	All	Non- Adopter	Voluntary Adopter	Mandatory Adopter
Austria	-	-	-	-	-	-	8	8	-	-	41	41	-	-
Belgium	332	343	408	408	-	-	415	415	-	-	417	417	-	-
Bulgaria	24	23	25	25	-	-	24	24	-	-	28	-	-	28
Cyprus	-	-	-	-	-	-	-	-	-	-	2	-	-	2
Czech Republic	67	90	103	103	-	-	122	122	-	-	135	135	-	-
Denmark	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Estonia	36	38	38	38	-	-	48	48	-	-	45	45	-	-
Finland	218	233	235	235	-	-	276	276	-	-	293	293	-	-
France	679	838	853	853	-	-	914	914	-	-	978	978	-	-
Germany	116	156	189	189	-	-	226	226	-	-	398	398	-	-
Greece	54	48	69	63	-	6	60	32	25	3	68	8	4	56
Hungary	1	2	1	1	-	-	6	6	-	-	24	24	-	-
Ireland	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Italy	434	570	510	510	-	-	527	527	-	-	552	547	5	-
Latvia	17	18	25	25	-	-	24	24	-	-	27	21	-	6
Lithuania	7	9	13	13	-	-	15	15	-	-	18	7	-	11
Luxembourg	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Malta	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	19	21	31	31	-	-	41	41	-	-	28	28	-	-
Poland	92	123	137	137	-	-	172	172	-	-	197	190	7	-
Portugal	14	16	28	28	-	-	16	16	-	-	23	23	-	-
Romania	34	32	45	45	-	-	58	58	-	-	61	61	-	-
Slovakia	11	21	24	24	-	-	25	25	-	-	47	2	-	45
Slovenia	-	22	32	32	-	-	36	36	-	-	45	45	-	-
Spain	606	600	688	688	-	-	794	794	-	-	906	906	-	-
Sweden	295	306	339	339	-	-	393	393	-	-	423	423	-	-
United Kingdom	227	242	259	259	-	-	269	269	-	-	276	276	-	-
Total	3,285	3,751	4,052	4,046	-	6	4,469	4,441	25	3	5,032	4,868	16	148

Table 9, Panel B (Continued): Number of Employees Sample Affiliate-year Observations by Country, Year and IFRS Adoption

	Years with IFRS Adopters								All Years			
	2009				2010							
	All	Non-Adopter	Voluntary Adopter	Mandatory Adopter	All	Non-Adopter	Voluntary Adopter	Mandatory Adopter	All	Non-Adopter	Voluntary Adopter	Mandatory Adopter
Austria	39	39	-	-	5	5	-	-	249	249	-	-
Belgium	450	450	-	-	274	274	-	-	4,158	4,158	-	-
Bulgaria	32	1	-	31	6	-	-	6	279	102	-	177
Cyprus	1	-	-	1	-	-	-	-	8	-	-	8
Czech Republic	140	140	-	-	-	-	-	-	1,101	1,101	-	-
Denmark	106	106	-	-	110	110	-	-	575	575	-	-
Estonia	38	38	-	-	17	17	-	-	431	431	-	-
Finland	245	245	-	-	197	197	-	-	2,626	2,626	-	-
France	906	906	-	-	292	292	-	-	8,216	8,216	-	-
Germany	503	503	-	-	137	137	-	-	3,539	3,537	2	-
Greece	77	7	3	67	49	7	-	42	659	241	41	377
Hungary	118	118	-	-	15	15	-	-	411	411	-	-
Ireland	16	16	-	-	-	-	-	-	19	19	-	-
Italy	706	681	19	6	251	241	3	7	6,048	5,919	95	34
Latvia	14	11	-	3	12	10	-	2	253	215	-	38
Lithuania	12	4	-	8	6	1	-	5	163	81	-	82
Luxembourg	10	10	-	-	7	7	-	-	23	23	-	-
Malta	1	-	-	1	-	-	-	-	3	-	-	3
Netherlands	33	33	-	-	23	23	-	-	280	279	1	-
Poland	241	207	34	-	39	34	5	-	1,765	1,627	138	-
Portugal	139	137	-	2	-	-	-	-	681	675	-	6
Romania	43	43	-	-	-	-	-	-	442	442	-	-
Slovakia	36	1	-	35	-	-	-	-	314	91	-	223
Slovenia	31	31	-	-	17	17	-	-	325	325	-	-
Spain	793	-	-	793	56	-	-	56	7,399	4,718	905	1,776
Sweden	538	538	-	-	331	331	-	-	4,276	4,276	-	-
United Kingdom	327	323	4	-	165	138	27	-	2,722	2,691	31	-
Total	5,595	4,588	60	947	2,009	1,856	35	118	46,965	43,028	1,213	2,724

The alternative sample using number of employees (Amadeus variable *EMPL*) comprises 46,965 affiliate-year observations from global ultimate parents located in the 27 EU countries between 2001 and 2010 with at least one foreign affiliate within the EU and sufficient data from Amadeus and the European Commission for estimation. I report the total number of affiliate-year observations by country and year. There are no affiliate-year observations using IFRS in 2001 and 2002. From 2003 to 2010, I also report the number of affiliate-year observations not using IFRS, voluntarily using IFRS, and using IFRS by mandate.

Table 9, Panel C: Number of Employees Sample Descriptive Statistics

Full Sample (n = 46,965)						Non-Adopters (n = 37,628)					IFRS Adopters (n = 9,337)					
	P50	Mean	St Dev	P25	P75	P50	Mean	St Dev	P25	P75	P50	Mean	St Dev	P25	P75	
Revenues	21.8	170	546	5.78	84.0	22.8	167	530	6.02	85.8	17.9 ***	183 **	607	4.87	76.9	
PTI	1.26	18.9	72.0	0.26	5.86	1.29	18.2	69.5	0.27	5.91	1.15 ***	21.6 ***	81.3	0.23	5.64	
Assets	1.49	37.1	150	0.18	9.87	1.37	34.1	141	0.17	8.96	2.15 ***	49.3 ***	181	0.25	13.9	
Empl	3.18	20.0	56.4	0.93	12.1	3.34	20.0	55.7	0.99	12.5	2.47 **	19.9 ***	59.4	0.71	10.2	
C	0.00	(0.01)	0.06	(0.02)	0.01	0.00	(0.01)	0.06	(0.02)	0.01	0.00	(0.01) ***	0.05	(0.01)	0.01	
TaxExp/PTI	0.28	0.32	3.39	0.11	0.36	0.28	0.35	3.72	0.10	0.379	0.28 ***	0.22 ***	1.43	0.13	0.35	
TaxExp/Revenues	0.01	0.07	6.37	0.00	0.03	0.01	0.08	7.11	0.00	0.03	0.01	0.03	0.70	0.00	0.03	
Is Parent	7.27%					7.18%					7.60%					
Has Listed Parent	60.1%					59.9%					61.0% *					
Is Listed Affiliate	5.03%					4.49%					7.21% ***					
Early	5.38%										27.1%					
FirstTimeMandatory	2.37%										11.9%					
Voluntary	0.63%										3.19%					
$\Delta \text{SetSize}_{t+1}$	22.0	782	2,511	1.00	295	8.00	105	350	0.00	69.0	805 ***	2,999 ***	4,489	242	4,229	
$\Delta \text{SetSize}_{t+2}$	42.0	889	2,560	2.00	476	15.0	233	742	1.00	154	756 ***	3,021 ***	4,488	211	4,322	
$\Delta \text{SetSize}_{t+3}$	47.0	902	2,660	3.00	416	20.0	402	1,412	1.00	225	620 ***	2,852 ***	4,703	163	2,894	
$\Delta \text{SetMarginRange}_{t+1}$	0.00%	5.29%	24.5%	0.00%	4.46%	0.00%	1.00%	20.8%	-0.59%	0.34%	0.00% ***	19.4% ***	29.7%	0.00%	39.0%	
$\Delta \text{SetMarginRange}_{t+2}$	0.00%	8.09%	27.0%	0.00%	12.4%	0.00%	4.32%	25.0%	-0.11%	6.69%	0.00% ***	20.3% ***	29.4%	0.00%	37.5%	
$\Delta \text{SetMarginRange}_{t+3}$	0.00%	8.88%	27.5%	0.00%	12.3%	0.00%	7.10%	26.2%	0.00%	10.2%	0.00% ***	15.8% ***	31.3%	0.00%	29.2%	
$\text{SetSizeRatio}_{t+1}$	1.11	3.35	9.30	1.01	1.38	1.06	1.10	0.32	1.00	1.15	2.50 ***	10.7 ***	17.3	1.88	14.2	
$\text{SetSizeRatio}_{t+2}$	1.18	3.55	9.91	1.07	1.67	1.13	1.22	0.53	1.02	1.26	2.45 ***	11.1 ***	18.5	1.76	13.9	
$\text{SetSizeRatio}_{t+3}$	1.28	3.75	15.1	1.10	1.53	1.21	1.30	0.61	1.05	1.37	1.93 ***	13.3 ***	31.7	1.48	3.30	

Table 9, Panel C (Continued): Number of Employees Sample Descriptive Statistics

The alternative sample using number of employees (Amadeus variable *EMPL*) comprises 46,965 affiliate-year observations from global ultimate parents located in the 27 EU countries between 2001 and 2010 with at least one foreign affiliate within the EU and sufficient data from Amadeus and the European Commission for estimation. *Revenues*, *PTI*, and *Assets* are reported in USD Millions. *Revenues* is affiliate operating revenues. *PTI* is affiliate pre-tax income. *Assets* is affiliate total tangible fixed assets. *Empl* is number of employees. *C* is the revenue-weighted differential tax rate derived by Huizinga and Laeven [2008] and increases in tax incentives to shift income out of an affiliate (see Appendix B). *TaxExp/PTI* is total tax expense scaled by *PTI*. *TaxExp/Revenues* is total tax expense scaled by *Revenues*. *Is Parent* indicates that the affiliate-year observation is the global ultimate owner of the controlled group. *Has Listed Parent* indicates that the affiliate has a global ultimate owner listed on a stock exchange. *Listed Affiliate* indicates that the affiliate itself is listed on a stock exchange. *Early* is an indicator variable equal to 1 for affiliate-years using IFRS if the affiliate voluntarily adopted IFRS prior to a mandate. *FirstTimeMandatory* is an indicator variable equal to 1 for affiliate-years using IFRS only upon mandate. *Voluntary* is an indicator variable equal to 1 for affiliate-years using IFRS if the affiliate voluntarily adopted IFRS in a country without a mandate. *PostIFRS* is an indicator variable equal to 1 for 2005 and later or for country-years requiring or permitting IFRS for unconsolidated financial reporting. *SetSize_t* is the number of independent firms in the affiliate's two-digit NACE code and country using the same financial accounting standards in the last year prior to the *PostIFRS* period. *SetSize_{t+i}* is the number of EU independent firms in the affiliate's two-digit NACE code using the same financial accounting standards in the *i*th year *PostIFRS*. $\Delta SetSize_{t+i}$ is *SetSize_{t+i}* less *SetSize_t*. $\Delta SetMarginRange_{t+i}$ is the change in the full range (maximum value less minimum value) of *Margin* (*PTI/Revenues*) *PostIFRS*, calculated as the *Margin* range in the *i*th year *PostIFRS* less the *Margin* range in the last year prior to the *PostIFRS* period. *SetSizeRatio_{t+i}* is *SetSize_{t+i}* divided by *SetSize_t* (see Appendix B). *, **, and *** represent two-tailed statistical significance of differences between IFRS adopters and non-adopters at the 10%, 5%, and 1% levels, respectively.

Table 10, Panel A: The Effect of IFRS Adoption on Tax-Motivated Income Shifting Using Number of Employees

$$\text{LogPTI} = b_0 + b_1C + b_2\text{PostIFRS} + b_3\text{Adopter} + b_4C*\text{PostIFRS} + b_5C*\text{Adopter} + b_6\text{PostIFRS}*\text{Adopter} + b_7C*\text{PostIFRS}*\text{Adopter} + \text{Controls} + \text{FE}$$

	Predicted	(a)	(b)	(c)	(d)
C	-	-1.209 *** (0.327)	-0.560 (0.453)	-1.341 *** (0.333)	-0.632 (0.454)
PostIFRS	?	0.399 *** (0.096)	0.375 *** (0.094)	0.406 *** (0.100)	0.391 *** (0.097)
Adopter	?	0.111 (0.087)	0.451 *** (0.136)	0.080 (0.089)	0.196 (0.121)
C*PostIFRS	?	0.552 *** (0.188)	-0.149 (0.277)	0.534 *** (0.172)	-0.099 (0.265)
C*Adopter	?	1.489 (1.109)	1.662 (1.234)	1.217 (1.051)	0.777 (1.192)
PostIFRS*Adopter	?	-0.171 ** (0.076)	-0.169 ** (0.072)	-0.201 *** (0.074)	-0.182 ** (0.074)
C*PostIFRS*Adopter	?	-2.842 *** (0.901)	-2.677 *** (0.796)	-2.927 *** (0.911)	-2.745 *** (0.876)
LogAssets	+	0.289 *** (0.015)	0.292 *** (0.015)	0.269 *** (0.015)	0.272 *** (0.014)
LogEmpl	+	0.602 *** (0.021)	0.583 *** (0.020)	0.588 *** (0.021)	0.573 *** (0.020)
LogGDP	+	1.173 *** (0.105)	0.512 *** (0.193)	1.159 *** (0.102)	0.594 *** (0.184)
Additional Controls		No	No	Parent, Listed	Parent, Listed
Fixed Effects		Industry	Industry, Country	Industry	Industry, Country
R-squared		0.553	0.559	0.568	0.572

Table 10, Panel A (Continued): The Effect of IFRS Adoption on Tax-Motivated Income Shifting Using Number of Employees

The alternative sample using number of employees (Amadeus variable *EMPL*) comprises 46,965 affiliate-year observations from global ultimate parents located in the 27 EU countries between 2001 and 2010 with at least one foreign affiliate within the EU and sufficient data from Amadeus and the European Commission for estimation. The dependent variable *LogPTI* is the natural log of affiliate pre-tax income. *C* is the revenue-weighted differential tax rate derived by Huizinga and Laeven [2008] and increases in tax incentives to shift income out of an affiliate (see Appendix B). *PostIFRS* is an indicator variable equal to 1 for 2005 and later or for country-years requiring or permitting IFRS for unconsolidated financial reporting. *Adopter* is an indicator variable equal to 1 for affiliates that adopt IFRS. *LogAssets* is the natural log of affiliate fixed tangible assets. *LogEmpl* is the natural log of number of employees. *LogGDP* is per capita GDP of the affiliate's country as reported by the European Commission. *Parent* is an indicator variable equal to 1 for observations that are listed as the global ultimate owner of the controlled group. *Listed* is an indicator variable equal to 1 for observations that are listed. The table reports OLS coefficient estimates and (in parentheses) robust standard errors clustered by parent and year. *, **, and *** represent two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 10, Panel B: The Effect of SetSize on Tax-Motivated Income Shifting Using Number of Employees

$$\text{LogPTI} = b_0 + b_1C + b_2\text{PostIFRS} + b_3\text{SetSizeRatio} + b_4C*\text{PostIFRS} + b_5C*\text{SetSizeRatio} + b_6\text{PostIFRS}*\text{SetSizeRatio} + b_7C*\text{PostIFRS}*\text{SetSizeRatio} + \text{Controls} + \text{FE}$$

	Predicted	SetSizeRatio _{t+1}		SetSizeRatio _{t+2}		SetSizeRatio _{t+3}	
C	-	-0.886 ** (0.391)	-0.176 (0.487)	-0.936 ** (0.387)	-0.214 (0.483)	-0.883 ** (0.379)	-0.142 (0.467)
PostIFRS	?	0.364 *** (0.096)	0.356 *** (0.090)	0.361 *** (0.097)	0.351 *** (0.091)	0.356 *** (0.098)	0.347 *** (0.091)
SetSizeRatio	?	0.001 (0.006)	-0.003 (0.007)	0.002 (0.006)	-0.002 (0.006)	0.000 (0.008)	-0.007 (0.007)
C*PostIFRS	?	0.055 (0.304)	-0.552 * (0.332)	0.095 (0.304)	-0.530 (0.328)	0.071 (0.292)	-0.553 * (0.313)
C*SetSizeRatio	?	-0.025 (0.052)	-0.092 (0.056)	-0.005 (0.046)	-0.060 (0.048)	-0.007 (0.058)	-0.068 (0.049)
PostIFRS*SetSizeRatio	?	-0.017 *** (0.005)	-0.014 *** (0.005)	-0.013 * (0.007)	-0.011 * (0.006)	-0.009 (0.008)	-0.004 (0.006)
C*PostIFRS*SetSizeRatio	?	-0.093 ** (0.044)	-0.084 ** (0.041)	-0.080 * (0.048)	-0.072 (0.044)	-0.063 (0.055)	-0.035 (0.044)
LogAssets	+	0.272 *** (0.016)	0.275 *** (0.015)	0.272 *** (0.016)	0.275 *** (0.015)	0.271 *** (0.016)	0.274 *** (0.015)
LogEmpl	+	0.587 *** (0.022)	0.573 *** (0.020)	0.587 *** (0.022)	0.572 *** (0.020)	0.588 *** (0.022)	0.574 *** (0.021)
LogGDP	+	1.123 *** (0.104)	0.457 *** (0.120)	1.124 *** (0.104)	0.433 *** (0.121)	1.110 *** (0.105)	0.418 *** (0.127)
Additional Controls		Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed
Fixed Effects		Industry	Industry, Country	Industry	Industry, Country	Industry	Industry, Country
N		45,686	45,686	45,615	45,615	44,463	44,463
R-squared		0.568	0.573	0.568	0.573	0.570	0.575

Table 10, Panel B (Continued): The Effect of SetSize on Tax-Motivated Income Shifting Using Number of Employees

The alternative sample using number of employees (Amadeus variable *EMPL*) comprises 46,965 affiliate-year observations from global ultimate parents located in the 27 EU countries between 2001 and 2010 with at least one foreign affiliate within the EU and sufficient data from Amadeus and the European Commission for estimation. The dependent variable *LogPTI* is the natural log of affiliate pre-tax income. *C* is the revenue-weighted differential tax rate derived by Huizinga and Laeven [2008] and increases in tax incentives to shift income out of an affiliate (see Appendix B). *PostIFRS* is an indicator variable equal to 1 for 2005 and later or for country-years requiring or permitting IFRS for unconsolidated financial reporting. *SetSizeRatio* is equal to $SetSizeRatio_{t+i}$ for IFRS adopters and zero for non-adopters. $SetSizeRatio_{t+i}$ is the number of independent EU firms in the affiliate's two-digit NACE code using the same accounting standards in the *i*th year *PostIFRS*, divided by the number of independent firms in the affiliate's country and two-digit NACE code using local GAAP in the last year prior to the *PostIFRS* period (see Appendix B). *LogAssets* is the natural log of affiliate fixed tangible assets. *LogEmpl* is the natural log of number of employees. *LogGDP* is per capita GDP of the affiliate's country. *Parent* is an indicator variable equal to 1 for observations that are listed as the global ultimate owner of the controlled group. *Listed* is an indicator variable equal to 1 for observations that are listed. The table reports OLS coefficient estimates and (in parentheses) robust standard errors clustered by parent and year. *, **, and *** represent two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 10, Panel C: Voluntary versus Mandatory IFRS Adoption and Tax-Motivated Income Shifting Using Number of Employees

$$\text{LogPTI} = b_0 + b_1C + b_2\text{Early} + b_3\text{FirstTimeMandatory} + b_4\text{Voluntary} + b_5C*\text{Early} + b_6C*\text{FirstTimeMandatory} + b_7C*\text{Voluntary} + \text{Controls} + \text{FE}$$

	Predicted	(a)	(b)	(c)	(d)
C	-	-1.096 *** (0.307)	-0.962 *** (0.312)	-0.663 (0.442)	-0.705 * (0.419)
Early	?	0.073 (0.123)	-0.133 (0.102)	0.252 (0.086)	-0.077 (0.056)
FirstTimeMandatory	?	0.165 (0.146)	-0.032 (0.132)	0.215 (0.168)	0.011 (0.155)
Voluntary	?	-0.200 (0.123)	-0.373 *** (0.111)	-0.031 (0.125)	-0.341 (0.092) ***
C*Early	?	2.356 (2.059)	2.382 (2.086)	2.273 (1.940)	2.585 (1.961)
C*FirstTimeMandatory	?	-2.93 *** (0.897)	-3.187 *** (0.937)	-4.359 *** (1.132)	-4.27 *** (1.180)
C*Voluntary	?	-2.589 * (1.330)	-2.685 * (1.378)	-1.900 (1.441)	-1.814 (1.476)
LogAssets	+	0.273 *** (0.016)	0.265 *** (0.014)	0.275 *** (0.015)	0.268 *** (0.014)
LogEmpl	+	0.584 *** (0.022)	0.593 *** (0.021)	0.568 *** (0.021)	0.578 *** (0.020)
LogGDP	+	1.172 *** (0.099)	1.151 *** (0.099)	-0.019 (0.183)	0.422 *** (0.129)
Additional Controls		Parent, Listed	Parent, Listed	Parent, Listed	Parent, Listed
Fixed Effects		Industry	Industry, Year	Industry, Country	Industry, Year, Country
R-squared		0.563	0.571	0.568	0.575

**Table 10, Panel C (Continued): Voluntary versus Mandatory IFRS Adoption and Tax-Motivated Income Shifting
Using Number of Employees**

The alternative sample using number of employees (Amadeus variable *EMPL*) comprises 46,965 affiliate-year observations from global ultimate parents located in the 27 EU countries between 2001 and 2010 with at least one foreign affiliate within the EU and sufficient data from Amadeus and the European Commission for estimation. The dependent variable *LogPTI* is the natural log of affiliate pre-tax income. *C* is the revenue-weighted differential tax rate derived by Huizinga and Laeven [2008] and increases in tax incentives to shift income out of an affiliate (see Appendix B). *Early* is an indicator variable equal to 1 for IFRS affiliate-years if the affiliate voluntarily adopted IFRS prior to a mandate. *FirstTimeMandatory* is an indicator variable equal to 1 for IFRS years of affiliates that adopted IFRS only upon mandate. *Voluntary* is an indicator variable equal to 1 for IFRS affiliate-years if the affiliate voluntarily adopted IFRS in a country without a mandate. *LogAssets* is the natural log of affiliate fixed tangible assets. *LogEmpl* is the natural log of number of employees. *LogGDP* is per capita GDP of the affiliate's country as reported by the European Commission. *Parent* is an indicator variable equal to 1 for observations that are listed as the global ultimate owner of the controlled group. *Listed* is an indicator variable equal to 1 for observations that are listed. The table reports OLS coefficient estimates and (in parentheses) robust standard errors clustered by parent and year. *, **, and *** represent two-tailed statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix A: Variable Definitions

Variable	Definition
<i>Revenues</i>	Revenues reported in year t (Amadeus variable <i>OPRE</i>).
<i>PTI</i>	Pre-tax income reported in year t (Amadeus variable <i>PLBT</i>).
<i>C</i>	<i>Revenues</i> -weighted differential tax rate of affiliate relative to all affiliated firms in year t , as defined by Huizinga and Laeven (2008).
<i>Assets</i>	Tangible fixed assets reported in year t (Amadeus variable <i>TFAS</i>).
<i>Comp</i>	Compensation expense reported in year t (Amadeus variable <i>STAF</i>).
<i>Empl</i>	Number of employees reported in year t (Amadeus variable <i>EMPL</i>).
<i>Listed</i>	Affiliate-level indicator variable equal to 1 if affiliate is listed, 0 otherwise.
<i>Parent</i>	Affiliate-level indicator variable equal to 1 if affiliate is identified as the global ultimate owner of the controlled group.
<i>LogPTI</i>	Natural logarithm of <i>PTI</i> in year t .
<i>LogAssets</i>	Natural logarithm of <i>Assets</i> in year t .
<i>LogComp</i>	Natural logarithm of (<i>Comp</i> +1) in year t .
<i>LogEmpl</i>	Natural logarithm of (<i>Empl</i> +1) in year t .
<i>LogGDP</i>	Natural logarithm of per capital GDP for country j in year t .
<i>TaxExp/PTI</i>	Reported total tax expense (Amadeus variable <i>TAXA</i>) divided by <i>PTI</i> in year t .
<i>TaxExp/Revenues</i>	Reported total tax expense (Amadeus variable <i>TAXA</i>) divided by <i>Revenues</i> in year t .
<i>Adopter</i>	Affiliate-level indicator variable equal to 1 for affiliates that adopt IFRS, 0 otherwise.
<i>PostIFRS</i>	Indicator variable equal to 1 for affiliate-years in which IFRS is required or permitted for single entity reporting, or for years 2005 and later for countries that do not allow IFRS for single entity reporting; 0 otherwise.
<i>SetSize_t</i>	The number of independent firms in the affiliate's two-digit NACE code using the same financial accounting standard in the last year before the <i>PostIFRS</i> period.
<i>SetSize_{t+i}</i>	The number of independent firms in the affiliate's two-digit NACE code using the same financial accounting standard in the i th year of the <i>PostIFRS</i> period.
<i>ΔSetSize_{t+i}</i>	<i>SetSize_{t+i}</i> less <i>SetSize_t</i> .
<i>SetSizeRatio_{t+i}</i>	<i>SetSize_{t+i}</i> divided by <i>SetSize_t</i> .
<i>Margin</i>	<i>PTI</i> scaled by <i>Revenues</i> .
<i>ΔSetMarginRange_{t+i}</i>	The change in the full range (maximum value less minimum value) of <i>Margin</i> , calculated as the <i>Margin</i> range in the i th year of the <i>PostIFRS</i> period less the <i>Margin</i> range in the last year before the <i>PostIFRS</i> period.
<i>Early</i>	Indicator variable equal to 1 for affiliate-years using IFRS if the affiliate voluntarily adopted IFRS before adoption became mandatory; 0 otherwise.
<i>FirstTimeMandatory</i>	Indicator variable equal to 1 for affiliate-years using IFRS only by mandate; 0 otherwise.
<i>Voluntary</i>	Indicator variable equal to 1 for affiliate-years using IFRS if the affiliate voluntarily adopted IFRS in a country without a mandate; 0 otherwise.
<i>RankSTR</i>	Rank of affiliate statutory tax rate relative to all affiliated firms in year t .
<i>RankSTR5</i>	<i>RankSTR</i> using quintiles.
<i>RankSTR10</i>	<i>RankSTR</i> using deciles.

Appendix B: Example Calculations of Tax Incentive Measure C

This Appendix provides several examples of the calculation of C , defined as follows:

$$C_i = \frac{1}{(1 - \tau_i)} \frac{\sum_{k \neq i}^n \frac{B_k(\tau_i - \tau_k)}{1 - \tau_k}}{\sum_{k=1}^n \frac{B_k}{1 - \tau_k}}$$

C is the tax incentive variable derived by Huizinga and Laeven [2008]. By taking into account the revenue-weighted statutory differential tax rate of all affiliates, this measure captures whether a firm has both the incentive and opportunity to shift income into or out of a particular affiliate.

I consider four affiliates from the same controlled group: Affiliate 1 faces a statutory tax rate of zero percent, Affiliate 2 faces a rate of ten percent, Affiliate 3 faces a rate of 20 percent, and Affiliate 4 faces a rate of 30 percent. The following examples differ only in the distribution of revenues across affiliates.

Example 1			
Affiliate	Revenue	Statutory Tax Rate	C
1	10	0%	-0.21
2	20	10%	-0.12
3	30	20%	-0.01
4	40	30%	0.13
Mean	25	15%	-0.06
Median	25	15%	-0.07

Example 2

Affiliate	Revenue	Statutory Tax Rate	<i>C</i>
1	40	0%	-0.11
2	30	10%	-0.01
3	20	20%	0.11
4	10	30%	0.27
Mean	25	15%	0.06
Median	25	15%	0.05

Example 3

Affiliate	Revenue	Statutory Tax Rate	<i>C</i>
1	10	0%	-0.17
2	40	10%	-0.08
3	30	20%	0.04
4	20	30%	0.19
Mean	25	15%	-0.01
Median	25	15%	-0.02

Appendix C: Example Calculation of *SetSizeRatio*

$SetSizeRatio_{t+i}$, adapted from the DeFond et al. [2011] “uniformity” measure, is the number of independent firms in an affiliate's industry across the EU using the same accounting standards in the i th year of the *PostIFRS* period, divided by the number of local GAAP independent firms in the affiliate's industry and country in the last year before the *PostIFRS* period. *PostIFRS* is an indicator variable equal to 1 for 2005 and later or for country-years requiring or permitting IFRS for unconsolidated financial reporting. $SetSizeRatio_{t+i}$ greater than one indicates an increase in the number of potential benchmark firms *PostIFRS*, whereas a value less than one indicates a decrease. For example, a firm that licenses healthcare information technology (IT) in the UK may be the only healthcare IT company using UK GAAP prior to IFRS. Upon adopting IFRS, this firm may experience a sizeable increase in potential benchmark firms. In contrast, a software reseller in the UK likely has numerous competitors using UK GAAP prior to IFRS. Further, upon early (voluntary) IFRS adoption, this firm may have relatively few potential benchmarks in the EU using IFRS.

The following example provides the $SetSizeRatio_{t+i}$ inputs and calculations for a sample Spanish affiliate in 2-digit NACE code 46 that adopts IFRS in 2007.

Local GAAP Observations in Spain, by Industry and Year			
Location	2-Digit NACE	Year	Observations
Spain	46	2005	9,859
Spain	46	2006	10,304
Spain	46	2007	1,213
Spain	46	2008	0

IFRS Observations in the EU, by Industry and Year

Location	2-Digit NACE	Year	Observations
EU	46	2006	9,246
EU	46	2007	19,394
EU	46	2008	18,817
EU	46	2009	16,891

Calculation of *SetSizeRatio*_{*t+i*}

Measure	Numerator	Denominator	Value
<i>SetSizeRatio</i> _{<i>t+1</i>}	19,394	10,304	1.88
<i>SetSizeRatio</i> _{<i>t+2</i>}	18,817	10,304	1.83
<i>SetSizeRatio</i> _{<i>t+3</i>}	16,891	10,304	1.64

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