As Uncertain as Taxes

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Abstract

Does room for interpretation in the tax law affect corporate financial decisions? To be widely applicable, tax law has to leave room for interpretation, which creates what is known as 'legal uncertainty'. Companies can use this 'legal uncertainty' for tax planning, or use debt as a relatively certain tax planning tool. I construct a measure of 'legal uncertainty' and show that this 'legal uncertainty' leads to a substitution between debt-based and other tax planning strategies. I find that both financing and profit shifting are affected. The strength and direction of this effect depends on the intensity of the enforcement by the tax authority.

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1 Introduction

"in this world nothing can be said to be certain, except death and taxes."

Benjamin Franklin, in a letter to Jean-Baptiste Leroy 1789

Franklin was right: corporations will always face some tax obligations over their lifetime. However, the extent of those obligations is not nearly as clear. Companies face tax laws which are complex and cannot cover all possible actions of the company. This creates room for interpretation of the law, which can lead to disputes about the correct interpretation. In the legal literature this incompleteness of the law is referred to as legal uncertainty Pistor and Xu (2002, 2003); Givati (2009); Dari-Mattiacci and Deffains (2007). Companies can use this legal uncertainty in their tax planning strategy, or choose a more conservative tax planning strategy to avoid the legal uncertainty.

It can be profitable for firms to use corporate policies to reduce their tax bill (tax planning). For instance the corporate inversions of the 1990s, which allowed multinational companies to avoid US taxes on foreign profits, saved companies billions (New York State Bar Association, 2002). This is not an isolated example, as total world-wide corporate tax planning benefits are estimated at over 500 billion dollars a year (Cobham and Janský, 2017), suggesting that benefits can be substantial. However, recent cases like the European Commission forcing Apple to pay 13 billion of Irish taxes suggests that the risks are substantial too (European Committee, 2016).

In this paper I investigate how legal uncertainty affects capital structure through its effect on tax planning opportunities. Theory suggests that an increase in non-debt tax planning opportunities can decrease the use of debt-tax shields (DeAngelo and Masulis, 1980; Graham and Tucker, 2006). Legal uncertainty increases the amount of tax planning opportunities available to the company, thereby affecting the use of debt tax shields. I show that this is indeed the case and that as a result, legal uncertainty significantly affects financing and profit shifting decisions.

Law can be seen as an incomplete contract (Hart and Moore, 1988) between the government and the companies in the country. The law cannot cover all possible corporate actions and must therefore leave room for interpretation to ensure it can be widely applied.

While, courts ultimately decide which interpretations of the law are acceptable and which ones are not, companies can use the room for interpretation to interpret the law favorably. As a result, legal uncertainty reduces the expected mean tax rate, directionally similar to the effect of leverage. Contrary to the use of leverage, the use of legal uncertainty can vary in complexity, risk, and cost of executing the tax planning strategy, but does not carry bankruptcy costs.

Despite its practical relevance, legal uncertainty in tax law has not been widely investigated (Zangari, Caiumi, and Hemmelgarn, 2017). To the best of my knowledge, this is the first paper empirically looking at the effects of this legal uncertainty on capital structure and tax planning decisions.

The law literature has highlighted the importance of legal uncertainty (Givati, 2009; Pistor and Xu, 2002, 2003). However, due to the lack of an accurate measure for legal uncertainty, it has been challenging to empirically investigate its effect on corporate decisions. I construct such a measure, which allows me to give substance to the notion of legal uncertainty and estimate its effect on corporate decisions.

I construct a measure for legal uncertainty based on the legal literature about complexity and legal uncertainty (Pistor and Xu, 2002, 2003; Kaplow, 1995, 1999; Dari-Mattiacci and Deffains, 2007). Based on the legal insights from these authors, I classify law articles as either limitative or suggestive. Limitative articles provide clearly defined rules, while suggestive articles set forth broadly applicable, but vague general principles. Especially these suggestive articles contribute to the incompleteness of the law, which creates the legal uncertainty. I construct a dataset mapping this structure of the tax law for ten countries over seven years, by separately classifying every article in the (corporate) income tax law for each country and year.

In addition to this legislative component I also take into account outcomes of previous court cases. Previous court cases provide information on how courts will interpret the law in future cases, resolving some of the legal uncertainty. I collect the total number of court cases ruled on by the highest court in each country and combine this judicial component with the legislative component to construct my measure for legal uncertainty. I find that a one standard deviation increase in legal uncertainty is associated with a 1.3 percentage

point decrease in leverage and I find evidence that multinational groups shift income from high-tax countries towards low-tax countries, increasing the tax base of profitable low-taxed group members by 20% on average, when the legal uncertainty of high tax group members increases by a standard deviation. These results suggest that legal uncertainty has a significant real economic impact, meaningfully affecting financing and subsidiary location decisions of companies.

Becker (1968); Polinsky and Shavell (1979), and Calfee and Craswell (1984) show that when legal uncertainty is introduced in a model on optimal tax auditing and sanctions companies will either under- or over-comply with the law. This suggests that my analysis should take into account the institutional framework in which companies operate. To capture this effect I construct a proxy for the audit probability and investigate how it interacts with legal uncertainty. The proxy is based on the percentage of companies audited in the prior year. I indeed find that when the probability of being audited by the tax authority is high the effect of legal uncertainty is reversed. This shows that the use of legal uncertainty is indeed a risky action, an increase in risk decreases its use.

The proxies for legal uncertainty and the audit probability capture the roles of all three branches of government in creating, alleviating, and augmenting the effects of legal uncertainty. The executive branch enforces the law and has a strong impact on how companies respond to legal uncertainty, while the judicial branch can alleviate legal uncertainty with its rulings. Considering the sizable impact of legal uncertainty on companies the legislative branch should take into account whether the institutions of the country are equipped to efficiently enforce and interpret new legislation. Moreover, they need to ensure that these institutions and legal uncertainty do not interfere with the goals of new legislation.

To extend the analysis and to ensure robustness I perform several additional tests. I use a shock to legal uncertainty, caused by a ruling from the European Court of Justice (2006), to show that companies do indeed substitute between debt-based and other tax planning strategies. The shock led to a change to anti-tax-avoidance rules in some European countries, but not in others. Before the change, (part of the) profits from a subsidiary located in a country with a low corporate tax rate would face an additional tax in the parent country. After the shock, the application of the additional tax was no

longer certain, as it had to be evaluated on a case-by-case basis. If the subsidiary served an economic purpose beyond tax planning the profits could not be additionally taxed, making it more beneficial to have a subsidiary in EU countries with a low corporate tax rate. If the subsidiary mostly served a tax avoidance purpose the additional tax would be imposed. When a subsidiary is deemed to serve a tax avoidance or economic purpose is not clearly defined, this is what increased legal uncertainty. I compare the leverage of parent companies of low-taxed subsidiaries from affected countries (treated), to the leverage of parent companies of low-taxed subsidiaries from non-affected countries (control). The results from the main regressions are confirmed.

Furthermore, I ensure that companies with the most to gain from tax planning do indeed see the biggest increase in tax planning. Similarly, those companies which likely cannot benefit from using both debt-based and other tax planning strategies at the same time show stronger substitution. To ensure the effect of the shock is due to an increase in legal uncertainty I compare companies with different types of ownership. Companies with non-diversified owners are less likely to take risks (Faccio et al., 2011) and therefore react less to the shock. Furthermore, I ensure that the effects are not driven by changes to legislation specifically targeting debt based tax planning (Panier et al., 2012; Buettner et al., 2012), by excluding companies from countries that introduced such rules. A different concern could be that companies lobby for more legal uncertainty. Based on insights from Hill et al. (2013); Neretina (2018) I exclude companies most prone to lobbying. Lastly, I make sure that endogeneous incorporation of new subsidiaries does not drive the effect on leverage or income shifting.

This paper contributes to the several strands of literature. First, the literature on taxes and capital structure has focused on the effects of tax rate changes (Graham, 2000; Heider and Ljungqvist, 2015; Huizinga et al., 2008) and the introduction of rules specifically targeting the use of debt for tax planning (Panier et al., 2012; Buettner et al., 2012). Recent papers have investigated the benefits multinationals can obtain (Huizinga et al., 2008; Brok, 2018) by using differences in tax codes across countries. Graham and Tucker (2006) show for a sample of 44 companies punished for tax-sheltering that these tax-sheltering companies have lower average debt than comparable companies. In line with

this paper, I show that the capital structure is not just affected by factors that affect the benefit of debt-based tax planning, but also by the factors affecting other tax planning strategies. My contribution compared to Graham and Tucker (2006) is that I show that legal uncertainty is an important determinant of this substitution between tax planning strategies. Not only does this increase our understanding of this substitution, but it also shows how legal uncertainty affects corporate decisions and provides relevant policy implications.

Secondly, the literature on uncertainty in law has focused on the future of legislation and how it affects optimal corporate decisions (Baker et al., 2016; Gulen and Ion, 2016). I argue that even when we know what the law will look like in the future, today's legal uncertainty still affects corporate decisions through its effect on tax planning strategies. This effect is not just different in its timing, but also in its nature. Companies can use legal uncertainty to their advantage and it is therefore not necessarily something they want to avoid. The legal literature has extensively debated legal uncertainty and its importance (Givati, 2009; Pistor and Xu, 2002; d'Amato, 1983). My main contribution to this literature is that by creating my proxy for legal uncertainty I can actually estimate the effect and show its economic importance.

Thirdly, the literature on base erosion and profit shifting (Gumpert, Hines Jr, and Schnitzer, 2016; Tørsløv, Wier, and Zucman, 2018; Dharmapala, 2014; Cristea and Nguyen, 2016; Desai, Foley, and Hines, 2006; Ruf and Weichenrieder, 2013; Weichenrieder, 1996; Dharmapala and Riedel, 2013; Shevlin, Lampenius, and Stenzel, 2019). I add to this literature by investigating a determinant of profit shifting, thereby increasing our understanding of what allows companies to erode their tax base.

Lastly, I also contribute to the literature on the determinants of capital structure (Rajan and Zingales, 1995). While the importance of taxes for capital structure has been known since Modigliani and Miller (1963) and Kraus and Litzenberger (1973), research on the impact of non-debt based tax planning strategies has only recently started to gain traction (Desai and Dharmapala, 2009; Graham et al., 2014; Dyreng et al., 2008, 2010). This paper shows the importance of further investigating the determinants of tax planning and its effects on capital structure and other corporate financial decisions.

The structure of this paper is as follows: I describe the institutions involved in the tax process in Section 2.1. Section 2.2 discusses measurement of the relevant parameters. I formalize my hypotheses in section 2.3. Section 3 describes the estimation strategy. Section 4 describes the data. Section 5 presents the results and Section 6 shows the results for the shock. In Section 7 robustness tests are presented. Section 8 concludes.

2 Framework

2.1 Institutional framework

In this section I describe how the taxation process works and which institutions are involved in this process. Details differ from country to country, but the general concept is similar.

The legislative branch writes tax laws. A law will set forth the tax rate and how to calculate the profit for tax purposes (the taxable base). The law cannot cover all possible contingencies that occur in everyday business and it can be thought of as an incomplete contract as described in Hart and Moore (1988). This incompleteness can give rise to legal uncertainty.

An increase in legal uncertainty means that there are more situations in which it is not certain what the legal results of an action will be (Pistor and Xu, 2002, 2003; d'Amato, 1983), or in other words, an increase in the incompleteness of the law.

Companies file a tax return each year, but as a result of the incompleteness of law it can be ex-ante unclear what the tax treatment of some actions taken during the year will be. Moreover, companies can structure their actions in a way that will influence the tax treatment ('tax planning'). For instance, a company sets up a foreign subsidiary in a low tax country, which sells the right to use intellectual property to the rest of the company. This results in a tax deductible cost for the parent company and a lower-taxed revenue for the new subsidiary. Such structuring must occur before the actual moment of taxation.[1]

[1]Tax planning is not necessarily seen as something negative in this paper. In many cases tax planning is both within the spirit and letter of the law. However, Desai and Dharmapala (2009) show that some tax planning investments are not value enhancing.

The tax authority (executive branch) verifies the company's tax filing and collects the taxes. Due to the large amount of tax filings they can only audit a fraction of the companies that file each year. A company does not ex-ante know whether it will be audited. If an audit shows that a tax planning strategy was not adhering to the law, fines can be charged. In most countries fines are only imposed when a strategy is 'not defensible'. Defensibility suggests a strategy uses an interpretation of the law which is ex-ante reasonable, based on the law and previous court cases. Tax authorities or a court ex-post disagreeing with the strategy does not necessarily imply it was ex-ante unreasonable.

The parties can go to court (judicial branch) when they disagree about audit outcomes. After a court ruling the tax is collected or returned and in most countries interest is added. Parties can appeal the ruling at a higher court. Both the lowest and the appeal courts deal with the interpretation of the facts and how to apply the law to these facts. For instance, when evaluating in which country a company has to pay tax, the court establishes where the company is incorporated and where the company's management is or where it performs its main activities (facts). Next it rules on how the law should be interpreted and applied to these facts (interpretation).

Even if the tax planning strategy of a company follows the 'letter of the law' the court can rule that an action lacks economic substance and serves only a tax avoidance purpose, thereby violating the 'spirit of the law'. This would result in the company losing the case, even though it technically complied with the law as written. A famous example are so called letterbox companies. A company legally incorporates in a low tax country, but its main activity in that country is the use of a letterbox in that country. This raises the question: when is a company located in a country? What matters, being legally incorporated (letter of the law[2]) or having substantial economic activities in the country (spirit of the law)?[3]

As a last resort in conflicts, parties can appeal at the highest court of the country. Generally, the highest court can only rule on the interpretation of the law and not on the

[2]Most countries by now have updated their laws to move away from this being the legal definition.

[3]Countering tax planning which uses letterbox companies has proven difficult in reality (Cremers, 2017). Several countries have already included economic activity as part of the letter of the law. However, the meaning of economic activity is still uncertain in many cases.

interpretation of the facts of a case. For instance, the court can rule on whether economic substance requires a foreign subsidiary to have local management, but does not investigate who was in fact managing the subsidiary. Such a court is typically referred to as a court of cassation. It will rule on the interpretation of the law, which will be applied by the lower court in this case and to future cases with a similar setting. So even in civil law countries case law carries significant weight.

Note that the legal literature distinguishes three types of so called non-compliant actions. Tax evasion, which is an-after-the fact action in which a company hides (part of) the information relevant to determine the tax base. Tax planning, which is the before-the-fact structuring of actions to minimize taxes paid within the limits of the law. Tax avoidance, which is tax planning which has been ruled to violate the spirit of the law, or lacks economic substance (Öner, 2018). So any defensible use of the law is a tax planning strategy until the legal uncertainty about the strategy is resolved. Once resolved it will become tax avoidance if ruled unfavorably, or remain tax planning if ruled favorably. Since I look at the effect of legal uncertainty, I will refer to the strategies of the company as tax planning strategies throughout this paper. The company is uncertain about whether its strategy is a tax avoidance or a tax planning strategy. Tax evasion is ignored in this paper as tax evasion deals with a company which specifically hides relevant information from authorities. This makes it impossible to detect without performing an audit, a luxury that is not afforded to the econometrician. Due to the possibility of jail sentences and high fines the incentive structure of tax evasion is different from that of tax planning.

2.2 Measurement of legal uncertainty

2.2.1 Construction of the measure

Legal uncertainty is inherent in law. A law cannot cover all contingencies and actions of companies. Therefore, it has to leave room for interpretation (Hart and Moore, 1988). This room for interpretation is later limited by rulings of courts, which clarify how the law should be interpreted. This is why my measure captures the room for interpretation of the law, with a legislative component, and the clarification by courts, with a judicial

component.

For the legislative component I look at the structure of the law (Pistor and Xu, 2002, 2003; Dari-Mattiacci and Deffains, 2007). The literature on the structure of law suggests that law articles can be classified as suggestive or limitative.

Suggestive articles tend to be more dynamic and broadly usable, but lack a clear definition. These articles most represent the incomplete contracts as in Hart and Moore (1988) and create legal uncertainty as a result of using undefined general principles. On the other hand, limitative articles state clearly defined rules, creating little legal uncertainty.

An example of a limitative article is Article 22 of the Dutch corporate tax code (Wet op de Vennootschapsbelasting 1969, 2005)[4] states: *The tax due is 31.5% of the taxable base, or the Dutch taxable base, with the caveat that the tax due is 27% on the first 22 689 euros.*

Since the taxable base is defined in the rest of the law, this article is limitative. It defines the clear rule of what the tax rate is. The articles defining how to calculate the taxable base are all individually analyzed and classified as suggestive where necessary. For instance article 3.20 of the Dutch income tax code (Wet op de inkomstenbelasting 2001, 2005) defines profit as: *The profit attributable to a year has to be determined according to good merchant practice, with a consistent application which is independent of the expected outcome. The consistent application can only be changed if good merchant practice justifies it.*

In Appendix A I discuss when an article will be classified as limitative or suggestive.

The above example of a suggestive article highlights the importance of the judicial component of my measure. Years of court cases have taught us how to interpret 'good merchant practice'. Without these court rulings it is unclear what 'good merchant practice' means. Companies can use rulings by the courts as an indicator for how courts will rule in future cases, thereby reducing uncertainty. I use rulings made by the highest courts, which will be used by lower courts to interpret the law in future court cases. Both the tax authority and the company can call on this 'case law' as a justification for their

[4]Dutch laws are referred to by the year they became active. Subsequent changes to the law don't change this designation. Hence the corporate income tax law is called Corporate Income Tax Law 1969. The version I am citing from here is the text as last updated on 1-1-2005.

interpretation of the law. A suggestive rule which has been discussed in case law is not as uncertain as one without any case law.

I limit the case law to the cases from the courts of cassation of each country. These courts only rule on the interpretation of the law. The rulings therefore provide clarification of the law and will on average reduce 'legal uncertainty'. By only using cases from the courts of cassation I also ensure that my measure does not capture the general propensity to litigate in a country, or the efficiency of the court in ruling on many cases.

I define legal uncertainty by combining the legislative and judicial component. The legislative component is the ratio of suggestive articles to total articles in a given country and year. The judicial component is the summed amount of case law rulings in a country from the start of my sample up to the end of the year. There are hundreds of case law rulings each year. To ensure this part of the measure does not completely overpower the suggestiveness ratio (which is defined on the [0,1] interval) I scale the judicial component by its mean across countries and years. The more suggestive articles there are in the law, the more uncertain the law is and the higher my measure for legal uncertainty is. Similarly, case law rulings decrease legal uncertainty and therefore I substract this component. Section 4.2 describes the quantitative details of the legal uncertainty measure.

$$\text{Legal uncertainty}_{ct} = \frac{\text{Suggestive articles}_{ct}}{\text{Total articles}_{ct}} - \frac{\sum_1^t \text{Case law rulings}_{ct}}{(C*T)^{-1} * \sum_1^T \sum_1^C \text{Case law rulings}_{ct}} \tag{1}$$

Where c indicates the country and t the year. Their capitalized versions indicate the total number of countries and years respectively.

The countries used in this paper are Austria, Belgium, Czech Republic, Germany, France, Finland, Poland, Netherlands, Spain and Sweden. Country selection depends on availability of legal texts and information on court cases. The sample is further restricted by language constraints, since most documentation is only available in the original language.

Information about the structure of the law is obtained by reading the laws of the countries involved. This means that for each country in the sample I obtain the tax

law as it existed in 2005. The relevant tax laws are the corporate tax code and where necessary the general income tax code. Original law texts from 15 years ago are not easily obtained. In cases where the 2005 law text is not available, I start from the 2017 text. I then backwards engineer the changes to the law by going through the bills that passed parliament and contain changes to the tax code. I verify that I capture all changes by looking at the complete text of the tax law in earlier years, when available.

When a suggestive article refers to other laws I ensure that these other laws do not give a limitative explanation of the article. Similarly, I track down decrees issued by the government when these are explicitly mentioned in the law and verify that these don't clarify suggestive phrasing.

Law texts were obtained from the International Bureau for Fiscal Documentation (IBFD) in Amsterdam or directly downloaded from government websites. For several countries the law texts are only available in hard-copy and/or the original language. Furthermore, many articles have explicit exceptions, refer to other articles, or only work on request. Therefore, the use of automated textual analysis programs will lead to data inaccuracies. Instead, every article is read and the set of rules, as described in Appendix A, is applied to classify the articles as suggestive or limitative. After completing this for each country, all laws are re-read to ensure consistent application of the classification rules across countries.

Information on the rulings by courts of cassation is obtained from the websites of the courts of cassation. These courts publish annual reports on their caseload. In some countries the data is aggregated at the level of all taxes, in others as total administrative cases. To ensure the numbers are comparable across countries I also obtain the full texts of all published rulings of these courts when available. These are processed using a word search program to find which ones deal with taxes. I then compare the amount of cases dealing with taxes to the total amount of administrative cases. I use this to adjust the information from published reports, when the level of aggregation is not total tax related cases.

2.2.2 Validation of the measure

To validate my measure I look at how often the court of cassation overturns cases of lower courts. This indicates that even courts don't agree on the legal interpretation and can be thought of as an ex-post measure of legal uncertainty. The correlation between my metric and this ex-post measure is 87%. Unfortunately the ex-post measure is not available for most countries and can therefore not be used as a measure for legal uncertainty.

The most common suggestive phrases refer to general principles, a tax avoidance motive, or an undefined 'real' or 'economic' value of non-traded assets. This is in line with survey evidence from Hoppe et al. (2017), who show that the setting of transfer prices, and anti-avoidance rules cause the most uncertainty with interpretation of tax law.

I do not investigate uncertainty about what the law will look like in the future, as this is a topic investigated in Gulen and Ion (2016). However, it is important to rule out that my measure captures the same or a related effect. Gulen and Ion (2016) use a measure from Baker et al. (2016), which has also been constructed for several European countries. The Baker et al. (2016) measure is based on political and macro uncertainty using newspaper mentions of uncertainty. I correlate it with my measure and find the correlation between my measure and this macro uncertainty is less than 2%. Table 12 shows correlations between the uncertainty measure and several country level variables related to law, law enforcement, and courts.

2.3 Theoretical framework

Legal uncertainty creates room for multiple interpretations of the law. A company can use this room for interpretation to interpret the law in its favor. Utilizing such a beneficial interpretation leads to a decrease in the expected tax rate. On the other hand, the tax authority is bound by principles of justice and equity, not profit maximization, making the effect of 'legal uncertainty' asymmetric. Nevertheless, there is a risk of being audited by the tax authority and end up in costly litigation.[5]

The lower expected tax rate will make companies want to use the legal uncertainty

[5]Setting up tax planning strategies is also costly. It might involve restructuring the company or hiring outside council.

to its benefit. This reduces expected taxable profit. The theoretical framework is based on DeAngelo and Masulis (1980), who show that the effect of corporate taxes on leverage depends on non-debt tax shields. Tax shields lose their value when profit in some states of the world are negative. Decisions on tax planning are made before profits are known. Debt-tax shields are only of value when the company is profitable. If profit in some states of the world is negative the value of the tax shield is reduced. Since non-debt tax shields reduce taxable profit, they 'crowd out' debt tax shields.

Hypothesis 1: A relative increase in the opportunities for uncertain tax planning strategies is associated with a decrease in the use of the certain tax planning strategy.

Hypothesis 2: Higher legal uncertainty leads to lower leverage.

However, when the risk of an audit is higher the company might dislike using legal uncertainty. As this increases the expected litigation costs, and risk of fines.

Hypothesis 3: Higher audit probabilities reduce or possibly reverse the effect of legal uncertainty on leverage.

So legal uncertainty creates room for interpretation, which allows companies to engage in tax planning. Risk of ending up in court and potentially losing a case, curbs tax planning behavior.

3 Methodology and measurement

3.1 Identification

In this section I describe my identification strategy. I discuss how I identify the effect of legal uncertainty and audit probabilities in a country, before discussing several hurdles and how I overcome them.

3.1.1 Legal uncertainty and audit probability

I construct a proxy for legal uncertainty and audit probability in a country. Hypothesis 3 suggests that the interaction of the two is relevant, as higher audit probabilities increase the probability a company will suffer a sanction.

Hypotheses 1 and 2 suggest the following regression equation:

$$Leverage_{ict} = \beta_1 * \text{Legal uncertainty}_{ct} + \beta_2 * \text{Audit probability}_{ct} + \beta_3 * Interaction_{ct} + \beta_4 * \mathbf{X}_{ict} + \beta_5 * \mathbf{Z}_{ct} + \gamma_{ic} + \zeta_t + \epsilon_{ict} \quad (2)$$

Where c indicates the country, t time and i the multinational. β_1 captures the effect predicted in hypothesis 2. Interaction is the interaction term between legal uncertainty and the audit probability and its coefficient β_3 captures the effect predicted in hypothesis 3. $\mathbf{X}$ is a vector of company level control variables which includes tangibility, profitability, sales and depreciation. These are based on findings in Rajan and Zingales (1995) and are standard in the literature. $\mathbf{Z}$ is a vector of country level controls, which includes corporate tax rates, GDP growth and interest rates.

Throughout, I include a year and a multinational-country fixed effect. These control for year-specific Europe-wide factors and entity-specific time-invariant unobserved heterogeneity. I cluster standard errors at the multinational level, as leverage decisions within a multinational can be correlated. Tax changes occur at the country level, which would make this a logical level to cluster at as well. There are too few clusters, so instead I cluster by the countries the multinational is present in. I also cluster on industry-country levels in additional tests.

3.1.2 Endogeneity

A possible problem in identification is the fact that the use of tax planning strategies is a choice of the company. Some companies may elect to use uncertain strategies, while others elect to use more conservative strategies. This means that the company chooses its tax planning strategy and as a result the amount of uncertainty it faces, thereby creating an endogeneity problem. I account for this by measuring the uncertainty inherent in

the law. This inherent legal uncertainty is exogeneously imposed on the company by the government. The only way to adjust exposure is by entering or exiting a country. Therefore, I adjust for endogeneous entry in a robustness test.

Measuring legal uncertainty at the country level also has downsides. Not all companies are necessarily equally affected, due to some companies being in a better position to use legal uncertainty. This makes the measure noisier, making it less likely to find a result. Furthermore, by measuring at the country-level it is harder to rule out alternative explanations, as the measure does not change across companies in the same country and year. This means that it could be correlated with other country level variables.

This is why I use multinational companies for my research. For multinational companies I can identify actions which indicate more uncertain tax planning strategies. I can test for the prevalence of these strategies. Any alternative explanation for the change in leverage will also have to explain the increase in the use of more uncertain tax planning. This is in line with suggestions by Klassen et al. (2015); **?** who show that multinationals can use the fact that they have profits abroad for tax planning purposes. They also suggest that access to tax havens can be important. I exploit legal uncertainty surrounding the opening up of several tax havens in Section 6.

I include a multinational-country fixed effect to control for time invariant effects like a company's aversion to uncertainty in tax planning. This implicitly assumes a multinational's preference for uncertain tax planning is non-time-varying. I also include company level fundamentals as controls as they may affect tax planning choices.

A last issue is that of reverse causality. Companies could lobby for more legal uncertainty or enter in countries which have higher legal uncertainty to make use of the gaps in legislation this might create. Similarly, the legislator may create legal uncertainty to make use of the risk aversion of companies to keep them from using gaps. For this to be a problem, companies on average have to act in a way that would cause a response by the government in their favor. My measure for legal uncertainty is based on both a legislative and judicial component. This means that companies will have to capture both branches of government to create this reverse effect. Or the judicial branch needs to take an active interest in creating legal uncertainty, contrary to their mandate. In Section 7 I explicitly

test for lobbying using insights from Hill et al. (2013).

4 Data and summary statistics

4.1 Data

I use accounting and ownership information from Bureau van Dijk's Orbis database. I construct a sample consisting of multinational companies, as I can detect non-debt tax planning strategies for them.

I obtain corporate tax rate data from the Ernst & Young's "World Wide Corporate Tax Guides". Ernst & Young is a large accounting and advisory company that summarizes the tax systems around the world on a yearly basis. Changes in tax rates are available in these guides. Data on the macro-economic environment is obtained from Datastream and the World Bank. All variables are defined in Table 1.

4.1.1 Legal uncertainty and audit probabilities

For the expectation of being audited I use the actual amount of audits conducted in a country as a fraction of companies active in the country. While this is admittedly a rough proxy, as some companies are by their nature more likely to be audited than others, it does ensure that the behavior of the company does not affect my proxy. This makes it exogeneous to the choices of any one company located in the country as it cannot affect the countrywide level of audits.

Information about audit probabilities are directly obtained from the tax authority's annual reports. Countries don't all specify exactly the same information. However, all countries in my sample publish information on the total number of thorough audits of companies (audits where the tax inspector went on site, or conducted a full audit of the books). I divide this number by the total amount of corporations in the country, which I obtain from the governmental statistics agencies of the respective countries. Ideally, I would use the audits with respect to corporate income taxes only. However, this data is not available for all countries, due to the fact that audits often cover multiple taxes.

Therefore, I use total corporate audits. After collecting the information for a specific country, I revisit the annual reports of the other countries to ensure the definition of an audit is comparable across countries.

I construct this audit probability and my legal uncertainty measure for 10 countries: Austria, Belgium, Czech Republic, Germany, Spain, Finland, France, Netherlands, Poland, and Sweden. Reporting on auditing and court cases is more extensive in Northern Europe. Furthermore, some of the legal information is only available in the language of the country itself. The availability of English texts, language proficiency, or availability of proficient translators limits the extent to which I can retrieve information for additional countries.

I merge this data with company data from Bureau van Dijk's Orbis database over the years 2005-2011. I use a dataset mapping the entire structure of the multinational. The dataset with the entire multinational structure will make it easier to detect non-debt tax planning strategies. The dataset used is the same as used in Brok (2018) and includes information on a large subset of multinationals in Europe. This dataset aggregates the information of a multinational at the country-year level. The unit of observation is a multinational-country-year. A multinational with three firms in the Netherlands and two in Belgium will show up in the data as one observation in the Netherlands and one in Belgium. This ensures that multinationals with many subsidiaries don't get over represented in the data.

4.2 Summary statistics

Variables are defined in Table 1. In Table 3 I show the summary statistics. The suggestiveness ratio shows the ratio of suggestive articles to total articles in a law. Figure 4 shows the development of the suggestiveness ratio and its components over time. The most incomplete law contains almost 13% suggestive articles. The total amount of articles in a law can be as many as 790 in Sweden or as few as a 100 in Finland. Larger laws don't necessarily have the lowest suggestiveness ratio. In 2005 Sweden has a corporate tax law consisting of 790 articles and a suggestiveness ratio of 6.6%. Germany has a suggestiveness ratio of 5.7%, using only 250 articles of law, while Austria uses 197 articles, but has a suggestiveness ratio of 10.15%. This shows that there is no clear relation between the size

of the law and the suggestiveness of the law. While a bigger law can legislate for more specific cases, it does not necessarily resolve legal uncertainty by doing so.

The suggestiveness ratio has a substantial cross-country variance, however the variance across time is considerably smaller. The fact that the variance across time is limited is not surprising, as most changes to the tax law are small. The most consistent country is Finland, which added no suggestive articles and only expanded its corporate tax code by 2.1%. Belgium on the other hand increased the amount of articles in its tax code by 47% and the amount of suggestive articles by 51%. The biggest change in the suggestiveness ratio is observed in the Czech Republic, which despite only increasing total articles by 19%, doubled the amount of suggestive articles. Spain is the only country to reduce its tax code over the sample period, reducing the total size of the code by a net amount of 1 article. Increasing tax codes don't necessarily carry more legal uncertainty. The Dutch tax code expanded by 2.1%, but reduced the amount of suggestive articles by 25%. It is important to note that the above numbers are based on the net changes in articles. Countries can simultaneously drop and introduce new articles of law.

The average amount of court cases is 1909. It is important to point out that this is based on the summed total for the country. This means that the 2007 amount of case law consists of case law from previous years, plus the new case law of that year. On average courts of cassation produce around 300 rulings a year. The amount of rulings is not dependent on the size of the country. For instance, France produces an average of a 125 cases a year, while the Netherlands produces almost 200. These rulings maintain relevant over time, even if the article a case relates to does not exist anymore, the principle can still apply similarly in different cases. Figure 5 shows the development of the judicial component over time.

The court cases measure is on average bigger than the suggestiveness ratio, leading to negative mean legal uncertainty of -1.056. This has no real meaning as the measure can only be interpreted in relation to other countries and years.

The legal uncertainty measure changes substantially over time (standard deviation of 0.54) and across countries (standard deviation of 0.96). The time variance is mostly, though not exclusively, due to case law. The variance across countries is strongly affected

by both the suggestiveness ratio and case law. This suggests that the legislative branch writes the law and only adjusts were necessary, or when a specific new goal needs to be obtained, creating limited variance across time. The judicial branch is then left to its role of interpreting the law, creating substantial variance over time. The laws that countries write are unique, creating the cross-country variance. Courts of different countries also function differently, adding to this variance. In Table 2 I show the results of a naive regression of leverage on the two components of my uncertainty measure. It can be seen that both components are statistically significant. An increase of one standard deviation (0.025) in the legislative component is associated with a 0.054 drop in leverage, while an increase of one standard deviation (0.796) in the judicial component is associated with a 0.017 increase in leverage.

The audit probability is fairly small, this is due to the fact that this is the probability of being audited for any company in a country. Bigger companies are more likely to be audited. However, audit probabilities by size class are only available in three countries. I verify that for these countries the relative ranking is the same for the total audit probability and the size-adjusted audit probability. To compensate for different audit rates at different size buckets I will use a dummy indicating above or below median audit probabilities throughout the paper. Since I control for size in all regressions, this captures the effect of a relatively high audit probability for a given size.

I define leverage as interest bearing debt over total assets minus non-interest bearing debt.

Figures 2 and 3 show the correlations between the suggestiveness ratio, court cases, and leverage. Figure 2 shows the relation when audit probabilities are high. At high audit probabilities legal uncertainty and leverage are positively correlated according to Hypothesis 2. Therefore, we would expect a negative correlation between court cases and leverage and a positive correlation between the suggestiveness ratio and leverage. This is exactly what the figure shows. Figure 3 shows the same relation, but for all companies. Hypothesis 1 suggests the opposite relation should be observed. Figure 3 shows that leverage trends upwards, while the suggestiveness ratio has no such upward trend.

5 Results

5.1 Legal uncertainty and audit probability

The results of this section will shed light on the roles of the different branches of government in creating, augmenting and relieving the effects of legal uncertainty. The legislative branch designs the law which caused the legal uncertainty, the judicial branch reduces the amount of legal uncertainty. The audit probability captures the role of the executive branch. Testing hypotheses 2 and 3 will show how legal uncertainty and the audit probability affect corporate policies and thereby how the different branches of government impact company decisions through legal uncertainty.

5.1.1 Effect on leverage

Hypothesis 2 suggests that legal uncertainty should have a negative effect as it increases the possibilities for tax planning. The interaction between the two should positively affect leverage according to hypothesis 3. This is exactly what I find in Table 4. At low audit probabilities a one standard deviation increase in legal uncertainty is associated with a 0.011 decrease in leverage. Hypothesis 3 suggests that this effect should be reduced when the audit probability is high. The Interaction shows the result of interacting a high audit probability with legal uncertainty. The audit probability does indeed temper the effects of legal uncertainty. It is important to note that the average high-audit probability is 3x higher than the average low-audit probability. So the effect of an audit represented here is equivalent to a 2 standard deviation jump.

In column 4 we can see that the legal uncertainty faced by other companies in the same multinational group have the same effect on domestic leverage as domestic legal uncertainty does. This suggests that the multinational as a whole sets its tax planning strategy, based on the combined options and risks.

In column 5 I investigate whether the effect is stronger for companies with top quartile profits. These companies have a higher incentive to use uncertain tax planning strategies as they can benefit from them more and therefore more easily bare the costs of setting up these strategies. At the same time these companies are more likely to be able to use both

uncertain tax planning strategies and debt-based tax planning without hitting the lower bound (zero profit). The fact that I observe a stronger effect for profitable companies suggests that the first effect is stronger.

5.1.2 Effect on uncertain tax planning

While it is hard to pin down actual strategies due to their complexity, there are some actions that can suggest tax planning.

Following Huizinga et al. (2008) I test whether there are indications of profit shifting as a result of my measures. When legal uncertainty increases companies have more options for tax planning. One such option is shifting profits to low-tax countries. Higher legal uncertainty in the high-tax countries can allow companies to shift more profits to low-tax countries. I test this by looking at how the exposure to legal uncertainty in high tax countries affects the natural log of EBIT in both low and high tax countries. I define low-tax countries as any country with a statutory tax rate of more than one standard deviation below the average tax rate for the whole multinational company.

In the low-tax countries we would expect an increase in EBIT as the company tries to shift income towards these countries. In the high tax countries the opposite should occur, as we expect income to be shifted out. As always, I expect this effect to be larger for more profitable companies, as these benefit more from tax planning.

Control variables are as in Schenkelberg (2018); Huizinga and Laeven (2008), who include the Cobb-Douglas production factors, GDP growth, and foreign and domestic tax rates. I include a company fixed effect, contrary to earlier literature where only an industry fixed effect was used. To ensure that the time period used does not affect the estimation, I also add a year fixed effect to control for any year specific effects on profit.

Table 5 shows the results. We can clearly see that the signs for the low-tax countries take the expected values. The coefficients for the high tax countries show the opposite signs, which is suggestive of profit shifting behavior. The effect of a standard deviation change in exposure to legal uncertainty in high tax countries is about a 40% increase in EBIT in the low-tax country. It is important to note that EBIT in low-tax countries is substantially lower than it is in high-tax countries. So while there is substantial profit

shifting, the majority of profit remains in the high-tax countries.

It is important to note that the r-squared is very high. This is driven by the control variables. Huizinga and Laeven (2008); Schenkelberg (2018) already displayed high r-squared as the Cobb-Douglas like controls explain most of the profit of a company. Adding the company and year fixed effects further drives up the r-squared. Using the same specification as in the previous literature already explains 90% of the variation in the data. The two production factors have combined coefficients of 0.922, suggesting that they together almost fully explain changes in the profitability of a company. Company fixed effects, like quality of management and relative technological superiority, as well as time fixed effects such as the overall stance of the economy seem to explain much of the remaining variation. Tax effects, like the effect of the tax rate itself, as shown in Huizinga and Laeven (2008), and my legal uncertainty measure explain the rest of the variation.

6 Quasi-natural experiment

6.1 Institutional setting

In the European Union courts can ask the European Court of Justice (ECJ) for a ruling on any aspects of a case that deal with European treaties and regulations. Judgments from the ECJ are applicable to the entire EU.

One case of particular interest is the so called Cadbury Schweppes case (European Court of Justice, 2006). In this case a law in the United Kingdom was under contention. The UK applied a Controlled Foreign Company rule (CFC). Several countries used CFC rules and while the details differ from country to country, they all work in a similar fashion. A company which has a subsidiary in a country with a tax rate below a specified percentage is subject to additional tax on (parts of) the profit of that subsidiary for the difference between the foreign and domestic tax rate. Figure 1 shows an example. Company A is located in a CFC country and has a subsidiary in a country with a low corporate tax rate like Ireland and a subsidiary in Austria, which is not a low tax country. Company B is located in a non-CFC country, but also has a subsidiary in a low tax country and in

another country, which is not a low tax country. Company A pays 17.5% additional tax on (part of) the profit from the Irish subsidiary, but no additional tax on the Austrian profit. Company B pays no additional tax on either of the subsidiaries, as the parent company is not located in a CFC-country.

In the Cadbury Schweppes case the ECJ judged that the indiscriminate application of CFC rules to all companies with a low tax subsidiary is a violation of EU basic freedoms. The application of the rules to the profits of EU subsidiaries was deemed a limitation on a company's freedom to establish anywhere in the EU. Such a limitation to the freedom of establishment is allowed under EU-law if it serves an important function like curbing tax avoidance. The CFC rules presumed tax avoidance on the basis of the location of the subsidiary, which the ECJ deemed a non-proportional response to possible tax avoidance. The ruling meant that national tax authorities have to prove that a company's main motivation for establishing in the low-tax EU country is a reduction of the taxable base. This increased legal uncertainty, as the application of CFC rules now required that the company lacked economic substance reasons beyond tax avoidance for establishing the subsidiary. What economic substance is, was not clearly defined.

The ruling states: *(...) such a tax measure must not be applied where it is proven, on the basis of objective factors which are ascertainable by third parties, that despite the existence of tax motives that controlled company is actually established in the host Member State and carries on genuine economic activities there.*

6.2 Identification

My identification strategy uses the fact that for instance a UK company (30% corporate tax rate) with a subsidiary in a low-tax country like Ireland (12.5% corporate tax rate) is affected by the shock. However, a Belgian company (34% corporate tax rate) with a subsidiary in Ireland is not affected, as Belgium did not have CFC rules. Using non-CFC-country companies with subsidiaries in the same country as the CFC-country company mitigates concerns about endogeneous location choice. The identifying assumption is that the control group was exposed to the same economic and regulatory environment with one major exception, the Cadbury Schweppes ruling. Looking at Figure 1, I compare Company

A with Company B, controlling for tax rates, country and company characteristics. This ensures that the subsidiaries are based in a similar location. The only difference is the country of the parent. In additional tests I compare two companies, both located in a CFC country, one with and one without a subsidiary in a low-tax country. This ensures that the parent countries are comparable, while the subsidiaries are in different countries. Finding similar results in both cases ensures that the effects are not driven by local economic factors.

It is important to point out a characteristic of the CFC rules. Without CFC rules it is beneficial for a low-tax subsidiary to provide a loan to the high tax parent. The parent can deduct the interest at a higher rate than the rate charged on the interest received by the subsidiary. With CFC rules the interest received would be additionally taxed for the difference between the low and high tax countries' tax rate, eliminating the benefit of lending to the high tax parent. The change in CFC rules could therefore lead to an increase in the parent's leverage. However, my legal uncertainty hypothesis suggests that there should be a reduction in leverage, as there are more profitable ways of reducing the tax bill. The result I find is therefore likely to be a lower bound.

I cluster standard errors by parent company. In additional tests I cluster by country-industry.

6.3 Data

I use a different data sample for this quasi-natural experiment than for the main results. This is necessary as the availability of data to construct the legal uncertainty measure and audit probability was limited to 2005 and beyond, but the shock requires me to use data from 2004. The data sample ends in 2008, ensuring two years before the shock, the year of the shock, and two years after it. I use parent companies which directly own (part of) at least one foreign subsidiary. For each of these companies I determine whether it is located in a country with CFC-rules and whether or not it has a subsidiary in a low-tax country. If a parent has both subsidiaries in low-tax countries and non-low-tax countries it is classified as having a low-tax subsidiary. After all, the parent company obtains the new opportunities for tax planning regardless of where the other subsidiaries are located.

This means that the example in Figure 1 (a) is a treated company, despite also having a subsidiary in a country with a tax rate that does not incur an additional tax under the CFC rule.

I do not impose a restriction on the ownership percentage of the parent as missing data would restrict the sample too much. If a parent does not own a substantial part of the subsidiary it would not benefit from the change in CFC-rules, since the benefits of tax planning would have to be shared with outside shareholders. Therefore, I would not expect to observe an effect for these cases, likely biasing against finding a result.

Denmark, Germany, Hungary, Luxembourg, Norway, Portugal and Sweden had CFC rules in effect at the time of the ruling. Each country used its own definition of what a low-tax country is. Depending on the specific country there were between 3 and 10 countries in Europe marked as low-tax countries.[6]

Information about the details of the CFC rules are obtained from national laws. Differences in the rules across countries mostly entail what qualifies as a low-tax country. Some countries like Finland exclude all countries with which they have a tax treaty. Others like Germany include all countries with a corporate tax rate below 25%. Panel A of Table 7 details which countries had CFC rules and what tax rate is considered low under that countries rule. Panel B details the tax rates in the year prior to the shock (2005) for all countries in my sample. Finland is excluded from the sample as it did not apply the CFC rule to countries it had a treaty with, which would exclude all EU countries. Italy is excluded as it used a blacklist of countries which are low-tax. The only EU country on this list was Slovakia. France and Spain are excluded as they changed their CFC rules during the pre-period.

6.4 Effect on leverage

The treated companies are companies located in a CFC country, with a subsidiary in a low-tax country. The control group are companies in non-CFC country with a subsidiary in a low-tax country. In Figure 6, I investigate whether there were different trends in

[6]Note that the application of CFC rules on profits from non-EU subsidiaries is not in violation of EU law.

leverage before the shock. I use a regression based approach (Angrist and Pischke, 2013), where I include an interaction between year dummies and the assignment to the treated group.

$$Leverage_{ict} = \sum_{t=-2, t\neq 0}^{2} Treatment_{it}\beta_t + X_{it}\beta_1 + Z_{ct}\beta_2 + \epsilon_{ict}$$

I use the year before the shock as a baseline, 2005 is therefore omitted. The coefficients can be interpreted as a difference compared to this baseline. Figure 6 shows that in 2006, the year of the shock, the leverage of the treated companies dropped compared to that of non-treated companies. More importantly, the 2004 coefficient is zero, meaning there is no difference with the baseline. This shows there was a common trend before the shock. The rather quick effect might be due to the use of internal debt to quickly respond to changes in the tax environment.[7]

In Table 8 I show the effects of the Cadbury Schweppes ruling on leverage. The difference between the domestic and foreign tax rate is significant and positive, this is in line with Huizinga et al. (2008) and suggests that debt is shifted to the country where it can be deducted against the highest interest rate. The coefficient on the domestic tax rate is in line with trade-off theory (Kraus and Litzenberger, 1973). A one standard deviation increase in the tax rate leads to a 0.017 increase in leverage. This is in line with findings in Huizinga et al. (2008), which use a similar sample.

Hypothesis 1 and 2 suggest that the treatment should have a negative effect on leverage. This is due to the increase in legal uncertainty caused by the Cadbury Schweppes ruling. This increases non-debt tax planning opportunities and therefore reduces debt based tax planning. Table 8 shows that the treatment has the expected negative effect on leverage. The coefficient implies that being part of the treatment group has the same effect on leverage as a tax rate decrease of 3.5 percentage points.

In column 2, I use a different control group. This group includes companies from CFC countries which did not have low-tax subsidiaries before the shock. This is an intention to treat analysis, as I use the initial treatment assignment, even though some of the companies might select in to treatment. I include these companies in the control group here. As one

[7] **?** show that internal debt of multinationals can be as much as 20% of all debt of a company.

would expect, the coefficient is slightly smaller for this adjusted control group.

In column 3 I make sure that the effect is indeed related to uncertainty and not just an overall increase in potential benefits. I interact the treatment effect with a dummy for an ultimate owner being a non-diversified shareholder. Since the information is on ultimate ownership is not available for a large fraction of the companies I use the larger control group used in column 2. A shareholder is classified as non-diversified if the company is held by a large family or management. These types of owners have been shown to be less risk seeking Faccio et al. (2011). If the effect of the treatment is indeed due to firms using the increased legal uncertainty, then we would expect that these companies would react less. This is exactly what I observe.

Cross-sectional differences should arise as a result of the CFC rules themselves. These rules mostly targeted passive income like dividends, interest and royalties. This means that companies in high-tech industries could particularly benefit from the change in the CFC rules. This is investigated in column 4. High-tech industries are those industries which are among the top 20% patent producing industries. The effect is indeed stronger for companies in these industries.

I use further tests to examine the effect is strongest for companies we expect to be more affected. As mentioned in Section 2.3 less profitable companies have no incentive for tax planning and should be less affected. Column 5 of Table 8, shows the effect is indeed stronger for companies with above average profits.

As mentioned in Section 2.3 the substitution of leverage for other tax planning strategies is dependent on the amount of states of the world in which a company expects to earn profits lower than the combined tax planning benefits of both strategies. Companies with more possible states of low profit have more incentive to reduce leverage when other tax planning strategies are used. Therefore companies with higher variance in their profitability are more likely to be affected. Column 6 tests this and shows that indeed the effect is stronger for companies with above average variance in their profit before the shock.

Hypothesis 1 suggests that the decrease in leverage found above is only half of the story. The other half is an increase in the use of more uncertain tax planning strategies. The Cadbury Schweppes case made it beneficial for companies to use low-tax EU countries

to reduce taxes. Schenkelberg (2018) investigates the effect of the Cadbury Schweppes ruling on income shifting and finds that companies with low-tax EU subsidiaries who were affected by the shock shifted their income to these low-taxed subsidiaries. This results in company's tax base decreasing in the parent country and increasing in the low-tax country. This means more of the companies income is taxed at a lower tax rate leading to an overall lower tax bill. In line with my findings, the author found that this was especially true for high tech companies.

7 Robustness and alternative explanations

7.1 Risk aversion

In Table 6 I show the effects for both leverage, subsidiary location choice and profit shifting for companies with diversified and undiversified ownership. Faccio et al. (2011) suggest that companies with undiversified ownership are less willing to take risks. This suggests that these companies should be less willing to use legal uncertainty to their advantage, as there is risk involved. The results show that the effect is concentrated in the diversified companies.

7.2 Thin-capitalization rules

A popular anti-tax planning tool used by governments are Thin-capitalization rules. These rules put a hard cap on the deductibility of interest when a company has a leverage ratio beyond a given cap. This could drive the effect on leverage if a change in thin-capitalization rules coincides with the change in legal uncertainty or the quasi-natural experiment.

Therefore, I formally test if omitting observations after the change of a thin-capitalization rule changes my results. By excluding observations after a change I ensure that the effect before the change will be captured by the fixed effects. The excluded countries are France after their changes to the thin-capitalization rules in 2007; Belgium after their introduction of the Notional Interest Deduction in 2006; and Germany after the change to their thin-capitalization rules in 2008. The results are presented in column 3 of Table 9 and are

slightly stronger than before.

7.3 Endogeneous entry

A possible problem with investigating the effect of legal uncertainty on company leverage and income shifting is that companies can enter in to high or low uncertainty environments to use the benefits associated with them. This would bias the results. The results in Brok and Homanen (2019) suggest that this concern is justified.

In the shock based sample this problem is already taken into account by using a control group which only contains companies which already had a presence in both the parent and the subsidiary country before the shock.

The problem remains for the legal uncertainty and audit probability regressions. I tackle this problem by dropping companies incorporated after the sample start. This ensures that an increase in operations in a country does not endogeneously affect exposure to the legal uncertainty of specific countries. The results of these tests are shown in Table 9 columns 4 and 5, the results are qualitatively unaffected.

7.4 Lobbying

A further concern is that companies lobbied for an increase in legal uncertainty. These companies selected into an environment with more legal uncertainty by affecting legal uncertainty directly. These companies might not be reacting to the legal uncertainty, as much as legal uncertainty is reacting to these companies. This reverse causality concern is mitigated by the fact that my measure would require these companies to also capture the judicial branch.

To formally test for this concern I use insight from the literature on the determinants of lobbying. Hill et al. (2013) shows that the main determinant for lobbying is the size of the company. Neretina (2018) shows that only a small subset of companies can effectively lobby for policy changes and that trade associations are not effective at representing smaller companies in the lobbying process.

Detailed data on which companies lobbied on specific laws is not available in most

European countries. To ensure my results are not driven by lobbying I omit the 10% largest companies from my sample and rerun the regressions. Columns 1 and 2 of Table 9 shows the results. The results are qualitatively unchanged and are economically similar to the ones obtained in Tables 5 and 4.

7.5 Additional tests

- Costs of tax planning

The substitution between debt-based tax planning and other tax planning suggest that the costs of other tax planning strategies are not prohibitively high. Based on the accounting information available it is impossible to determine what alternative tax planning strategies the company is applying. However, it is possible to determine for which firms the costs of debt-based tax planning is higher. Financially constraint firms have an incentive to switch away from debt based tax planning. In Table 10 I test this hypothesis. It can be seen that the effect is indeed stronger for financially constraint firms. I use the AS-index suggested by Hadlock and Pierce (2010) as a measure for financial constraints.

- Court efficiency

As my measure for legal uncertainty includes the rulings from courts of cassation it is possible that this is correlated with the functioning of courts. Rodano et al. (2016) show that court efficiency can affect leverage. I include several measures obtained from the Fraser institute to control for this. I include quality of the legal system, legal enforcement of contracts, integrity of the legal system and judicial independence. I also include the summary index provided by the Fraser institute. Most of these proxies only show limited variance for these highly developed countries. Including the World Bank's measure for average time a case takes in court is not possible as it shows no time series variation and therefore drops out, due to fixed effects. Table 10 shows the results.

Tax compliance

I might simply be picking up cultural aversions to tax compliance. I add a proxy for tax compliance from the Fraser institute.

Employment protection

Serfling (2016); Simintzi et al. (2014) show that employment protection can have an impact on leverage as a result of a trade-off between operating leverage and financial leverage. These authors use shocks to labor regulation to show this effect. Non of their shocks affect the countries in my sample period. To further alleviate concerns that I pick up effects of labor regulations I include a proxy for labor market regulation from the Fraser institute, as well as a proxy for hiring and firing regulation. Table 10 shows the results.

Standard errors

Table 11 shows the results utilizing different types of clustered standard errors. The main results use multinational clustering. Column 1 of Table 11 shows results for clustering on the countries the multinational is active in. Meaning that all multinationals active in Belgium and the Netherlands are in one cluster, all those active in Germany, Sweden, and France in another, etc. In column 2, I double cluster on multinational and the countries it is active in. In column 3, I cluster by country-industry.

8 Conclusion

In this paper I investigated the effect of legal uncertainty on leverage and tax planning. I hypothesized that uncertain tax planning and debt-based tax planning are substitutes and that legal uncertainty and audit probabilities are a key driver of this trade off. Where legal uncertainty creates the room for non-debt tax avoidance and the audit probability curbs te behavior, by creating the risk for costly court proceedings.

I show that legal uncertainty does indeed lead to this same substitution. My measure of legal uncertainty captures the roles of both the judicial and legislative branch of the government. I show that the judicial branch on average alleviates legal uncertainty, while the legislative branch writes the law that creates the legal uncertainty. The executive branch can mitigate the effects of uncertainty on leverage, as higher audit probabilities lead to less substitution. I verify the results using a shock created by the ECJ and show that this substitution does indeed happen.

The results of this paper suggest that governments should keep the strength of their enforcement agency in mind when writing the tax law, as they can greatly affect the eventual outcome.

Lastly, the results suggest that companies will utilize tax planning, one way or another. No single policy can eliminate tax planning fully. This is interesting in light of recent policy developments. The OECD has recently proposed new regulation to limit the deductibility of interest on debt (OECD, 2014). These new regulations can curb debt based tax planning. The results in this paper suggest that a law with considerable legal uncertainty accompanied by a high auditing intensity drives companies away from using uncertain tax planning strategies. With the alternative of debt based tax planning cut of by the new regulations it will be interesting to see whether companies find a new avenue for relatively certain tax planning, adjust their preferences for exposure to legal uncertainty, or reduce overall tax planning.

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A Construction of the legal uncertainty measure

The measure of legal uncertainty consists of two parts. The first component is the degree of incompleteness of the law. The more incomplete the law is, the higher the uncertainty about the interpretation of the law. Determining the degree of incompleteness is done by using a simple count of suggestive and limitatively phrased articles. Suggestiveness implies that an article sets forth a general rule or guideline using words that do not have a consistent or known meaning in either common language or law itself. Any article that is not classified as suggestive, is limitative.

The laws that I look at are the corporate income tax laws of a country. In many countries the corporate income tax law refers to the personal income tax law for the base calculation of profit. This is due to the fact that the corporate income tax only covers legal entities, however 'natural persons' can also run companies without creating a legal entity. The laws governing the calculation of the profit of these companies are then also applicable to the corporations. This is the case in Austria, Germany, and the Netherlands. Contrary to this system, France, Sweden, and Belgium have a law covering both Corporate and Personal Income Tax. In these cases the chapters on corporate taxation are used as well as the chapters on personal taxation directly referenced in the corporate taxation chapters. The Czech Republic, Spain, Poland and Finland have separate, complete corporate income tax laws.

To ensure the definition of an article is comparable I define the sub articles of every article as an article. This ensures that countries where they have short articles don't end up with substantially higher degrees of incompleteness than countries with large articles. It is important to distinguish between enumerations and sub articles.

For instance:

Article 5 Laki elinkeinotulon verottamisesta (2009) (Finish Corporate Tax law)

The taxable income referred to in section 4 above is among others: 1) price and other remuneration for turnover, investment and fixed assets and for other tangible and intangible assets used in the industry, with the exceptions stated in section 6, subsection 1 point 1, 2) compensation for rent, for work performed or service performed and for other such things, which have been carried out in the form of business activities, (...)

Is one article, enumerating several specific cases (2 displayed here). From context it is clear that the points are in fact enumerating specific cases of the rule stated in this article. On the other hand:

Article 8 Wet op de Vennootschapsbelasting 1969 (2005) (Dutch Corporate Tax law)

1) The profit is understood and determined on the basis of articles 3.8 , 3.11 and 3.12 , 3.13, first paragraph, parts a and h , 3.14, first paragraph, parts b up to and including g, and second to sixth paragraphs , 3.21 up to and including 3.57 and 10.10 of the Income Tax Act 2001 , whereby the entrepreneur is read as a taxable person. 2) The first paragraph does not apply insofar as: a. by or pursuant to this Act or pursuant to Article 3.65 of the Income Tax Act 2001, provision has been made otherwise; b. Article 3.53 of the Income Tax Act 2001 relates to the formation of a retirement reserve; c. the contrary arises due to a difference in essence between the taxable person and a natural person. (...)

consists of multiple articles (2 displayed here), the second of which consists of multiple enumerations (3 of which displayed here). The two articles (indicated by '1)' and '2)') are clearly separate sub-articles. The context and punctuation makes is clear that the points indicated by 'a., b., and c.' are enumerations. Whenever more than two levels are used (e.g. subarticles, enumerations, second layer of enumerations) only the first two are counted as articles. Counting further levels separately would result in the laws using these higher degrees of granularity getting artificially low degrees of uncertainty.

In the two cases shown above the Finnish article 5 of the corporate income tax is rated once as being either suggestive or limitative, based on the content of all the enumerations. The Dutch Article 8 consists of multiple sub-articles, each separately rated as suggestive or limitative.

To determine whether an article is suggestive a list of rules was used. The following types of phrases and their variations are qualified as suggestive:

- Economic/real/fair value (unless referring to exchange traded assets)

Several cases need to be considered.

Article 14 Podatek dochodowy od osób prawnych (2009) (Polish Corporate Tax law)

1. Revenue from the sale of property, property rights or the provision of services is their value expressed in the price specified in the contract. However, if the price, without justifiable economic reasons, significantly deviates from the market value of these things, rights or services, the tax authority determines this income at the market value.

Looking at Article 14 sub-article 1 of the Polish tax law we can see. It states that the price of property needs to be the market value. However, what the market value of property is is in many cases not obvious. Therefore this leaves room to play with the valuation (within reasonable bounds).

3. If the value expressed in the price specified in the contract significantly deviates from the market value of these things, rights or services, the tax authority calls upon the parties to change the value or indicate reasons justifying the price significantly different from the market value. In the event of failure to provide a response, failure to change the value or failure to indicate reasons that justify the price significantly different from the market value, the tax authority determines the value taking into account the expert's opinion. If the value determined in this way deviates by at least 33% from the value expressed in the price, the cost of the expert opinion shall be borne by the transferor or the service provider.

In sub-article 3 of the same article there is once again reference to the market value. However, here it is not discussed that the market value should be used, it is simply indicated what the consequences are of not adhering to correct market valuation. Therefore no room for interpretation is created, as the article only states a consequence. So, sub-article 1 creates the uncertainty by limiting deviations from an unknown market valuation. Sub-article 3 then stipulates the consequences of incorrect valuation. Therefore sub-article 1 is suggestive, but sub-article 3 is limitative.

Article 26 Laki elinkeinotulon verottamisesta (2009) (Finish Corporate Tax law)
Such gains on liabilities and receivables arising from the business activities, with the exception of financial instruments according to § 5, 8–10 and 13 of this Act, which are valued at fair value, and which are recognized as income in the income statement, constitute income for the tax year and exchange rate losses for the tax year during which the exchange rate of foreign currency has changed. (...)

Article 26 of the Finnish Corporate Tax law shows another example of the use of fair value. However, here it refers to fair value valuation being used for financial instruments. This refers to a choice the company has made with regards to the valuation of a class of assets. Not to an option available to the firm. This is therefore also a limitative article.
Article 44.8a Inkomstskattelag (2011) (Swedish Tax law)
The person who has transferred investment assets according to the Act (2011: 1268) on investment savings account from an account that is not an investment savings account to a separate investment savings account shall be considered to have disposed of the assets against a compensation corresponding to the market value when they were listed in the account.
A last exception to the rule of reference to market value being suggestive is in the case of traded assets. When assets are traded on for instance a stock market. In those cases the market value known.

- Any principles

For instance article 3.20 of the Dutch income tax code (Wet op de inkomstenbelasting 2001, 2005) defines profit as:
The profit attributable to a year has to be determined according to good merchant practice, with a consistent application which is independent of the expected outcome. The consistent application can only be changed if good merchant practice justifies it.

Compare this to the French tax code (Code Général des Impôts, 2005) defining profit as:
Net profit is the difference between the net asset values on the balance sheet at the end and the net asset values at the beginning of the period, the results of which must be used as the

basis for the tax reduced by the contribution surcharges and increased with the deductions for the period for the operation.

The Dutch case relies on an undefined concept called good merchant practice. This concept is not defined in the law or parliamentary proceedings. It is established in parliamentary proceedings that it is not equivalent to accounting standards, but it is not established what it is. Therefore this is a suggestive article, while the French article is limitative.

- Normal use or duration

An example of this phrase can be found in the French Article 39 Code Général des Impôts (2005):
The depreciation of capital goods, other than immovable property, building sites and premises used for the exercise of the profession, acquired or manufactured as of 1 January 1960 by industrial enterprises, may be calculated following a declining balance system, taking into account the amortization period used in each type of industry. A decree in Council of State fixes the terms of the declining balance depreciation. Declining balance depreciation rates are obtained by multiplying the straight-line depreciation rates by a coefficient set at: a. 1.25 when the normal period of use is three or four years; (...)
Compare this to the Czech Article 30 sub-article 1 Zákon České národní rady o daních z příjmů (2005):
In the first year of depreciation, the taxpayer classifies tangible assets into depreciation groups specified in Annex 1 to this Act. (...)

The French law relies on normal periods of use, which are not clearly defined in the law. The Czech law mentions every asset in the mentioned Annex 1. Based on the classification in this annex it is determined what the depreciation time is. The French article is therefore suggestive, while the Czech article is limitative.

- Mostly business like

For example: Article 15ai Wet op de Vennootschapsbelasting 1969 (2005) (Dutch Corporate Tax law)

3 The first paragraph does not apply if: a. the transfer took place in the context of normal business operations appropriate to the nature and size of the transferor and the transferee; (...)

Normal business operations are not defined. This is a suggestive article, it allows companies room in determining what normal business operations are.

- Aimed at avoidance

This is one of the most obvious cases of suggestiveness. Whether an action is aimed at avoidance is hard to determine, it provides a lot of room for interpretation. An example:
Article 52h Laki elinkeinotulon verottamisesta (2009) (Finish Corporate Tax law)
The provisions of sections 52 and 52 (a) to 52 (g) do not apply, if it is clear that the sole purpose or one of the main purposes of the arrangements has been to circumvent or avoid tax.

- (Non-)excessive

Article 39 1 Code Général des Impôts (2005) (French Tax law)
1. The net profit shall be established after deduction of all charges, which, subject to the provisions of paragraph 5, shall include, inter alia: 1 General expenses of any kind, personnel and manpower expenses, rent of the buildings of which the enterprise is a tenant. However, remuneration is only deductible from the results insofar as it corresponds to actual work and is not excessive in view of the importance of the service rendered. This provision applies to all direct or indirect remuneration, including allowances, allowances, benefits in kind and reimbursement of expenses.
Article 18.19 Inkomstskattelag (2007) (Swedish Tax law)
In the case of accounting depreciation, the following applies if depreciation has been made with higher amounts in the accounts than what was accepted in the taxation. The value of the inventories according to the balance sheet at the end of the tax year shall be the basis for calculating the depreciation basis for the next tax year. Instead, the excess amount shall be deducted by depreciation by 20 per cent per year, calculated from the tax year after the year of depreciation with an excessively high amount

Comparing the above two articles we once again see the distinction between leaving room for interpreting when work is excessive and stating the consequences of having done something excessive. The first is suggestive, the second is limitative.

- Reasonable

Article 17.30 Inkomstskattelag (2007) (Spanish Corporate Tax law)
If the taxpayer carries out a work on a fixed price for someone else's account, the value of the work shall be calculated according to what is reasonable, if there is a community of interests between the taxpayer and the client and there is reason to assume that the provisions of sections 27 - 29 § been used for the taxpayer or the client to receive an unauthorized tax benefit.

It is undefined what a reasonable value of this work is. Therefore it is suggestive.

There are certain phrases one might come across on reading the law that seem suggestive. I discuss several to explain why they were not rated as such:

- Goal of making profit/non-profits

It can be argued that it is hard to establish whether someone has a particular goal. However, this phrase is consistently used in all countries to distinguish between non-profit associations and public services which incidentally make a profit, and incorporated entities with the main purpose of participating in economic activities. For multinational companies as studied in this paper to argue that they don't have a 'goal of making profit' is not feasible. They have substantial assets, sales, and support to suggest economic activity.

- Incidental

Another phrase frequently used to separate non-profits from companies. Also, the nature of the word incidental ensures that the distinction cannot be used to consistently avoid taxes.

Compare Article 9 Ley del Impuesto sobre Sociedades (2005) (Spanish Corporate Tax law):

2. They will be partially exempt from the tax, under the terms provided in Title II of Law 49/2002, of December 23, on the tax regime of non-profit entities and of tax incentives for patronage, entities and institutions without profit motive to which that title applies.

with Article 206 Code Général des Impôts (2005) (French Tax law):

1a) (...) However, are not liable to the corporation tax provided for in 1 the associations governed by the law of 1 July 1901, the associations governed by local law maintained in force in the departments of Moselle, Bas-Rhin and Haut-Rhin, the unions governed by Articles L. 411-1 et seq. Of the Labor Code, recognized public utility foundations, business foundations and congregations, whose management is disinterested when their non-profit activities remain significant and the amount of their operating income collected during the calendar year in respect of their gainful activities does not exceed 60,000. (...)

The motive of the commercial multinational companies studied is quite clear, they want to make profit on a more than incidental basis. Neither of these is suggestive.

Apart from these cases there are also several additional checks that need to be applied. I have to escape cases in which:

- The rule only applies on request

Article 20 Ley del Impuesto sobre Sociedades (2005) (Spanish Corporate Tax law

3) The taxpayers may submit to the tax administration, under the terms of article 16.6 of this law, a proposal for the application of a coefficient different from that established in section 1. The proposal shall be based on the indebtedness that the taxpayer had could obtain in normal market conditions of people or entities not linked.

When submitting a request it will be clear before filing ones taxes whether or not the suggested coefficient is in line with the law. It is also clear what coefficient will be applied when there is no such request submitted.

- Clearly explained in an earlier or later article
- Clearly defined in a decree
- Clearly defined in another law

- If it refers to a previous choice

Article 4 Einkommensteuergesetz 1988 (2005) (Austrian Income Tax law)
(8) If the higher market value (§ 6 no. 2 lit. b) is not applied to agricultural and forestry holdings for the standing timber, then expenses for the care of the standing timber and reforestation costs shall be deducted as business expenses.

This refers to a decision having been made. While the market value is poorly defined, this is not the issue of this article. The article deals with consequences when a company has elected to value on the basis of the market value. This is therefore not suggestive.

Due to the large amount of exceptions and the different languages of the laws the application of the above rules is done manually.

In constructing the measure for legal uncertainty objectivity is key. Therefore, in the absence of a clear theoretical or empirical reason for putting emphasis on certain aspects of law, no such emphasis was put on it. This means that if it is not obvious or verifiable whether a given article of law is more important than another, it is treated as being of equal importance. For instance, it can be argued that certain articles are more important than others, or that some articles are more likely to matter for certain types of companies (e.g. R&D tax credits are more important in research heavy industries, while an article establishing calculation of profits in general is important for all companies). However, classification of the importance of articles, either in general or for specific companies, can be hard to bind using an objective rule. Furthermore, industry classifications of companies might not necessarily align with eligibility for more beneficial tax regimes. Therefore, all articles in the law are given the same weight, regardless of perceived importance. This trades-off objectivity for noise.

In determining the suggestiveness of an article case law is ignored. The reason for ignoring case law is that this is the second component of my measure. Suggestive phrasing only becomes clear as case law develops and therefore case law development needs to be taken into account after determining whether articles are suggestive or limitative. Taking it into account beforehand would ignore the time series development of the measure and would give me the discretion to choose when a phrase or article is no longer suggestive.

The case law is a simple count of tax-cases ruled on by the Court of Cassation in a

country in a given year. I use cases from the Court of Cassation as this courts main function is the interpretation of law. So these cases are ensured to be relevant for increasing the understanding of the law. Cases that were dismissed (i.e. no ruling on the case is given) for any reason are not included in the count. Again, no weight is given to the particular relevance of the case, as this would involve judging the importance of the articles applicable to the case, the frequency of how often such situations might arise in practice, as well as how much of the uncertainty is resolved by the judgment of the court. This is infeasible from a work load perspective considering the thousands of rulings a year, but would also impose a significant degree of subjectivity in the measure.

The relative importance of the two components is not ex-ante clear. I correlate various degrees of weighting with an ex-post measure of legal uncertainty. The one most aligned with this ex-post measure is used as the main specification in the paper. I also use an equal weighted version in robustness tests. The ex-post measure is based on the percentage of cases overturned on the basis of the interpretation given by the Court of Cassation. More cases overturned suggests there is more uncertainty about the interpretation of the law, even among judges.

Tables and figures

Figure 1: Multinational corporate structures

Figure (a) displays a company in a CFC-country with a low-tax subsidiary and another subsidiary. Figure (b) displays a company in a non-CFC-country with a low-tax subsidiary and another subsidiary. Company A will pay an additional tax of 17.5% on (some of) the Irish profit. It will pay no additional tax on the Austrian profit. Company B does not pay an additional tax on profits from either of its subsidiaries.

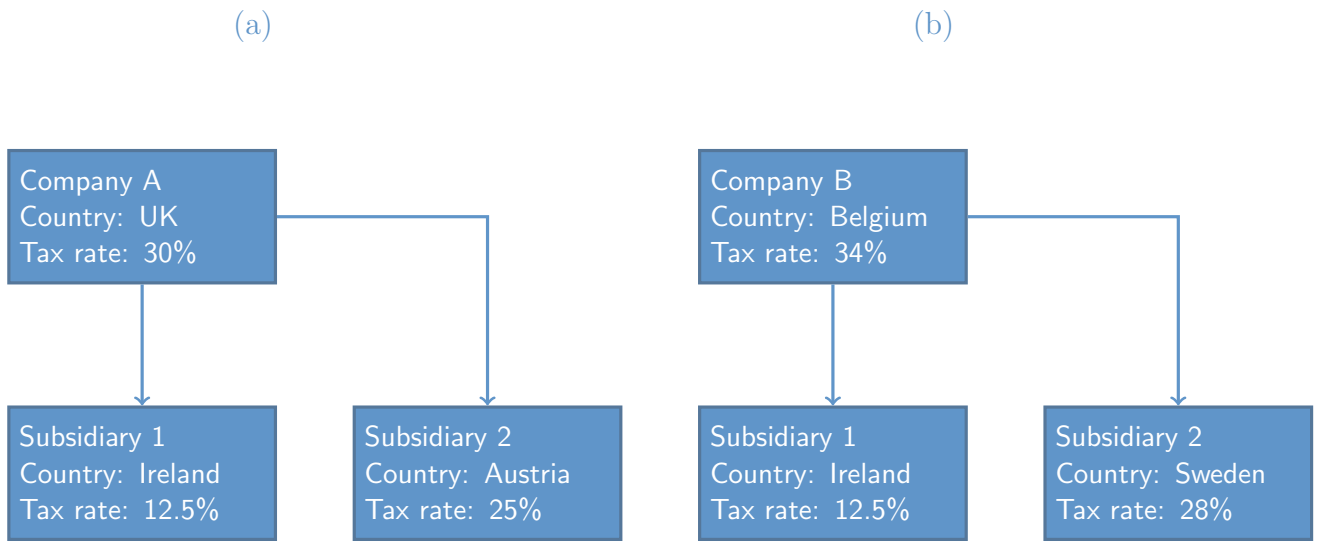

Figure 2: Suggestiveness and court cases: High audit

This graph shows the average the suggestiveness-ratio and the average scaled court cases for countries with high audit probabilities. Leverage has been added to show the correlation. Leverage has been adjusted for the effect of GDP-growth and interest differences across countries.

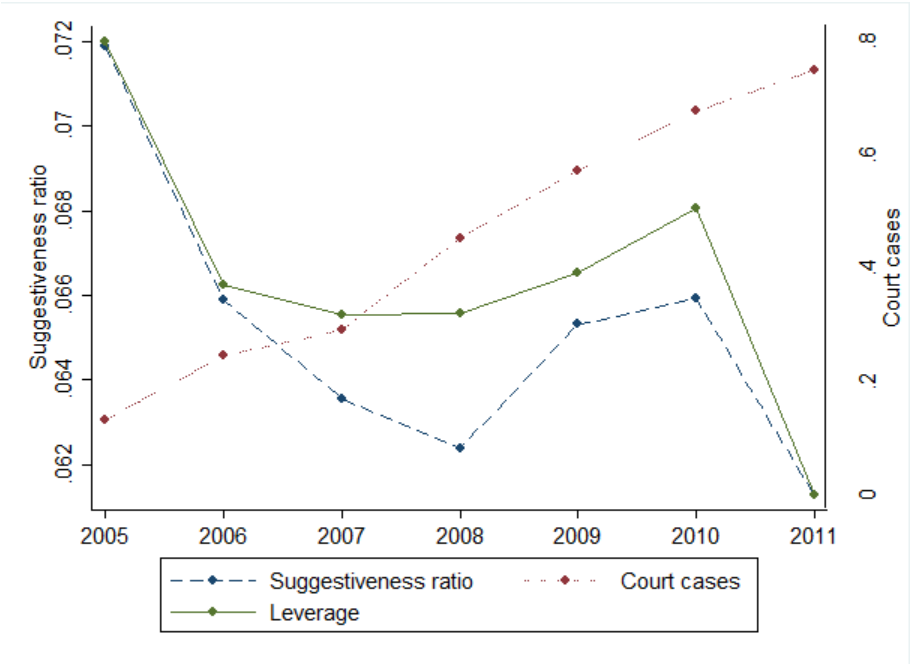

Figure 3: Suggestiveness and court cases

This graph shows the average the suggestiveness-ratio and the average scaled court cases for all countries. Leverage has been added to show the correlation. Leverage has been adjusted for the effect of GDP-growth and interest differences across countries.

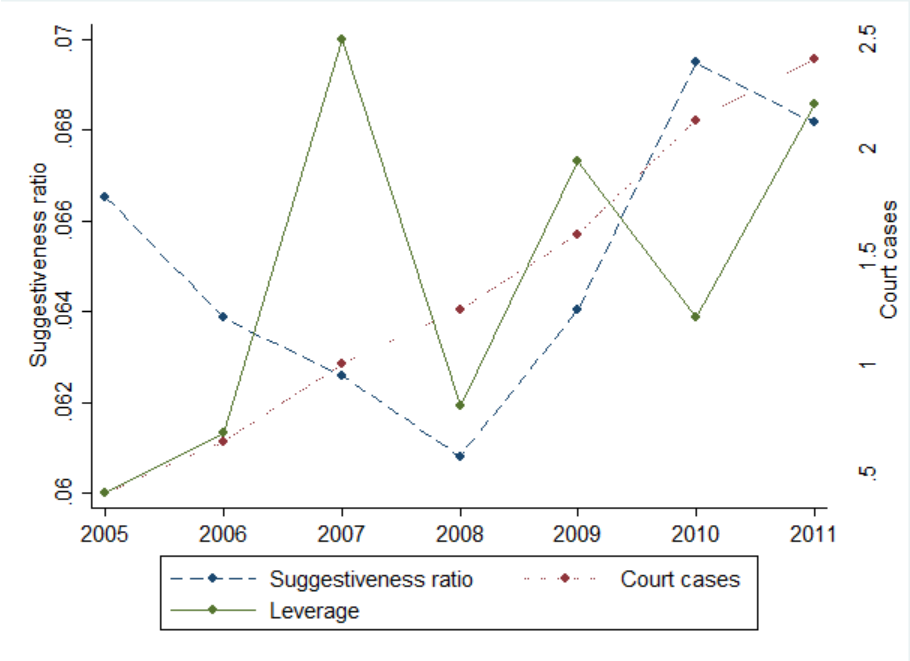

Figure 4: The legislative component

These graphs show the development of the amount of suggestive articles, amount of limitative articles, and the legislative component over time, for each country.

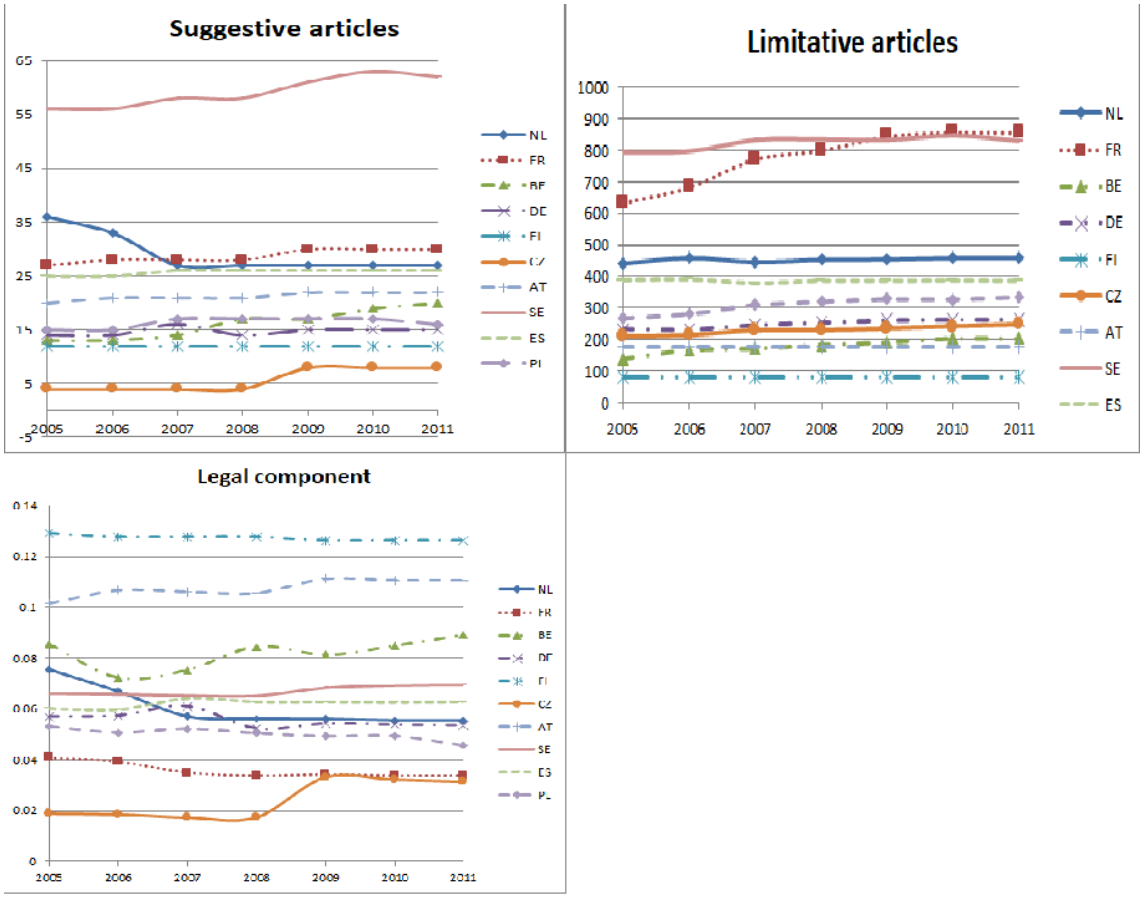

Figure 5: The judicial component

This graph shows the development of the judicial component over time, for each country.

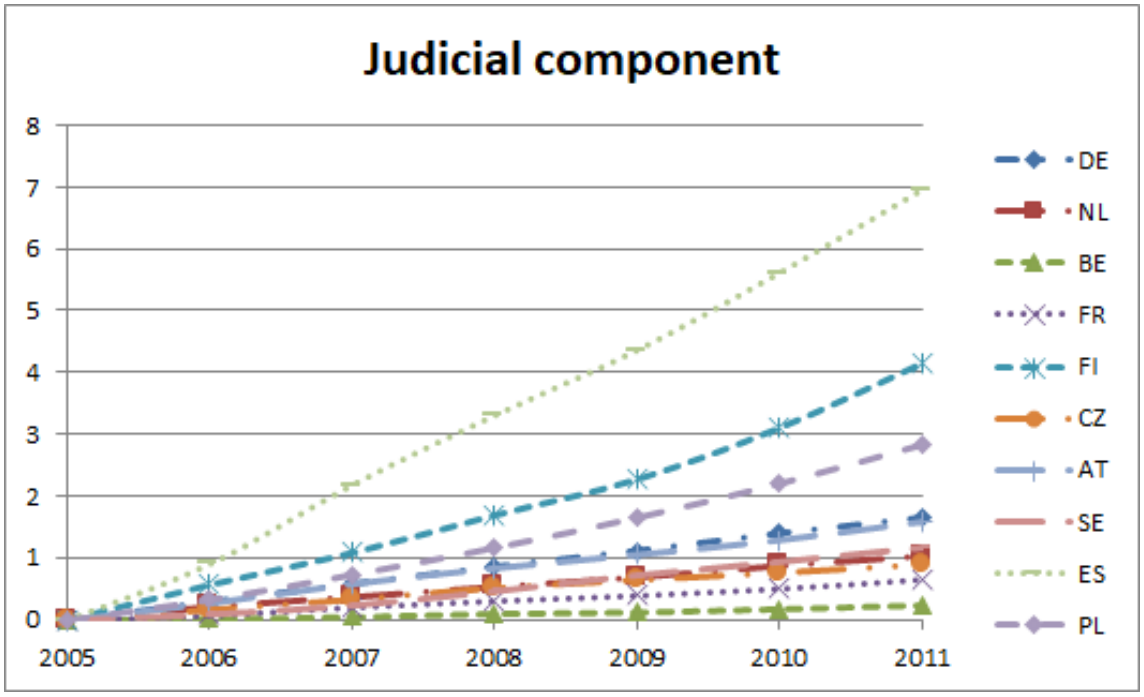

Figure 6: Common trend: leverage

This graph shows the effect of being in the treated group for each year. 2005 is used as a baseline. For each estimate the 95% confidence interval is indicated. 2004 and 2005 are the years before the treatment, 2006-2008 are the treated years.

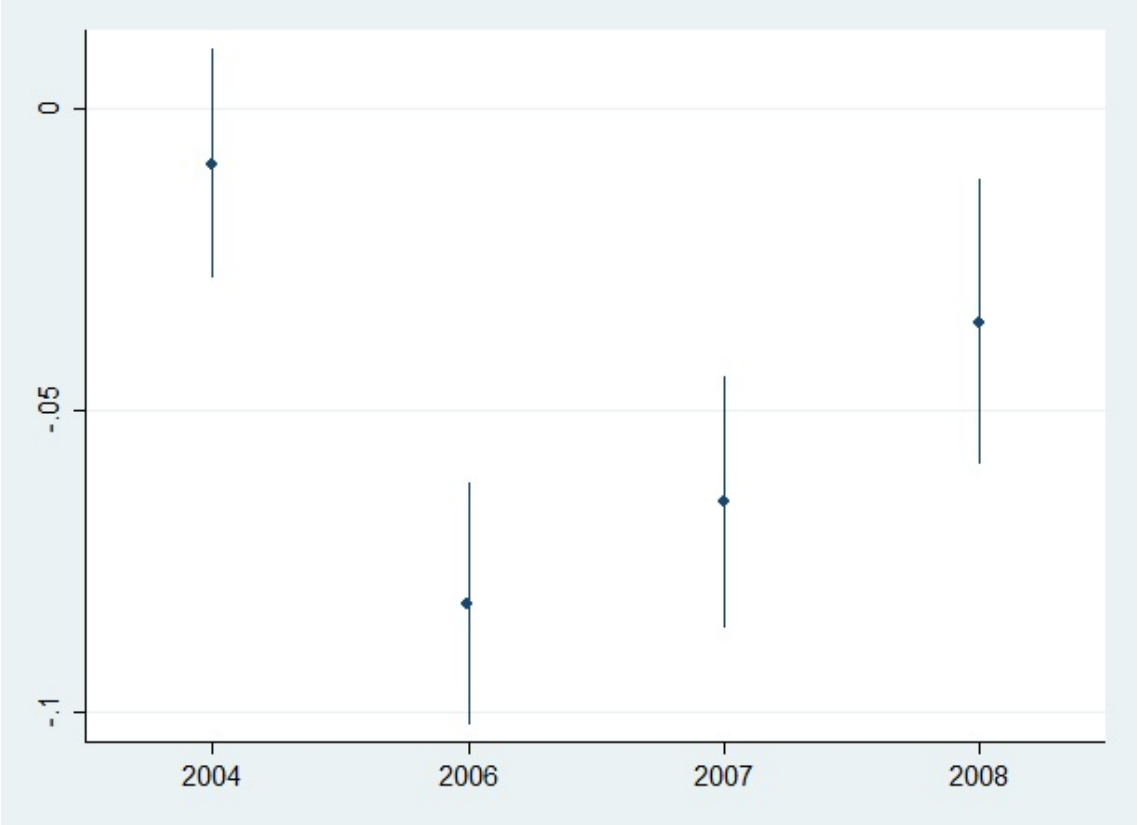

Table 1: Variable definitions

This table provides an overview of the variables used throughout this paper. Accounting data is obtained from the Orbis database, tax information is obtained from Ernst & Young World Wide Corporate Tax Guides. The country level variables are obtained from World Bank Data and Datastream. i indicates the multinational company, c indicates the country and t indicates time.

Variable	Description	Source
$Leverage_{ict}$	Measures the liabilities compared to total assets of the entity. $\frac{\text{interest carrying debt}_{ict}}{\text{interest carrying debt}_{ict}+\text{equity}_{ict}}$	Bureau van Dijk's Orbis Database
Total leverage$_{it}$	$\sum_{c=1}^{N} \frac{\text{non-equity liabilities}_{ict}}{\text{total assets}_{ict}}$	Bureau van Dijk's Orbis Database
$Tangibility_{ict}$	Measures the tangible assets of an entity. Proxies for collateral and financing needs. $\frac{\text{tangible fixed assets}_{ict}}{\text{total assets}_{ict}}$	Bureau van Dijk's Orbis Database
$Depreciation_{ict}$	Measures a companies depreciation normalized by sales. It proxies the size of non-debt tax-shields. $\frac{\text{depreciation}_{ict}}{\text{sales}_{ict}}$	Bureau van Dijk's Orbis Database
Sales$_{ict}$	The log of sales. Proxies for the size of companies. $\ln \text{sales}_{ict}$	Bureau van Dijk's Orbis Database
$Profitability_{ict}$	Measures entity profitability, defined as return on assets. $\frac{\text{EBIT}_{ict}}{\text{total assets}_{ict}}$	Bureau van Dijk's Orbis Database
Interest rate$_{ct}$	Country level risk free interest rate.	Thomson Reuters Datastream
$GDPgrowth_{ct}$	Annual GDP growth.	World Bank Data
Tax_{ct}	Marginal corporate tax rate.	E&Y Worldwide Corporate Tax Guide
Tax difference$_{ict}$	Weighted domestic tax minus weighted foreign tax. $\text{Tax}_{ct} * \frac{1}{\text{total sales}_{it}} - \sum_{k=1,k\neq c}^{N} \frac{\text{sales}_{ikt}}{\text{total sales}_{it}} * \text{tax}_{kt}$	E&Y Worldwide Corporate Tax Guide

Table 2: Relative strength of the components

This table presents the results a regression of leverage on the measure for legal uncertainty and the two individual components. Standard errors are clustered at the multinational level. ***, **, and * indicate statistical significance at 1%, 5%, and 10% statistical significance levels, respectively.

	(1) Leverage	(2) Leverage
Legal uncertainty	-0.031***	
	(0.010)	
Legislative component		-2.172***
		(0.668)
Judicial component		0.021*
		(0.011)
Year FE	Yes	Yes
Company FE	Yes	Yes

Table 3: Summary statistics

This table presents the summary statistics for all variables. The suggestiveness ratio is the ratio of suggestive to total articles in a law. Court cases are the total amount of court cases up to and including the current year. The other variables are defined as in Table 1.

	Mean	St.Dev	25th Perc.	Median	75th Perc
Leverage	0.485	0.268	0.266	0.506	0.687
Uncertainty	-1.056	1.356	-1.431	-0.490	-0.147
Suggestiveness ratio	0.065	0.025	0.049	0.064	0.069
Court cases	1,909	2,317	347	892	2,547
Audit probability	0.033	0.032	0.011	0.017	0.049
Tangibility	0.173	0.216	0.017	0.081	0.257
Profitability	0.049	0.149	-0.002	0.034	0.100
Depreciation	0.065	0.397	0.000	0.006	0.039
Sales	9.633	3.742	7.026	9.054	11.266
Tax rate	0.303	0.057	0.260	0.300	0.344

Table 4: Legal uncertainty and audit probability: leverage

This table presents the results from an OLS-regression of leverage on the proxy for uncertainty, a dummy for above median audit probability, and their interaction. Column 1 shows the baseline result. Column 2 adds the audit probability and the interaction. In column 3, I add additional controls. In column 4, I investigate the effect of the uncertainty faced by the other companies in the multinational group. In column 5, I interact the variables of interest with a dummy for companies in the top quartile of profit. Control variables are profitability, tangibility, depreciation, sales, GDP growth, interest, tax rate, and tax difference. These variables are defined as in Table 1. Standard errors are clustered at the multinational level. ***, **, and * indicate statistical significance at 1%, 5%, and 10% statistical significance levels, respectively.

	(1) Leverage	(2) Leverage	(3) Leverage	(4) Leverage	(5) Leverage
Legal uncertainty	-0.010***	-0.008**	-0.008**	-0.008*	-0.011**
	(0.003)	(0.004)	(0.004)	(0.005)	(0.004)
Interaction		0.032*	0.037**	0.037**	0.035**
		(0.017)	(0.026)	(0.017)	(0.017)
Audit probability		0.113***	0.117***	0.120***	0.109***
		(0.018)	(0.018)	(0.018)	(0.018)
Foreign legal uncertainty				-0.020***	
				(0.007)	
Foreign interact				0.048***	
				(0.017)	
Foreign audit probability				0.011	
				(0.010)	
Uncertainty * high-profit					-0.005*
					(0.003)
Interaction * high-profit					0.052***
					(0.019)
Audit * high-profit					0.165
					(0.189)
Company controls	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes
Foreign Tax control	No	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Company FE	Yes	Yes	Yes	Yes	Yes
Observations	24,940	24,940	24,940	24,940	24,940
R-squared	0.791	0.792	0.793	0.794	0.794

Table 5: Legal uncertainty and audit probability: uncertain tax planning

This table presents the results from an OLS-regression of log EBIT on the weighted legal uncertainty, above median audit probability dummy, and their interaction. These are interacted with a dummy for high and low-tax countries. Column 1 shows the effect on the whole sample. Column 2 and 3 show the results for above and below top quartile profitability respectively. Control variables are log of tangible assets, log of employment expenditures, sales, GDP growth, interest, tax rate, and tax difference. These variables are defined as in Table 1. Standard errors are clustered at the multinational level. ***, **, and * indicate statistical significance at 1%, 5%, and 10% statistical significance levels, respectively.

	(1) Profit shifting	(2) Profit shifting $\geq$ 50% profit	(3) Profit shifting $\leq$ 50% profit
Legal uncertainty * low-tax	0.477***	0.186**	0.015
	(0.075)	(0.076)	(0.086)
Interaction * low-tax	-0.518***	-0.426**	-0.145
	(0.155)	(0.166)	(0.274)
Audit probability * low-tax	-1.945***	-0.429**	-0.316
	(0.211)	(0.188)	(0.410)
Legal uncertainty	-0.113**	-0.182***	-0.005
	(0.050)	(0.053)	(0.072)
Interaction	0.122	0.406***	-0.332*
	(0.099)	(0.101)	(0.181)
Audit probability	0.892***	0.231**	0.506***
	(0.121)	(0.112)	(0.189)
Domestic company controls	Yes	Yes	Yes
Foreign company controls	Yes	Yes	Yes
Domestic country controls	Yes	Yes	Yes
Foreign country controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Company FE	Yes	Yes	Yes
Observations	12,070	4,572	4,337
R-squared	0.961	0.990	0.967

Table 6: Shareholder diversification

This table shows results of the regressions of Tables 4 and 5 split by diversified and undiversified shareholders. Column 1 and 2 show the effect for leverage. Column 3 and 4 show the effect for incorporation. Control variables are as in the original regressions. Standard errors are clustered at the multinational level. ***, **, and * indicate statistical significance at 1%, 5%, and 10% statistical significance levels, respectively.

	(1) Leverage undiversified	(2) Leverage diversified	(3) Profit Shifting undiversified	(4) Profit Shifting diversified
Legal uncertainty	-0.015	-0.016***		
	(0.029)	(0.005)		
Interaction	0.148	0.058*		
	(0.145)	(0.031)		
Audit probability	0.514**	0.091***		
	(0.228)	(0.019)		
Legal uncertainty			-0.296	0.605***
* low-tax			(0.504)	(0.101)
Interaction			0.362	-0.817***
* low-tax			(1.496)	(0.210)
Audit probability			-1.783	-2.079***
* low-tax			(2.073)	(0.257)
Legal uncertainty			0.649**	-0.108*
			(0.250)	(0.060)
Interaction			0.794	0.020
			(0.886)	(0.122)
Audit probability			-0.464	0.684***
			(0.995)	(0.137)
Domestic company controls	Yes	Yes	Yes	Yes
Foreign company controls	Yes	Yes	Yes	Yes
Domestic country controls	Yes	Yes	Yes	Yes
Foreign country controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Company FE	Yes	Yes	Yes	Yes
Observations	820	17,796	415	9,238
R-squared	0.909	0.803	0.960	0.959

Table 7: Treated companies

Panel A provides an overview of the countries which had CFC rules in place at the time of the shock and what tax rates qualified as low-tax. Panel B provides the corporate tax rates in the year before the shock.

Panel A: CFC rules

Country with CFC rule	Low tax definition
Denmark	$\leq 23\%$
Germany	$\leq 27\%$
Norway	$\leq 19\%$
Portugal	$\leq 21\%$
Sweden	$\leq 15\%$
United Kingdom	$\leq 23\%$
Hungary	$\leq 10.67\%$

Panel B: Corporate Tax Rates

Country	Tax rate 2005
Austria	25%
Belgium	34%
Czech Republic	26%
Germany	41%
Denmark	30%
Estonia	24%
United Kingdom	30%
Greece	35%
Hungary	16%
Ireland	12.5%
Lithuania	15%
Luxembourg	30.7%
Latvia	15%
Netherlands	31.5%
Norway	28%
Poland	19%
Portugal	35%
Sweden	28%
Slovenia	25%
Slovakia	19%

Table 8: Quasi-natural experiment: leverage

This table presents the results from a difference-in-difference regression using the Cadbury Schweppes case as treatment. Columns 1, 3, 4 and 5 use non-CFC country companies with subsidiaries in low-tax countries as a control. Column 2 additionally uses CFC country companies without subsidiaries in low-tax countries as a control. In column 3 the treatment is interacted with a dummy for having a non-diversified ultimate owner. In column 4 the treatment is interacted with a dummy for the companies industry being among the top 20% of industries with the most patents. In column 5 the treatment is interacted with a dummy for above average variance in pre-shock profitability. In column 6 the treatment is interacted with a dummy for above average profitability. The control variables are defined as in Table 1. Standard errors are clustered at the company level. ***, **, and * indicate statistical significance at 1%, 5%, and 10% statistical significance levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Leverage	Leverage	Leverage	Leverage	Leverage	Leverage
Treatment	-0.062***	-0.057***	-0.070***	-0.018*	-0.046***	-0.042***
	(0.008)	(0.008)	(0.012)	(0.011)	(0.011)	(0.012)
Treatment * high-tech				-0.073***		
				(0.019)		
Treatment * profit variance					-0.056**	
					(0.023)	
Treatment * high-profit						-0.043**
						(0.017)
Treatment * non-diversified			0.049**			
			(0.024)			
Profitability	-0.246***	-0.262***	-0.226***	-0.264***	-0.310***	-0.198***
	(0.024)	(0.018)	(0.023)	(0.027)	(0.031)	(0.029)
Depreciation	-0.086***	-0.056***	-0.038***	-0.062***	-0.086***	-0.089***
	(0.017)	(0.012)	(0.013)	(0.020)	(0.022)	(0.017)
Tangibility	0.088***	0.081***	-0.002	0.126***	0.081**	0.089***
	(0.031)	(0.023)	(0.032)	(0.034)	(0.033)	(0.031)
Sales	0.010**	0.015***	0.017***	0.014***	0.015***	0.009**
	(0.004)	(0.003)	(0.004)	(0.005)	(0.005)	(0.004)
Tax difference	0.230***	0.135**	0.052	0.241***	0.283***	0.218***
	(0.081)	(0.062)	(0.081)	(0.078)	(0.092)	(0.081)
Domestic tax	0.320***	0.743***	0.792***	0.250***	0.286***	0.348***
	(0.089)	(0.066)	(0.081)	(0.095)	(0.110)	(0.089)
GDP growth	-0.002**	-0.004***	-0.003**	-0.001	-0.002	-0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Interest rate	-0.023***	-0.040***	-0.055***	-0.010**	-0.020***	-0.020***
	(0.005)	(0.005)	(0.008)	(0.005)	(0.006)	(0.005)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Company FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	26,014	45,486	27,940	19,879	18,702	26,014
R-squared	0.728	0.720	0.741	0.757	0.733	0.730

Table 9: Legal uncertainty and audit probability: Robustness

This table presents the results from robustness tests. Column 1 and 2 show the effects when omitting the largest multinationals. Column 1 shows the result for leverage, column 2 shows the result for profit shifting. Column 3 shows the effect when countries with a change in thin-capitalization rules are omitted. Columns 4 and 5 show the effects on leverage and profit shifting when I exclude all companies that incorporated after the start of the sample. Control variables are as in the original regressions. These variables are defined as in Table 1. Standard errors are clustered at the multinational level. ***, **, and * indicate statistical significance at 1%, 5%, and 10% statistical significance levels, respectively.

	(1) Lobbying Leverage	(2) Lobbying Profit shifting	(3) Thin-cap. Leverage	(4) End. Entry Leverage	(5) End. Entry Profit shifting
Legal uncertainty * low-tax		0.380***			0.343***
		(0.058)			(0.077)
Interaction * low-tax		-0.561***			-0.343**
		(0.132)			(0.151)
Audit probability * low-tax		-1.236***			-0.900***
		(0.169)			(0.203)
Uncertainty	-0.013***	-0.096**	-0.016***	-0.011**	-0.100**
	(0.005)	(0.041)	(0.004)	(0.004)	(0.046)
Interaction	0.100***	0.266***	0.158***	0.097***	0.093
	(0.030)	(0.086)	(0.024)	(0.027)	(0.095)
Audit probability	0.150***	0.602***	0.085***	0.096***	0.409***
	(0.026)	(0.103)	(0.023)	(0.023)	(0.112)
Company controls	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes
Foreign Tax control	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Company FE	Yes	Yes	Yes	Yes	Yes
Observations	23,295	14,647	18,436	21,842	13,720
R-squared	0.796	0.965	0.694	0.812	0.967

Table 10: Additional robustness tests

This table presents the results from an OLS-regression of leverage on the proxy for uncertainty, a dummy for above median audit probability, and their interaction. Column 1 shows an interaction with the AS measure of financial constraints. Columns 2 through 10 add proxies for labor regulation and the judicial system. Control variables are profitability, tangibility, depreciation, sales, GDP growth, interest, tax rate, and tax difference. These variables are defined as in Table 1. Standard errors are clustered at the multinational level. ***, **, and * indicate statistical significance at 1%, 5%, and 10% statistical significance levels, respectively.

	(1) Leverage	(2) Leverage	(3) Leverage	(4) Leverage	(5) Leverage	(6) Leverage	(7) Leverage	(8) Leverage	(9) Leverage	(10) Leverage
Legal uncertainty	-0.012**	-0.015**	-0.015***	-0.015***	-0.015***	-0.015***	-0.015**	-0.015***	-0.015***	-0.013**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Interaction	0.066**	0.067***	0.066**	0.067**	0.066**	0.066**	0.066**	0.067**	0.066**	0.068***
	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Audit probability	0.150***	0.149***	0.151***	0.151***	0.151***	0.151***	0.150***	0.151***	0.151***	0.149***
	(0.015)	(0.014)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.014)	(0.014)
Financially constraint interacted with uncertainty	-0.007***									
	(0.003)									
Financially constraint	-0.007**									
	(0.003)									
Hiring and firing regulations		-0.005***								-0.003
		(0.001)								(0.002)
Legal System & Property Rights			-0.002							-0.026***
			(0.002)							(0.009)
Legal enforcement of contracts				-0.000						
				(0.002)						
Integrity of the legal system					-0.001					0.004
					(0.002)					(0.003)
Judicial independence						-0.001				0.008**
						(0.001)				(0.003)
Labor market regulations							-0.004***			-0.008**
							(0.001)			(0.003)
Tax compliance								0.000		0.000
								(0.001)		(0.002)
Fraser institute summary index									-0.005	0.023**
									(0.006)	(0.010)
Company controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Foreign Tax control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subsidiary FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	24,940	24,940	24,940	24,940	24,940	24,940	24,940	24,940	24,940	24,940
R-squared	0.802	0.802	0.802	0.802	0.802	0.802	0.802	0.802	0.802	0.803

Table 11: Legal uncertainty and leverage: standard errors

This table presents the results from robustness tests on the clustering of standard errors. Column 1 shows the results for clustering on the countries the multinational is present in. Column 2 shows double clustering on the the multinational and the countries the multinational is present in. Column 3 shows the results for clustering on country-industry. Control variables are as in the original regressions. These variables are defined as in Table 1. ***, **, and * indicate statistical significance at 1%, 5%, and 10% statistical significance levels, respectively.

	(1) Leverage	(2) Leverage	(3) Leverage
Legal uncertainty	-0.008***	-0.008***	-0.008***
	(0.003)	(0.003)	(0.003)
Interaction	0.037***	0.037***	0.037**
	(0.017)	(0.017)	(0.011)
Company controls	Yes	Yes	Yes
Country controls	Yes	Yes	Yes
Foreign Tax control	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Company FE	Yes	Yes	Yes
Observations	24,940	24,940	24,940
R-squared	0.793	0.793	0.793

Table 12: Legal uncertainty correlated with other country variables

This table shows correlations between the uncertainty measure and other country level variables.

Frasier institute summary	-0.014
Judicial independence	0.314
Integrity of judicial	0.112
Legal enforcement	-0.013
Reliability of police	-0.092
Business cost of crime	-0.003
Property rights	0.136
Credit market regulations	0.169
Hiring and firing	-0.241
Labor market regulations	0.204
Tax compliance	-0.114
Policy Uncertainty	-0.011