

Empirical Essays on Tax Avoidance

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Summary

This dissertation comprises three tax avoidance papers. In addition, these papers empirically examine firms' resource allocation, tax control frameworks, tax transparency and tax compliance.

The first paper investigates firms' response to a perceived increase in tax audit aggressiveness. By examining a cross-country dataset of approximately 200 multinational firms, we find no evidence that a perceived increase in audit aggressiveness leads to a change in tax planning activities. Nevertheless, we find that audit aggressiveness is positively associated with the quality of firm's tax control frameworks. Thus, it remains unclear, if stricter enforcement shapes firms' tax planning behavior or simply causes firms to invest more in the avoidance of errors.

The second paper examines the self-presentation of UK firms in published tax strategies as "responsible taxpayers" or as "tax planners" and whether their presentation is consistent with the measurable tax avoidance behavior. We use 248 published tax strategies from firms listed on the FTSE 100 and FTSE 250 and find that firms tend to portray themselves more as "responsible taxpayers", but that this portrayal is only consistent with firms' tax avoidance behavior if they are subject to an above-average external monitoring by financial analysts. Our findings suggest that firms manage the content in their published tax strategy to sway public opinion when the probability of detecting misstatements is low.

The last paper analyzes how tax complexity affects firms' tax compliance and tax avoidance activities measured as the allocated resources within the tax department (internally and externally). I use a cross-country dataset of 173 multinational firms to show that tax complexity is positively associated with the tax compliance and tax avoidance activities. This finding indicates that higher complexity induces more compliance costs. Simultaneously, firms need to invest more resources in tax avoidance.

Zusammenfassung

Diese Dissertation besteht aus drei Beiträgen zur Steuervermeidung. Darüber hinaus werden in diesen Beiträgen die Ressourcenallokation, das Tax Compliance Management System, die Steuertransparenz sowie die Compliance Aktivitäten empirisch untersucht.

Der erste Beitrag behandelt die Reaktion von Unternehmen auf gesteigerte Aggressivität in Betriebsprüfungen. In einem länderübergreifenden Datensatzes von ca. 200 multinationalen Unternehmen finden wir keine Evidenz, dass die Wahrnehmung von gesteigerter Aggressivität in Betriebsprüfungen zu einer Veränderung der Steuerplanungsaktivitäten führt. Es lässt sich jedoch feststellen, dass die wahrgenommene Aggressivität der Betriebsprüfung positiv mit der Qualität der Tax Compliance Management Systeme der Unternehmen assoziiert ist. Somit ist fraglich, ob ein geändertes Verhalten der Betriebsprüfung die Steuerplanungsaktivitäten beeinflussen kann oder ob Unternehmen lediglich dazu verleitet werden, mehr in Fehlervermeidung zu investieren.

Der zweite Beitrag untersucht die Selbstdarstellung britischer Unternehmen in ihren veröffentlichten Steuerstrategien als „verantwortungsvoller Steuerzahler“ oder als „Steuerplaner“ und ob diese Darstellung mit dem messbaren Steuervermeidungsverhalten übereinstimmt. Im Rahmen der Analyse von 248 veröffentlichten Steuerstrategien von Unternehmen, die am FTSE 100 bzw. FTSE 250 notiert sind, stellen wir fest, dass Unternehmen sich eher als „verantwortungsvolle Steuerzahler“ darstellen. Diese Darstellung stimmt jedoch nur mit dem Steuervermeidungsverhalten der Unternehmen überein, wenn diese einer überdurchschnittlichen externen Überwachung durch Finanzanalysten unterliegen. Die Ergebnisse legen somit nahe, dass Unternehmen strategisch die Wahrnehmung der Öffentlichkeit mittels der Informationen in den Steuerstrategien lenken, soweit eine Überprüfung und damit ein Aufdecken falscher Angaben unwahrscheinlich erscheint.

Der letzte Beitrag befasst sich mit der Frage, wie sich Komplexität auf die Compliance Aktivitäten und das Steuervermeidungsverhalten, gemessen an den zugewiesenen Ressourcen innerhalb der Steuerabteilung (intern und extern), von Unternehmen auswirkt. Auf Basis eines länderübergreifenden Datensatzes von 173 multinationalen Unternehmen lässt sich zeigen, dass eine höhere Komplexität einen positiven Einfluss auf die Compliance- sowie auf die Steuervermeidungsaktivitäten hat. Dies deutet darauf hin, dass gesteigerte Komplexität höhere Steuerbefolgungskosten verursacht, die Unternehmen jedoch gleichzeitig auch mehr Ressourcen in die Steuervermeidung investieren.

Keywords

Tax Avoidance · Tax Control Framework · Tax Enforcement · Tax Compliance Management · Tax Transparency · Tax Disclosure · Strategic Reporting · External Monitoring · Tax Complexity · Tax Technology

Schlagwörter

Steuervermeidung · Tax Compliance Management System · Steuervollzug · Tax Compliance Management · Steuerliche Transparenz · Steuerliche Offenlegung · Strategische Berichterstattung · Externe Überwachung · Steuerliche Komplexität · Steuerliche Technologien

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II. List of Abbreviations

BIG 4	Four Auditing Firms, namely Deloitte, EY, KPMG and PwC
ETR	Effective Tax Rate
FTE	Full-Time Employees
FTSE	Financial Times Stock Exchange
GDP	Gross domestic product
H	Hypothesis
M&A	Mergers and Acquisitions
N	Sample Size
OECD	Organisation for Economic Co-operation and Development
P	Page
PwC	PricewaterhouseCoopers
SIC	Standard Industrial Classification
UK	United Kingdom
VIF	Variance Inflation Factor

III. List of Symbols

, **, *	P-Values () $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)
ACCOUNTING	Number of full-time employees (internally and externally) responsible for accounting for income taxes
β	Regression Coefficients
COMPLEXITY	Complexity of a country's corporate income tax system between 0 (not complex) and 1 (extremely complex)
COMPLIANCE	Number of full-time employees (internally and externally) responsible for tax returns/compliance
Controls	Vector of control variables including firm size, public listing, foreign activities, industry and country characteristics
CONTROVERSY	Number of full-time employees (internally and externally) responsible for controversy and audit defense
DAY2DAY	Number of full-time employees (internally and externally) responsible for day-to-day processing of intercompany transactions
ε_i	Error term of firm i
FOREIGN_1	Takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in fewer than 10 countries; 0 otherwise
FOREIGN_2	Takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in at least 10 countries but in no more than 30 countries; 0 otherwise
FOREIGN_3	Takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in more than 30 countries; 0 otherwise
GDP_CAPITA	Gross domestic product per capita
INDUSTRY FE	Industry Fixed-Effects

LISTED	Binary variable that equals 1 if the organization is listed on a public stock exchange or on any external public filings; 0 otherwise
RISKMA	Number of full-time employees (internally and externally) responsible for risk management and governance, Sarbanes Oxley and similar
SIZE_1	Takes the value 1 if the sales of the organization are below US 1 billion; 0 otherwise
SIZE_2	Takes the value 1 if the sales of the organization are between US 1 billion and US 5 billion; 0 otherwise
SIZE_3	Takes the value 1 if the sales of the organization are between US 5 billion and US 10 billion; 0 otherwise
SIZE_4	Takes the value 1 if the sales of the organization are between US 10 billion and US 50 billion; 0 otherwise
SIZE_5	Takes the value 1 if the sales of the organization are over US 50 billion; 0 otherwise
SUPPORT	Number of full-time employees (internally and externally) responsible for business unit support and consulting
TAE_INT	Number of full-time employees responsible for tax avoidance within the tax department
TAE_EXT	Amount of external resources used for tax avoidance measured in FTE
TAE_TOTAL	Sum of TAE_INT and TAE_EXT
TAXADM	Number of full-time employees (internally and externally) responsible for tax department administration
TAXREV_PERSTAFF	Corporate tax revenue in millions of USD divided by the full-time permanent employees within the revenue administration per country

TCE_INT	Number of full-time employees responsible for tax compliance within the tax department
TCE_EXT	Amount of external resources used for tax compliance measured in FTE
TCE_TOTAL	Sum of TCE_INT and TCE_EXT
TECH	Number of full-time employees (internally and externally) responsible for tax technology
TRANSACTION	Number of full-time employees (internally and externally) responsible for transaction taxes (VAT, indirect tax, GST, etc.)
SYSTEM	Extracted factor of a factor analysis of the country's legal tradition (common law vs. code law) and the strength of investor rights and ownership concentration
WW	Takes the value 1 if the country has a worldwide approach; 0 otherwise

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Chapter 1

1 Introduction

1.1 Motivation

Numerous empirical studies demonstrate that firms engage in tax avoidance. As tax avoidance deprives governments of large amounts of tax revenues, policymakers around the globe develop different rules to curb firms' tax avoidance (OECD, 2023). To avoid unintended consequences, policymakers must understand how their anti-avoidance rules affect firms' behavior.

For example, the literature shows that tax enforcement limits tax avoidance, i.e., stricter tax enforcement disciplines firms (e.g., by the application of more penalties), and therefore, reduce tax avoidance (Hoopes et al., 2012; Kubick et al., 2016). Nevertheless, the existing literature typically examines the effective tax rate as a proxy for tax avoidance and thus considers the measurable output of the underlying activities (Feller and Schanz, 2017). Therefore, the finding that stricter enforcement increases the effective tax rate can be due to a variety of causes and neglects behavioral reactions to tax enforcement. First, because tax enforcement decrease the expected benefits from tax avoidance, firms can reduce their tax avoidance activities (Hoopes et al., 2012). Second, firms might anticipate the stricter tax enforcement and increase tax avoidance activities as a basis for negotiation with the tax authority (Slemrod et al., 2001). Third, stricter enforcement reveals and corrects (unintended) errors and thereby, increases the effective tax rate (Advani et al., 2023). Thus analyzing the effective tax rate cannot disentangle firms behavioral responses to stricter enforcement.

As public media frequently uncovers tax avoidance structures of large firms (e.g. Google) and shows the excessive usage of tax havens (Financial Times, 2016; The New York Times, 2012; The New York Times, 2017), the awareness for tax avoidance in public increase. The awareness can impact firms' tax avoidance behavior when public shaming induce reputational damages (Gallemore et al., 2014; Austin and Wilson, 2017; Blaufus et al., 2017). Therefore, policymakers attempt to make use of the effects of public shaming and shape firms' behavior through mandatory disclosure of tax-related information. However, firms can either truly reveal their tax behavior or strategically use qualitative disclosure to manage stakeholders' perception. Thus policymakers should carefully analyze the impact of mandatory disclosure to gain insights of the tradeoff of costs and benefits of these regulations.

Finally, to secure their tax revenues, policymakers worldwide implement anti avoidance rules to curtail base erosion and profit shifting (OECD, 2013). However, this proceeding increases tax complexity. The evidence on the impact of tax complexity on tax avoidance is unclear. As

a reaction to more uncertainty, tax complexity might increase compliance (Krause, 2000; Scotchmer, 1989; Milliron, 1985; Alm et al., 1992; O'Donnell et al., 2005) as a reaction to uncertainty. Nevertheless, tax complexity potentially increases firms' tax avoidance opportunities, so that tax complexity can also increase tax avoidance (Milliron, 1985; Kaplow, 1996; Benzarti and Wallossek, 2024). Therefore, policymakers must understand the effects of tax complexity on firms' behavior to avoid unintended consequences.

1.2 Contribution and Main Findings

This dissertation comprises of three papers, which are presented in Table 1.1.

Table 1.1: Overview of Essays

Chapter	Title	Co-authors	Status of publication
(2)	Perceived tax audit aggressiveness, tax control frameworks and tax planning - An empirical analysis	Prof. Dr. Kay Blaufus, Dr. Ilko Trenn	Journal of Business Economics, (93), 509 – 557.
(3)	Tax Strategy Disclosure and Firm's Actual Tax Policy	Prof. Dr. Kay Blaufus, Janine K. Jarzembki, Dr. Ilko Trenn	Journal of Accounting, Auditing & Finance, forthcoming.
(4)	How Tax Complexity Affects Tax Compliance, Tax Avoidance and the need for Tax Technology - An Empirical Analysis	-	Working Paper

The first paper analyzes how firms respond to a perceived increase in audit aggressiveness. We examine cross-country data of approximately 200 multinational firms and find that firms neither change the internal, external nor the overall resources allocated to tax planning in response to a perceived increase in audit aggressiveness. Thus we conclude that prior findings of a higher effective tax rate in response to stricter enforcement might result from the correction of errors instead of adjusted tax planning activities. Additionally, we find a positive association between a perceived increase in audit aggressiveness, the quality of the tax control framework, the reputation management, and the communication skills of the tax department staff. This finding suggests that firms try to avoid errors through a well-working tax control framework. By showing how firms react to stricter tax enforcement, we contribute to literature in various ways. First, we show that the effective tax rate as the common measure for tax avoidance might be flawed because the effective tax rate includes errors and misinterpretation. Suchlike errors are unintended by firms, and therefore, are not the result of firms' tax planning behavior.

The second paper investigates the self-portrayal of firms as “responsible taxpayers” or “tax planners” and whether their presentation is consistent with the tax avoidance behavior. By using textual analysis, we examine mandatory disclosed tax strategies of firms from the FTSE 100 and FTSE 250. We find that information in the tax strategy only corresponds to the tax avoidance behavior if the firms are subject to a high external monitoring by analysts. This result suggests that managers distort information to strategically manage public perception of the firm when the detection risk is low. We contribute to the existing literature by exploring the effects of qualitative mandatory disclosure rules. Our results indicate that stakeholders as the regular recipients of the published information, should treat the information with caution and consider if the information are reviewed by a third party. Therefore, mandatory disclosure does not necessarily lead to the intended result that stakeholders shape firms’ tax avoidance behavior and policymaker do not reach the intended outcome without ensuring the correctness of the information by external monitoring.

The third paper investigates the effects of tax complexity on tax compliance and tax avoidance of multinational firms. I analyze cross-country data of 173 firms and find that tax complexity is positively associated with firms’ resources for compliance and avoidance. This finding suggests that higher complexity leads to higher compliance costs and that firms need to invest more in tax planning activities to achieve the same level of tax avoidance. Furthermore, I find a positive association between tax complexity and the necessity for digitalization. We supplement literature by analyzing firms’ activities regarding tax compliance and tax avoidance rather than the measurable output.

Chapter 2

2 Perceived tax audit aggressiveness, tax control frameworks and tax planning - An empirical analysis

For copyright reasons this chapter is not available in this published version. This paper was published as Blaufus, K./Reineke, J./Trenn, I. (2023): Perceived tax audit aggressiveness, tax control frameworks and tax planning: an empirical analysis, in: *Journal of Business Economics* 93(3), S. 509–557.

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Chapter 3

3 Tax Strategy Disclosure and Firm's Actual Tax Policy

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Chapter 4

4 How Tax Complexity Affects Tax Compliance, Tax Avoidance and the need for Tax Technology - An Empirical Analysis

Abstract

This paper aims to deepen the understanding of the effects of tax complexity on firms' behavior. While tax complexity has been studied for decades, still little is known about the interaction between tax complexity and shaping firms' behavior. In order to fill this gap, I analyze the impact of tax complexity on firms' allocation of resources to tax compliance and to tax avoidance activities on a cross-country basis. I find that a greater tax complexity is associated with a higher tax compliance effort and further with increased tax avoidance activities. These results suggest that compliance has become more costly, but firms are also engaged in more tax avoidance activities. Therefore, it remains unclear, whether policymakers are able to address tax avoidance through dynamic law changes or if the resulting tax complexity needs to be considered as a moderating effect.

JEL Codes: M40, M41, M48, H21, H25, H26

Keywords: Tax Avoidance · Tax Complexity · Tax Technology

4.1 Introduction

The tax literature regularly assumes a direct relationship between the applicable rules and regulations and taxpayers' actions (Feldman et al., 2016). Already more than 50 years ago, Allingham and Sandmo (1972) developed a theory stating that taxpayers will evade taxes as long as the additional earnings exceed the expected costs of detection and penalties. However, this assumes that taxpayers know precisely how the law is correctly applied and only consider whether the application actually leads to a maximization of benefits. This still prevailing theory fails to acknowledge the increasing complexity of tax laws across countries, which makes the correct application more difficult or subject to different interpretations (Benzarti and Wallossek, 2024). The rapidly developing economy, evolving business models and the increasing internationalization of firms and markets requires policymaker to constantly adapt laws to ensure a fair equitable taxation as well as to secure an appropriate share of tax revenues (Office of Tax Simplification, 2022). Furthermore, socio-political considerations and the redistributions of wealth are often also addressed through tax laws (Benzarti and Wallossek, 2024; Slemrod, 2005). Even if some countries have taken initiatives to simplify their tax laws, there is still a high level of complexity internationally prevailing (Edward Troup, 2023; Richardson and Sawyer, 1997). Therefore, taxpayers might often not comprehend the law and all applicable rules to the full extent, leading to an increased uncertainty (Amberger et al., 2023).

In this paper, I analyze the effects of tax complexity on firms' tax activities. Previous research provides mixed results regarding the effects of tax complexity on tax compliance and avoidance. Additionally, the research has typically focused on the measurable outcome. As a result, little is known about the actual responses of firms, which are faced by increasing tax complexity. Most studies suggest that taxpayers respond with noncompliance, either through unconscious misinterpretation of the law, exploiting loopholes and grey areas or consciously evading taxes (Milliron, 1985; Cox and Eger, 2006; Richardson, 2006; Benzarti and Wallossek, 2024).

I assume that an increasing complexity will provoke additional expenses for firms, so that I hypothesize that tax complexity is positively associated with tax compliance activities. Nonetheless, there may be a simultaneous increase in tax avoidance behavior especially for large firms with resources to exploit opportunities to avoid taxes or intentionally misinterpret the law as the enforcement is also likely to become more difficult for the tax authorities in case of complex laws (Krause, 2000).

I investigate the hypotheses using a dataset of 173 multinational firms from various countries including specifications about individual structure and allocation of resources. The dataset provides unique insights into the actual firms' behavior and their responses to increasing

complexity. In line with my expectations, I find for a higher tax complexity also enhanced activities for tax compliance and an increased tax avoidance effort.

I contribute to the existing literature in several ways. First, to the best of my knowledge, this study is the first to analyze the impact of tax complexity on the structure of the tax department as this information is regularly non observable from outside and therefore the existing literature mostly lacks of information for a direct measurement of actual behavior (Zwick, 2021). Thus, I respond to the call for the expansion of knowledge with regard to the exploration of how tax complexity shapes firms activities (Amberger et al., 2023). Furthermore, with the development of new digital business models and the ascending internationalization of business, the question arises whether government initiatives to limit the possibility of tax avoidance through more complex anti-abuse rules actually reduce these activities or instead encourage firms to invest more effort in circumventing these rules as well (Borrego et al., 2016).

The paper is organized into six sections. Following this introduction, Section 4.2 presents the theoretical background and hypothesis development. In Section 4.3, I present the sample selection, estimation method, variable measurement and the descriptive statistics. The results are described in Section 4.4. Section 4.5 includes robustness checks and additional analyses. In the last section, I conclude and discuss the implications for future research.

4.2 Theoretical background on the effects of tax complexity on tax compliance and tax avoidance

The impact of tax complexity on firms is not straightforward. It seems reasonable to assume that higher complexity makes the correct application of the law more difficult, resulting in uncertainty for the taxpayer, who may not comprehend all rules and transactions and cannot rationally choose the optimal procedure (Feldman et al., 2016). Therefore, high complexity can provoke unintentional errors for example due to misinterpretations of the law in favor or against the taxpayer (Scotchmer, 1989; Krause, 2000; Blaufus et al., 2023). In respect to this uncertainty, taxpayers may declare an inflated taxable income and therefore increase tax compliance (Alm et al., 1992). This effect is more likely to occur if the state imposes penalties and interest for (also unintentional) noncompliance. In addition, O'Donnell et al. (2005) find that professionals with greater procedural knowledge and faced with increasing complexity favor less aggressive recommendations and rely more heavily on their outcome expectations. In sum, the taxpayer might attempt to respond to an increased tax complexity by increasing compliance (Milliron, 1985).

Beyond that, in many cases rapid changes in the law and complex rules often contain anti-abuse regulations that aim to prevent tax avoidance. To comply with all rules, taxpayers are

required to gather more information and documentation, making it harder to conceal tax evasion. In this vein, Aghion et al. (2023) provide evidence that individuals tend to prefer simple tax systems and argue that tax evasion is a significant factor for this circumstance. Also Thomssen and Watrin (2018) find that relatively complex tax regulations are associated with higher ETRs.

However, taxpayers could also exploit the high complexity by claiming tax aggressive positions with regard to possible interpretations and gray areas or even consciously misinterpret the law to evade taxes (Benzarti and Wallossek, 2024). According to Richardson (2006), complexity is even the most significant determinant in tax evasion on a cross-country basis. Also Cox and Eger (2006) find for the case of motor fuel tax system that organizational procedural complexity increases tax noncompliance. Their results align with Milliron (1985), who favors that complexity is linked to increased opportunities for evasion and Kaplow (1996) suggests that more precise rules might reduce avoiding schemes. Nevertheless, Amberger et al. (2023) show that the effects of tax complexity on firms differ, depending on their size or global span.

In summary, the impact of tax complexity is still unclear. Furthermore, it is important to note that the aforementioned studies analyze compliance and avoidance as the “output” of firms’ activity which do not necessarily need to reflect to intended behavior of the firm. If firms try to comply with all rules and regulations but make unconscious mistakes, then the “output” measure will detect noncompliance. Contrary, if firms try to evade taxes or exploit loopholes, but the tax authority imposes taxes (and maybe additional interest and penalties) the “output” measure will rather detect a compliant behavior as the effective tax rate would be rather high. Thus little is known about the actual impact of tax complexity on shaping firms behavior (Amberger et al., 2023).

Following the discussion in the literature, I suppose that a higher tax complexity will require more tax compliance activities. Furthermore, I assume that also the tax avoidance activities are more complex and therefore require more resources. Thus, I state the following hypotheses:

H1. An increase in tax complexity increases firms’ tax compliance effort.

H2. An increase in tax complexity increases firms’ tax avoidance effort.

4.3 Sample selection, variable measurement, descriptive statistics, and estimation strategy

4.3.1 Sample selection

I use confidential survey data on 294 firms from 36 different countries worldwide. The data was collected by a Big 4 company between May and November 2016 (KPMG, 2016) from survey respondents who were employees responsible for their firms' tax policy and operations (KPMG, 2016). The data was collected anonymously through an online questionnaire. The survey contained 69 questions.¹ The survey started with general questions concerning firm characteristics, followed by questions regarding the structure and responsibilities of the tax department and finally questions on tax processes, governance and the need for tax software and tax technology.

I remove firms with missing information for tax avoidance or tax compliance effort (92 observations). Following Blaufus et al. (2023), I further exclude firms that either did not complete the form² correctly, obviously misunderstood the question³ (16 observations) or provided unrealistic values⁴ (2 observations). Finally, I remove firms with insufficient country controls (11 observations).⁵ Therefore, my final sample consists of 173 firms⁶ from 24 different countries.⁷

4.3.2 Variable measurement

4.3.2.1 Tax compliance and Tax avoidance effort

The survey contained questions concerning the responsibilities and duties of the central tax department. The resources needed to be allocated to the following activities by full-time employees (FTEs): (1) accounting for income taxes, (2) business unit support and consulting, (3) controversy and audit defense, (4) day-to-day processing of intercompany transactions, (5)

¹ An extract is provided in the 4.7 Appendix: Survey Instrument (Extract).

² Seven firms filled in the same number (for example, 1) for the allocation of resources, and one firm always filled in the number of the question.

³ Nine firms did not fill in the number of full-time employees but rather indicated the percentage of the activity so that the total added up to 100 (either in the tax department or together with the resources in the nontax department).

⁴ In these cases, the total full-time employee values exceeded 10 times the median for the different groups of total employees of the firm. Firms reported 128 and 350 full-time employees in the tax department out of 1,000-10,000 total employees or 318 full-time employees in the tax department of a total of more than 50,000 employees.

⁵ This concerned firms who stated United Arab Emirates, China, Mauritius, Nigeria, Uruguay, Hungary and Russia.

⁶ The sample size differs from Blaufus et al. (2023), because the aforementioned study analyzes the Planning effort relative to the total FTE and therefore excludes all observations indicating zero as the total external FTE.

⁷ Country (observations): Australia (18); Austria (9); Canada (29); Colombia (1); Denmark (13); Finland (3); France (4); Germany (2); Ireland (3); Italy (4); Japan (16); Netherlands (6); New Zealand (1); Norway (1); Peru (2); Portugal (3); Singapore (2); South Africa (13); Spain (4); Sweden (2); Switzerland (6); Turkey (1); United Kingdom (22); United States of America (8).

merger, acquisition and restructuring activities, (6) research and planning (excluding transfer pricing), (7) risk management and governance, Sarbanes Oxley and similar, (8) tax department administration, (9) tax returns/compliance, (10) tax technology, (11) training for tax personnel, (12) transaction taxes (VAT, indirect tax, GST, etc.), and (13) transfer pricing.

For further analysis, all activities are assigned to either tax compliance or tax planning. For the tax compliance effort of firms, I combine the tax department resources for tax compliance by FTEs, which are listed as follows: accounting for income taxes, business unit support and consulting, controversy and audit defense, day-to-day processing of intercompany transactions, risk management and governance, Sarbanes Oxley and similar, tax department administration, tax returns/compliance, tax technology, training for tax personnel and transaction taxes (VAT, indirect tax, GST, etc.). On average, a firm has 7.42 FTEs (TCE_INT) in the internal tax department responsible for tax compliance activities. This number represents an average of 80.30% working in the tax department (Table 4.1).

To measure a firm's tax avoidance activities, I combine the tax department resources for tax avoidance by FTEs. These activities including merger, acquisition and restructuring activities; research and planning, excluding transfer pricing and transfer pricing. 19,70% of the 9.24 FTEs in the tax department – equivalent to 1.82 FTEs (TAE_INT) – are engaged with tax avoidance activities (Table 4.1).

Again, following Blaufus et al. (2023), I use a question in which respondents indicated the estimated percentage performed by the tax department and by external tax service, to measure the effort of external advisors.⁸ This means, that respondents state the percentage of tax compliance as well as tax planning activities that are carried out internally and by external tax advisors. This process enables us to measure the expenses for external advice. For the analysis of internal and external investments, I converted the percentage of external expenditures into FTEs. The mean value of the tax compliance effort for external advisors is 2.65 FTE (TCE_EXT), which is on average 75.28% of the total resources of external providers. The mean value of the tax avoidance effort for external advisors is 0.87 FTE (TAE_EXT), which is on average 24.72% of the total resources of external providers (Table 4.1).

Finally, I combine the external and internal resources. For tax compliance effort, a firm has on average 9.89 (TCE_TOTAL), which reflects an average of 78.93% of the total 12.53 FTEs. In

⁸ The participants of the survey also answered a question concerning the number of FTEs at nontax department headquarters location (see 4.7 Appendix: Survey Instrument (Extract)). However, we assume that the actual tax activities take place in the tax department itself or by external providers.

contrast, for tax avoidance activities, firms have on average 2.64 FTEs in charge. This result corresponds to 21.07% (TAE_TOTAL) of the total effort for tax activities Table 4.1.

4.3.2.2 Tax Complexity

Following Hoppe et al. (2018), I understand tax complexity as a two-pillar concept consisting of the tax code (*ambiguity & interpretation, change, computation, detail and record keeping*) and the tax framework (*enactment, guidance, filing & payment, audits and appeals*). For the measure of the impact on tax compliance and tax avoidance, I use the Tax Complexity Index (COMPLEXITY) by Hoppe et al. (2023). The Index measures the complexity of countries' corporate income tax systems for multinational corporations. The index is composed of two sub-indices, namely "tax code complexity" - which describes the complexity that is inherent in the different regulations of the tax code - and "tax framework complexity", which describes the complexity that arises from the legislative and administrative processes and features within a tax system.

4.3.2.3 Control variables

Firms have varying opportunities for tax avoidance. However, larger firms generally have more opportunities to avoid taxes (Blaufus et al., 2019; Dyreng et al., 2016; Rego, 2003). Furthermore, larger firms also face higher a higher compliance effort (Zwick, 2021). Therefore, we include controls for the size of the firm (Goslinga et al., 2019). Based on the data set I include five categories, from SIZE_1 to SIZE_5. In my sample of 173 firms, 42 firms reported sales of less than US 1 billion (SIZE_1), 58 firms reported sales between US 1 billion and US 5 billion (SIZE_2), 24 firms reported sales between US 5 billion and US 10 billion (SIZE_3), 35 firms reported sales between US 10 billion and US 50 billion (SIZE_4), and 14 firms reported sales of over US 50 billion (SIZE_5). Moreover, I include whether the firm is listed on a public stock exchange or on any external public filing (LISTED) because listed firms are generally subject to stricter regulations and a greater public attention (Blaufus et al., 2019; Blaufus et al., 2023); therefore, LISTED might have an impact on tax compliance as well as on tax avoidance. In my sample of 173 firms, 129 firms were listed on a public stock exchange or similar. Besides, foreign operations also influence the necessary tax compliance effort as well as the possibilities for tax avoidance (Gallemore and Labro, 2015). I include binary variables which indicate whether subsidiaries or permanent establishments exist and in how many countries. These binary variables equal to one if the firm has either subsidiaries or permanent establishments in fewer than 10 countries (between 10 and 30 countries, in more than 30 countries). In our sample, 57 firms stated that they were active in fewer than 10 countries (FOREIGN_1), 60 firms were active in at least 10 countries but fewer than 30 countries (FOREIGN_2), and 56 firms were active in at least 30 different countries (FOREIGN_3). Furthermore, tax avoidance

differ among industries (Dyreng et al., 2008), so I included industry dummies using 2-digit SIC codes.⁹ Following Blaufus et al. (2023), I control for country characteristics¹⁰ by including the GDP per capita¹¹ (DeBacker et al., 2015; Huizinga and Laeven, 2008), a dummy if the home country has a worldwide tax system¹² (Atwood et al., 2012; Kanagaretnam et al., 2018), SYSTEM¹³ to control for cross-country institutional factors (Atwood et al., 2010; Atwood et al., 2012) and TAXREV_PERSTAFF, i.e., the corporate tax revenue divided by the full-time permanent employees within the revenue administration as a proxy for the tax enforcement¹⁴ of a country.

4.3.3 Descriptive statistics and correlations

In Table 4.1, I report the descriptive statistics used in my estimation. Moreover, I report the Pearson correlation matrix in Table 4.2.

⁹ 33 firms belong to the manufacturing sector (2-digit SIC codes between 20 and 40); 41 firms are from the transportation and public utilities sector (2-digit SIC codes between 40 and 50); 30 firms belong to the trade sector (2-digit SIC codes between 50 and 60); 31 firms are from the financial services sector (2-digit SIC codes between 60 and 70); and 15 firms are from the service sector (2-digit SIC codes between 70 and 90). Finally, we have 23 firms that cannot be assigned to one of the abovementioned sectors and are classified as “others” (either because only a few firms answered for that category, such as government (1) or aerospace & defense (3), or because the firms answered “other” to the question).

¹⁰ I do not include any measure for the tax rate as the statutory tax rate is already integrated in the complexity index.

¹¹ The GDP per capita in US\$ from 2016 was obtained from The World Bank (2021).

¹² Following Atwood et al. (2012), we code a country territorial if they exempt at least 75% of the dividends from foreign subsidiaries. The data was hand-collected from Ernst & Young (2016) and PwC (2021).

¹³ Following Atwood et al. (2010) we use factor analysis to extract a single significant factor (eigenvalue 2.17) of the country’s legal tradition (common law vs. code law) and the strength of investor rights and ownership concentration developed by La Porta et al. (1998). I hand collect the data regarding the country’s legal tradition from CIA (2021).

¹⁴ We use information on the corporate tax revenue from OECD (2022) in millions from 2016. The information of the number of full-time permanent staff in the revenue administration was collected for 2014/2015 from OECD (2017).

Table 4.1: Descriptive statistics

VARIABLES	(1) N	(2) mean	(3) sd	(4) p25	(5) p50	(6) p75
TCE_INT	173	7.416	11.05	2	4	8
TCE_EXT	173	2.650	6.474	0	0.650	2.500
TCE_TOTAL	173	9.885	15.33	2	4.900	10.94
TAE_INT	173	1.817	2.018	0.600	1	2.150
TAE_EXT	173	0.871	1.727	0	0.250	1
TAE_TOTAL	173	2.639	3.295	0.850	1.667	3.250
COMPLEXITY	173	0.362	0.0321	0.343	0.365	0.378
LISTED	173	0.746	0.437	0	1	1
SIZE_1	173	0.243	0.430	0	0	0
SIZE_2	173	0.335	0.473	0	0	1
SIZE_3	173	0.139	0.347	0	0	0
SIZE_4	173	0.202	0.403	0	0	0
SIZE_5	173	0.0809	0.274	0	0	0
FOREIGN_1	173	0.329	0.471	0	0	1
FOREIGN_2	173	0.347	0.477	0	0	1
FOREIGN_3	173	0.324	0.469	0	0	1
TAXREV_PERSTAFF	173	2.914	4.543	1.171	1.864	3.237
SYSTEM	173	0.231	1.441	-1.274	0.668	1.564
GDP_CAPITA	173	41,955	15,733	38,762	42,322	49,971
WW	173	0.168	0.375	0	0	0

Notes. This table presents the descriptive statistics. TCE_INT is the number of full-time employees responsible for tax compliance within the tax department. TCE_EXT is the amount of external resources used for tax compliance measured in FTE. TCE_TOTAL is the sum of TCE_INT and TCE_EXT. TAE_INT is the number of full-time employees responsible for tax avoidance within the tax department. TAE_EXT is the amount of external resources used for tax avoidance measured in FTE. TAE_TOTAL is the sum of TAE_INT and TAE_EXT. COMPLEXITY measures the complexity of a country's corporate income tax system between 0 (not complex) and 1 (extremely complex). LISTED is a binary variable that equals 1 if the organization is listed on a public stock exchange or on any external public filings and 0 otherwise. SIZE_1 takes the value 1 if the sales of the organization are below US 1 billion and 0 otherwise. SIZE_2 takes the value 1 if the sales of the organization are between US 1 billion and US 5 billion and 0 otherwise. SIZE_3 takes the value 1 if the sales of the organization are between US 5 billion and US 10 billion and 0 otherwise. SIZE_4 takes the value 1 if the sales of the organization are between US 10 billion and US 50 billion and 0 otherwise. SIZE_5 takes the value 1 if the sales of the organization are over US 50 billion and 0 otherwise. FOREIGN_1 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in fewer than 10 countries and 0 otherwise. FOREIGN_2 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in at least 10 countries but in no more than 30 countries and 0 otherwise. FOREIGN_3 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in more than 30 countries and 0 otherwise. TAXREV_PERSTAFF is the corporate tax revenue in millions of USD divided by the full-time permanent employees within the revenue administration per country. SYSTEM is the extracted factor of a factor analysis of the country's legal tradition (common law vs. code law) and the strength of investor rights and ownership concentration. GDP_CAPITA is the GDP per capita. WW takes the value 1 if the country has a worldwide approach and 0 otherwise.

Table 4.2: Pearson Correlation Matrix (173 firms)

	COM- PLEXITY	LISTED	FOR- EIGN_1	FOR- EIGN_2	FOR- EIGN_3	SIZE_1	SIZE_2	SIZE_3	SIZE_4	SIZE_5	TAXREV_PER- STAFF	SYSTEM	GDPperCAPITA	WW
COMPLEXITY	1													
LISTED	-0.130	1												
FOREIGN_1	0.243**	-0.353***	1											
FOREIGN_2	-0.0473	0.230**	-0.511***	1										
FOREIGN_3	-0.196**	0.120	-0.485***	-0.504***	1									
SIZE_1	0.106	-0.134	0.234**	0.0123	-0.248**	1								
SIZE_2	0.0660	-0.119	0.0232	0.0999	-0.125	-0.402***	1							
SIZE_3	0.0574	0.00400	-0.0679	-0.0465	0.115	-0.227**	-0.285***	1						
SIZE_4	-0.194*	0.162*	-0.108	-0.00419	0.113	-0.285***	-0.358***	-0.202**	1					
SIZE_5	-0.0682	0.173*	-0.163*	-0.127	0.293***	-0.168*	-0.211**	-0.119	-0.149*	1				
TAXREV_PER- STAFF	-0.333***	0.0512	-0.0618	0.0322	0.0293	-0.0510	-0.0866	0.229**	-0.0209	-0.0295	1			
SYSTEM	0.0676	0.0556	0.176*	-0.0749	-0.101	0.158*	-0.00701	-0.0432	-0.134	0.0161	-0.156*	1		
GDPperCAP- ITA	-0.428***	-0.0419	-0.159*	-0.00985	0.169*	-0.135	0.0680	0.135	-0.0696	0.0259	0.558***	-0.0393	1	
WW	0.233**	0.120	0.0476	-0.132	0.0864	0.107	-0.0892	0.0437	-0.0334	-0.0197	-0.0758	0.166*	-0.336***	1

Notes. COMPLEXITY measures the complexity of a country's corporate income tax system between 0 (not complex) and 1 (extremely complex). LISTED is a binary variable that equals 1 if the organization is listed on a public stock exchange or on any external public filings and 0 otherwise. FOREIGN_1 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in less than 10 countries and 0 otherwise. FOREIGN_2 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in at least 10 countries but in not more than 30 countries and 0 otherwise. FOREIGN_3 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in more than 30 countries and 0 otherwise. SIZE_1 takes the value 1 if the sales of the organization are below US 1 billion and 0 otherwise. SIZE_2 takes the value 1 if the sales of the organization are between US 1 billion and US 5 billion and 0 otherwise. SIZE_3 takes the value 1 if the sales of the organization are between US 5 billion and US 10 billion and 0 otherwise. SIZE_4 takes the value 1 if the sales of the organization are between US 10 billion and US 50 billion and 0 otherwise. SIZE_5 takes the value 1 if the sales of the organization are over US 50 billion and 0 otherwise. TAXREV_PERSTAFF is the corporate tax revenue in millions of USD divided by the full-time permanent employees within the revenue administration per country. SYSTEM is the extracted factor of a factor analysis of the country's legal tradition (common law vs. code law) and the strength of investor rights and ownership concentration. GDP_CAPITA is the GDP per capita. WW takes the value 1 if the country has a worldwide approach and 0 otherwise. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.

4.3.4 Estimation strategy

To investigate the association¹⁵ of tax complexity and tax compliance, I estimate the following regression model using ordinary least squares:

$$TCE_i = \beta_0 + \beta_1 \text{COMPLEXITY}_i + \beta \text{Controls} + \varepsilon_i, \quad (6)$$

where TCE_i is the tax compliance effort of firm i (either internal, external, or total), COMPLEXITY_i is the countries complexity in the country where firm i is headquartered, Controls is a vector of control variables including firm size, public listing, foreign activities, industry and country characteristics, ε_i is the error term of firm i , and β are the regression coefficients.

To investigate the association of tax complexity and tax avoidance, I estimate the following regression model using ordinary least squares:

$$TAE_i = \beta_0 + \beta_1 \text{COMPLEXITY}_i + \beta \text{Controls} + \varepsilon_i, \quad (7)$$

where TAE_i is tax avoidance effort of firm i , ε_i is the error term of firm i , and β are the regression coefficients.¹⁶

To address residual correlation, we always cluster the robust standard errors by country (Graham et al., 2014; Blaufus et al., 2023).

4.4 Results of the impact of tax complexity on tax compliance and tax avoidance effort

I summarize the results of equation (6) in Table 4.3 for the overall tax compliance effort as well as the external and internal compliance effort.

I find a strong association between tax complexity and the resources allocated to tax compliance. This result is independent of whether I test the effect on internal, external or overall compliance effort. In sum, I find evidence that a higher complexity is associated with higher efforts of tax compliance. The results are in line with the expectation, that complexity increases the compliance costs (Zwick, 2021). However, it is remarkable that prior research often expects a higher noncompliance as the “output” of the firms’ activities. These could be either due to the fact that despite higher compliance efforts, firms still undermine various errors or misinterpretations (Blaufus et al., 2023) or that tax avoidance possibilities outweigh the applied approach.

¹⁵ I am only able to test whether associations between these variables exist, as the cross-sectional data is only available as a level measure.

¹⁶ The variance inflation factor (VIF) is below 3 for all variables except the country controls. This indicates that we do not have multicollinearity in our regression (see also Table 4.2).

Table 4.3: Regression results: Association between tax complexity and tax compliance effort

VARIABLES	(1) TCE_INT	(2) TCE_EXT	(3) TCE_TOTAL
COMPLEXITY	72.92** (30.23)	70.12*** (20.02)	144.7*** (45.02)
LISTED	3.115** (1.278)	0.193 (1.184)	3.239 (2.030)
FOREIGN_2	-1.585 (1.245)	-0.212 (1.086)	-1.627 (2.037)
FOREIGN_3	4.184 (3.343)	4.185** (1.655)	8.482* (4.704)
SIZE_2	1.889* (1.094)	1.287 (1.078)	3.162* (1.790)
SIZE_3	2.986 (2.063)	0.138 (0.708)	2.878 (2.316)
SIZE_4	8.607*** (2.957)	4.308** (2.001)	12.80** (4.583)
SIZE_5	17.56*** (4.929)	0.512 (1.830)	17.78*** (5.806)
TAXREV_PERSTAFF	0.138 (0.141)	0.107 (0.0881)	0.266 (0.205)
SYSTEM	0.00920 (0.518)	-0.403 (0.390)	-0.371 (0.817)
GDP_CAPITA	-5.51e-05 (7.87e-05)	-2.14e-05 (4.27e-05)	-8.17e-05 (0.000114)
WW	-2.505 (2.545)	-2.055 (1.593)	-4.817 (3.862)
CONSTANT	-25.04** (10.83)	-23.65*** (7.003)	-49.22*** (15.98)
Observations	173	173	173
Adjusted R-squared	0.293	0.144	0.258
Industry FE	Yes	Yes	Yes

Notes: This table presents the regression results for equation (6). TCE_INT is the number of full-time employees responsible for tax compliance within the tax department. TCE_EXT is the amount of external resources used for tax compliance measured in FTE. TCE_TOTAL is the sum of TCE_INT and TCE_EXT. COMPLEXITY measures the complexity of a country's corporate income tax system between 0 (not complex) and 1 (extremely complex). LISTED is a binary variable that equals 1 if the organization is listed on a public stock exchange or on any external public filings and 0 otherwise. FOREIGN_1 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in fewer than 10 countries and 0 otherwise. FOREIGN_2 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in at least 10 countries but in no more than 30 countries and 0 otherwise. FOREIGN_3 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in more than 30 countries and 0 otherwise. SIZE_1 takes the value 1 if the sales of the organization are below US 1 billion and 0 otherwise. SIZE_2 takes the value 1 if the sales of the organization are between US 1 billion and US 5 billion and 0 otherwise. SIZE_3 takes the value 1 if the sales of the organization are between US 5 billion and US 10 billion and 0 otherwise. SIZE_4 takes the value 1 if the sales of the organization are between US 10 billion and US 50 billion and 0 otherwise. SIZE_5 takes the value 1 if the sales of the organization are over US 50 billion and 0 otherwise. TAXREV_PERSTAFF is the corporate tax revenue in millions of USD divided by the full-time permanent employees within the revenue administration per country. SYSTEM is the extracted factor of a factor analysis of the country's legal tradition (common law vs. code law) and the strength of investor rights and ownership concentration. GDP_CAPITA is the GDP per capita. WW takes the value 1 if the country has a worldwide approach and 0 otherwise. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Next, I investigate whether tax complexity is associated with the tax avoidance activities. The results are presented in Table 4.4.

Table 4.4: Regression results: Association between tax complexity and tax avoidance effort

VARIABLES	(1) TAE_INT	(2) TAE_EXT	(3) TAE_TOTAL
COMPLEXITY	14.10** (6.273)	11.46** (4.366)	26.55** (10.19)
LISTED	0.626** (0.230)	0.257 (0.364)	0.865 (0.544)
FOREIGN_2	0.00529 (0.207)	-0.0747 (0.335)	0.00870 (0.453)
FOREIGN_3	1.294** (0.609)	0.810 (0.582)	2.108* (1.122)
SIZE_2	0.534* (0.294)	0.00634 (0.271)	0.519 (0.465)
SIZE_3	0.485 (0.438)	0.141 (0.345)	0.548 (0.632)
SIZE_4	1.603*** (0.408)	0.998** (0.406)	2.555*** (0.658)
SIZE_5	2.159** (1.013)	-0.372 (0.709)	1.406 (1.483)
TAXREV_PERSTAFF	0.0181 (0.0299)	0.0465** (0.0208)	0.0713 (0.0473)
SYSTEM	-0.136 (0.0922)	-0.0447 (0.0846)	-0.154 (0.160)
GDP_CAPITA	6.83e-06 (1.53e-05)	-5.50e-06 (1.48e-05)	5.93e-07 (2.96e-05)
WW	-0.0908 (0.494)	-0.459 (0.462)	-0.543 (0.931)
CONSTANT	-5.540** (2.245)	-3.787** (1.405)	-9.654*** (3.435)
Observations	173	173	173
Adjusted R-squared	0.275	0.109	0.197
Industry FE	Yes	Yes	Yes

Notes: This table presents the regression results for equation (7). TAE_INT is the number of full-time employees responsible for tax avoidance within the tax department. TAE_EXT is the amount of external resources used for tax avoidance measured in FTE. TAE_TOTAL is the sum of TAE_INT and TAE_EXT. COMPLEXITY measures the complexity of a country's corporate income tax system between 0 (not complex) and 1 (extremely complex). LISTED is a binary variable that equals 1 if the organization is listed on a public stock exchange or on any external public filings and 0 otherwise. FOREIGN_1 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in fewer than 10 countries and 0 otherwise. FOREIGN_2 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in at least 10 countries but in no more than 30 countries and 0 otherwise. FOREIGN_3 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in more than 30 countries and 0 otherwise. SIZE_1 takes the value 1 if the sales of the organization are below US 1 billion and 0 otherwise. SIZE_2 takes the value 1 if the sales of the organization are between US 1 billion and US 5 billion and 0 otherwise. SIZE_3 takes the value 1 if the sales of the organization are between US 5 billion and US 10 billion and 0 otherwise. SIZE_4 takes the value 1 if the sales of the organization are between US 10 billion and US 50 billion and 0 otherwise. SIZE_5 takes the value 1 if the sales of the organization are over US 50 billion and 0 otherwise. TAXREV_PERSTAFF is the corporate tax revenue in millions of USD divided by the full-time permanent employees within the revenue administration per country. SYSTEM is the extracted factor of a factor analysis of the country's legal tradition (common law vs. code law) and the strength of investor rights and ownership concentration. GDP_CAPITA is the GDP per capita. WW takes the value 1 if the country has a worldwide approach and 0 otherwise. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

I find a significant positive association between tax complexity and tax avoidance effort. The results support hypothesis H2 and suggest that firms respond to increased complexity with more tax avoidance activities. This result could indicate that tax avoidance requires a higher effort in complex countries. However, result could also indicate that firms exploit the high complexity by exploiting gray areas and loopholes (Benzarti and Wallossek, 2024). Therefore, the dynamic development of the law for example with regard to base erosion and profit shifting might provoke the opposite than intended.

4.5 Robustness checks and additional analyses

4.5.1 Robustness checks

To verify my results, I perform a variety of robustness tests. First, I test if the findings depend on my definition of tax compliance activities. Thus, I test the association between tax complexity and every single category of overall compliance resources.

Table 4.5: Regression results: Association between tax complexity and every single activity of tax compliance

VARIABLES	(1) AC- COUNT- ING	(2) SUP- PORT	(3) CONTRO- VERSY	(4) DAY2DAY	(5) RISKMA	(6) TAXADM	(7) COMPLI- ANCE	(8) TECH	(9) TRAIN	(10) TRANS- ACTION
COM- PLEXITY	20.09** (7.394)	22.56* (11.11)	27.80*** (7.216)	11.35 (8.496)	9.138* (4.542)	8.236 (4.939)	24.89*** (7.309)	21.70 (13.12)	7.394 (6.406)	10.77 (7.295)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observa- tions	145	164	168	85	137	167	163	112	126	158
Adjusted R-squared	0.284	0.168	0.201	0.121	0.267	0.146	0.252	0.103	0.005	0.058
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table presents the regression results on every single activity of tax compliance. ACCOUNTING is the number of full-time employees (internally and externally) responsible for accounting for income taxes. SUPPORT is the number of full-time employees (internally and externally) responsible for business unit support and consulting. CONTROVERSY is the number of full-time employees (internally and externally) responsible for controversy and audit defense. DAY2DAY is the number of full-time employees (internally and externally) responsible for day-to-day processing of intercompany transactions. RISKMA is the number of full-time employees (internally and externally) responsible for risk management and governance, Sarbanes Oxley and similar. TAXADM is the number of full-time employees (internally and externally) responsible for tax department administration. COMPLIANCE is the number of full-time employees (internally and externally) responsible for tax returns/compliance. TECH is the number of full-time employees (internally and externally) responsible for tax technology. TRAIN is the number of full-time employees (internally and externally) responsible for training for tax personnel. TRANSACTION is the number of full-time employees (internally and externally) responsible for transaction taxes (VAT, indirect tax, GST, etc.). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

The regression shows that the results are mainly driven by a higher effort for accounting for income taxes, controversy and audit defense as well as compliance for tax returns/compliance. These variables should represent the basic variables of tax compliance so that different definitions of tax compliance should not provoke a different conclusion. However, I repeat my regression on equation (6) excluding the FTE for controversy and audit defense as these activities could also concern the defense of tax avoidance strategies. However, the results are qualitatively unchanged.

Secondly, I test whether my results for equation (7) are dependent on my definition of tax avoidance activities. Therefore, I examine the association between tax complexity and each category of overall tax avoidance resources.

Table 4.6: Regression results: Association between tax complexity and every single activity of tax avoidance

VARIABLES	(1) M&A	(2) RESEARCH	(4) TRANSFER
COMPLEXITY	13.23** (4.934)	3.601 (3.352)	9.120 (7.076)
Controls	Yes	Yes	Yes
Observations	153	154	162
Adjusted R-squared	0.077	0.066	0.176
Industry FE	Yes	Yes	Yes

Notes: This table presents the regression results on every single activity of tax compliance. M&A is the number of full-time employees (internally and externally) responsible for merger, acquisition and restructuring activities. RESEARCH is the number of full-time employees (internally and externally) responsible for research and planning (excluding transfer pricing). TRANSFER is the number of full-time employees (internally and externally) responsible for transfer pricing. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

At first, it may seem surprising that the results are mainly driven by the activities for merger, acquisition and restructuring activities rather than transfer pricing. However, this could indicate that firms faced with higher tax complexity react by shifting actual substance and activities instead of exhausting design options for transfer prices.

Third, I test alternative measures for control variables. Following Blaufus et al. (2023), the number of employees is used to measure firm size and the percentage of foreign to total sales to measure foreign activities (alone and in addition to controlling for sales). The regressions for equation (6) and (7) were repeated, however, the results remain qualitatively unchanged.

Fourth, I examine the effect of outliers using a robust regression (Leone et al., 2019; Powers et al., 2016; Blaufus et al., 2023) for the whole dataset. The results are qualitatively unchanged for tax compliance activities. For tax avoidance activities I do not find a significant association between tax complexity and the external tax avoidance effort. Nevertheless, the results for the internal and the overall resources are qualitatively unchanged.

Fifth, I investigate the effect of tax compliance on the resources allocated to tax compliance and tax avoidance relative to the total FTE (internal and overall). I do not find any association of tax complexity and the relative tax compliance and tax avoidance activities. This result suggests that firms faced by higher complexity do not shift resources but rather need to recruit additional staff for the more complex activities. This could indicate that tax compliance and tax avoidance is simply more time-consuming.

Sixth, Blaufus et al. (2023) test the effects of audit aggressiveness on firms tax avoidance behavior and include tax complexity as a control. In their results tax complexity is either not or negatively associated with tax planning effort. Therefore, I repeated the regression on equation (6) and (7) with the factor of audit aggressiveness from Blaufus et al. (2023) as an additional

control. My results are qualitatively unchanged. Therefore, the divergence seems to result from the measure of tax planning effort relative to the total FTE.

4.5.2 Additional Analyses

In this section, I investigate the impacts of tax complexity on other firm characteristics. As previously shown, it is likely that a high level of tax complexity will provoke increasing compliance costs (Kaplow, 1996). This is particularly true for large international firms, which are subject to a significant number of business transactions and are often affected by many different laws and regulations in different countries. Furthermore, large firms are under constant audit and therefore they need to regularly defeat doubtful positions against the tax authority. This leads to the question if firms respond solely by increasing compliance effort in terms of staffing, either internally or externally, (Grottke and Lorenz, 2017) or whether a higher level of tax complexity also creates a demand for more technology solutions within the tax department (Marcuss et al., 2013).

To address this question, I develop a measure for the need for more tax software based on the following questions with 8 sub-questions displayed in Table 4.7. I interpret the possible answers (“Yes; we have a tool currently and do not plan to change in the next five years”; “Yes; we have a tool currently, but do plan to change it in the next five years”; “Not yet; we do not have a tool in use currently, but plan to in next five years”) as a need or use of tax software and the answers (“Yes for now, but we do not plan to use any software for this in the future”; “No; we do not have a tool in use currently, and do not plan to have one in next five years”) as no need for tax software.

Table 4.7: Measurement of a need for tax software

Question:	(1) N	(2) mean	(3) sd
Do you use the following tax-related software in your tax department, and if so, do you plan to change the software you use now in the next five years? If no, do you plan to use one in the next five years?			
1) Use of off-the-shelf provision systems	173	0.509	0.501
2) Use of document management system	173	0.584	0.494
3) Use of workflow tool	173	0.428	0.496
4) Use of transfer pricing software	173	0.480	0.501
5) Use of tax audit support software	173	0.231	0.423
6) Use of compliance software	173	0.705	0.457
7) Use of global trade software	173	0.208	0.407
8) Use of country-by-country reporting software	173	0.590	0.493

To obtain a measure for the need for tax software, I conduct a confirmatory factor analysis. The assumption is, that all answers depend on a latent variable: the need for digitalization. The firms' answers are only possible to transcript into binary (1/0) questions. The Cronbach's alpha for the eight items is 0.8031 and therefore above the critical value of 0.7 (Brazel and Agoglia, 2007; Castaño et al., 2016), which also indicates one underlying latent construct. Therefore, the item response theory¹⁷ is used, which fits a latent variable to discrete responses (De Jong et al., 2008). I predict the latent factor SOFTWARE.

Furthermore, I develop a second measure for the need for technology changes based on the following questions with 7 sub questions displayed in Table 4.8.

Table 4.8: Measurement of a need for tax technology

Question:	Possible Answers	(1) N	(2) mean	(3) sd
What technology changes do you anticipate in the systems that supply tax information in the next five years?	Significant decrease = 1; Some decrease = 2; Stay the same = 3; Some increase = 4; Significant increase = 5			
1) Overall leverage of enterprise finance IT systems for tax purposes		173	3.925	0.731
2) Use of consolidation system data for tax purposes		173	3.746	0.750
3) Use of tax data warehouse		173	3.642	0.714
4) Investment in tax-specific technologies		173	3.723	0.718
5) Tax sensitization of G/L and other accounts		173	3.578	0.683
6) Tax sensitization of business forecasting systems		173	3.590	0.698
7) Understanding by IT resources of tax data needs		173	3.717	0.767

I use factor analysis to extract a single factor (eigenvalue 3.862 and an explained proportion of 55,17 %). The Kaiser-Meyer-Okin measure of sampling adequacy is 0.87 (Khalil and Sidani, 2022). This suggests again one underlying latent trait that presents "TECHNOLOGY".

I test the association of tax complexity and the need for digitalization by performing an OLS-Regression of COMPLEXITY on the above-mentioned factors for SOFTWARE and TECHNOLOGY. I present the results in Table 4.9.

¹⁷ Following Blaufus et al. (2023), we also conducted an explanatory factor analysis and found a single factor with an Eigenvalue of 3.4157, an explained proportion of 42,70% and a Kaiser-Meyer-Okin measure of sampling adequacy of 0.8159. However, due to the binary data, the factor analysis is not appropriate.

Table 4.9: Regression results: Association between tax complexity and software and technology

VARIABLES	(1) SOFTWARE	(2) TECHNOLOGY
COMPLEXITY	6.519** (2.725)	9.411* (4.940)
LISTED	-0.130 (0.201)	-0.451 (0.468)
FOREIGN_2	0.267* (0.149)	0.730* (0.362)
FOREIGN_3	0.0446 (0.157)	-0.232 (0.314)
SIZE_2	0.0816 (0.178)	0.459 (0.358)
SIZE_3	0.359* (0.183)	0.366 (0.396)
SIZE_4	0.600*** (0.165)	1.265*** (0.390)
SIZE_5	0.725** (0.298)	1.830*** (0.626)
TAXREV_PERSTAFF	0.00715 (0.00913)	0.0115 (0.0271)
SYSTEM	-0.0391 (0.0449)	0.149 (0.0962)
GDP_CAPITA	4.26e-06 (4.39e-06)	-6.19e-06 (1.13e-05)
WW	0.472*** (0.139)	0.678** (0.297)
CONSTANT	-3.085*** (1.029)	-3.914* (2.153)
Observations	173	173
Adjusted R-squared	0.098	0.038
Industry FE	Yes	Yes

Notes: This table presents the results of the regression of tax complexity on tax software and tax technology. SOFTWARE measures the need for tax software (derived by a confirmatory factor analysis for different questions concerning tax software). TECHNOLOGY measures the need for tax technology (derived by explanatory factor analysis for different questions concerning tax technology). COMPLEXITY measures the complexity of a country's corporate income tax system between 0 (not complex) and 1 (extremely complex). LISTED is a binary variable that equals 1 if the organization is listed on a public stock exchange or on any external public filings and 0 otherwise. FOREIGN_1 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in fewer than 10 countries and 0 otherwise. FOREIGN_2 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in at least 10 countries but in no more than 30 countries and 0 otherwise. FOREIGN_3 takes the value 1 if the organization has branches, subsidiaries or other permanent establishments in more than 30 countries and 0 otherwise. SIZE_1 takes the value 1 if the sales of the organization are below US 1 billion and 0 otherwise. SIZE_2 takes the value 1 if the sales of the organization are between US 1 billion and US 5 billion and 0 otherwise. SIZE_3 takes the value 1 if the sales of the organization are between US 5 billion and US 10 billion and 0 otherwise. SIZE_4 takes the value 1 if the sales of the organization are between US 10 billion and US 50 billion and 0 otherwise. SIZE_5 takes the value 1 if the sales of the organization are over US 50 billion and 0 otherwise. TAXREV_PERSTAFF is the corporate tax revenue in millions of USD divided by the full-time permanent employees within the revenue administration per country. SYSTEM is the extracted factor of a factor analysis of the country's legal tradition (common law vs. code law) and the strength of investor rights and ownership concentration. GDP_CAPITA is the GDP per capita. WW takes the value 1 if the country has a worldwide approach and 0 otherwise. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

I find a positive association of COMPLEXITY with the need for tax software and tax technology. These findings support the results of Marcuss et al. (2013), that complexity is mitigated by the application of technology. This raises interesting questions what influences software and technology solutions will cause on tax compliance and tax avoidance. In addition, the question arises, how the tax authorities will respond to digital solutions and (for example) AI proposals of tax avoidance (evasion). Unfortunately, the technology aspects of firms are difficult to measure and generally require confidential information.

4.6 Discussion

With a unique dataset of multinational firms from different countries, I investigate the association of tax complexity with the tax compliance and the avoidance activities. In line with my expectations, I find that a greater tax complexity is associated with a higher tax compliance effort and further with increased tax avoidance activities. First of all, these results suggest that both tax compliance as well as tax avoidance activities demand a higher effort. This could suggest that the measured noncompliance in prior research (Milliron, 1985; Richardson, 2006; Benzarti and Wallossek, 2024; Cox and Eger, 2006) “as the output” of firms’ activities is not the result of unconscious misinterpretation of the law, but rather the result of higher tax avoidance activities and therefore firms might consciously exploit avoiding possibilities arising from complexity. However, the higher tax avoidance effort could also be based on the fact that the same tax avoidance level is more costly in complex scenarios.

Furthermore, the robustness checks indicate that the higher tax avoidance activities result mainly from increased activities with regard to merger, acquisition and restructuring. This could further suggest that business activities and profits are relocated in case of a high complexity. This interpretation is consistent with another part of the literature, that find a strong impact of tax complexity on foreign investments (Esteller-More et al., 2021). These findings supplement prior literature, highlighting the need for policymakers to consider taxpayers’ possible responses to increased complexity when adjusting tax law if they want to achieve the intended objectives.

Finally, I was able to identify that high tax complexity is associated with an increased need for digitalization. This raises interesting questions about the influence that software and technology solutions will have on tax compliance and tax avoidance in the future.

My study is subject to some limitations, that should be taken into account when interpreting the results. First, the cross-sectional data only provides a limited insight if firms actually respond or how their behavior changes over time. Second, my dataset of firms and countries is rather small and therefore the results should be treated with caution. Furthermore, the observations per country are low. Third, the survey respondents only answered questions about the FTE engaged with firms’ tax compliance and tax avoidance activities. We cannot include any information about the actual ability of the personnel employed, which might also alter the results. Fourth, we are only able to include the complexity of the country, where the head quarter is located. It is possible, that the tax compliance and tax avoidance effort also depend on the complexity of other countries in which significant business activities are located. However, I would assume that strategic decisions regarding tax avoidance are performed in the head-quarter.

4.7 Appendix: Survey Instrument (Extract)

General questions on your organization's size and structure

Q1. Please indicate your organization's primary industry:

- Aerospace & Defense
- Automotive Manufacturers and suppliers
- Asset Management
- Banking and Financial Services
- Chemistry & Pharmacy
- Energy, Power & Utilities
- Food, drink, retail and consumer products
- Government
- Healthcare, life sciences & pharmaceuticals
- Insurance
- Manufacturing
- Media and Entertainment
- Private Equity
- Real Estate
- Technology and Telecommunications
- Trade, Transport & Tourism
- Other

Q2. What is the location of your headquarters?

Q3. What bracket does the sales revenue/turnover of your organization fall into?

- < US 1 billion
- US 1 billion – US 5 billion
- US 5 billion – US 10 billion
- US 10 billion – US 50 billion
- > US 50 billion

Q3a. Broken down by

National territory: %

Foreign countries: %

Q4. How many employees are working for your organization?

- < 1,000 employees
- 1,000–10,000 employees
- 10,000–50,000 employees
- > 50,000 employees

Q5. In how many countries does your organization have branches, subsidiaries or other permanent establishments?

- < 10 countries
- 10–20 countries
- 20–30 countries
- 30–50 countries
- 50–100 countries
- > 100 countries

Q6. Is your organization listed on a public stock exchange or on any external public filings?

- Yes
- No

Responsibilities and duties of the central tax department

Q7. How are tax department resources allocated by full-time employees (FTEs) to the following functions? (Total number should equal total number of FTEs within your tax department)

	# of FTEs at tax department headquarters location
Accounting for income taxes	
Business unit support and consulting	
Controversy and audit defense (Income Taxes)	
Day-to-day processing of intercompany transactions	
Merger, acquisition and restructuring activities	
Research and planning, excluding transfer pricing	
Risk management and governance, Sarbanes Oxley and similar	
Tax department administration	
Tax returns/compliance	
Tax technology	
Training for tax personnel	
Transaction taxes (VAT, Indirect Tax, GST, etc.)	
Transfer pricing	
Total FTEs	

Q8. For each of the following core tax functions, please indicate in whole numbers the estimated percentage (%) that is performed:

- a) by the tax department
- b) elsewhere in the organization
- c) by an external provider
- d) not relevant to your organization

(Please provide an approximate percentage for each, ensuring each line adds up to 100%, or tick "Not applicable for my organization".)

	Performed by tax department	Performed by organization but not by tax department	Performed by tax service providers	Not applicable for my organization	Total
Accounting for income taxes				<input type="checkbox"/>	
Business unit support and consulting				<input type="checkbox"/>	
Controversy and audit defense (Income Taxes)				<input type="checkbox"/>	
Day-to-day processing of inter-company transactions				<input type="checkbox"/>	
Merger, acquisition and restructuring activities				<input type="checkbox"/>	
Research and planning, excluding transfer pricing				<input type="checkbox"/>	
Risk management and governance, Sarbanes Oxley and similar				<input type="checkbox"/>	
Tax department administration				<input type="checkbox"/>	
Tax returns/compliance				<input type="checkbox"/>	
Tax technology				<input type="checkbox"/>	
Training for tax personnel				<input type="checkbox"/>	
Transaction taxes (VAT, Indirect Tax, GST, etc.)				<input type="checkbox"/>	
Transfer pricing				<input type="checkbox"/>	
Other				<input type="checkbox"/>	

Q9. Do you use the following tax-related software in your tax department, and if so, do you plan to change the software you use now in the next five years? If no, do you plan to use one in the next five years?

	Yes; we have a tool currently and do not plan to change in the next five years (1)	Yes; we have a tool currently, but do plan to change it in the next five years (2)	Yes for now, but we do not plan to use any software for this in the future (3)	Not yet; we do not have a tool in use currently, but plan to in next five years (4)	No; we do not have a tool in use currently, and do not plan to have one in next five years (5)
Use of off-the-shelf provision systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of document management system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of workflow tool	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of transfer pricing software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of tax audit support software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of compliance software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of global trade software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of country-by-country reporting software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q10. What technology changes do you anticipate in the systems that supply tax information in the next five years?

	Significant increase (1)	Some increase (2)	Stay the same (3)	Some decrease (4)	Significant decrease (5)
Overall leverage of enterprise finance IT systems for tax purposes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of consolidation system data for tax purposes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of tax data warehouse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Investment in tax-specific technologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tax sensitization of G/L and other accounts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tax sensitization of business forecasting systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Understanding by IT resources of tax data needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bibliography

- Advani, A./Elming, W./Shaw, J. (2023): The dynamic effects of tax audits, in: *Review of Economics and Statistics* 105(3), S. 545–561.
- Aghion, P./Akçigit, U./Gravouelle, M./Lequien, M./Stantcheva, S. (2023): Tax simplicity or simplicity of evasion? Evidence from self-employment taxes in France. https://poid.lse.ac.uk/textonly/publications/downloads/poidwp050_updated_may2023.pdf (accessed: 08.02.2024).
- Allingham, M. G./Sandmo, A. (1972): Income tax evasion: A theoretical analysis, in: *Journal of Public Economics* 1(3-4), S. 323–338.
- Alm, J./Jackson, B./McKee, M. (1992): Institutional uncertainty and taxpayer compliance, in: *American Economic Review* 82(4), S. 1018–1026.
- Amberger, H./Gallemore, J./Wilde, J. H. (2023): Corporate Tax System Complexity and Investment. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4607146 (accessed: 07.02.2024).
- Atwood, T. J./Drake, M. S./Myers, J. N./Myers, L. A. (2012): Home country tax system characteristics and corporate tax avoidance: International evidence, in: *The Accounting Review* 87(6), S. 1831–1860.
- Atwood, T. J./Drake, M. S./Myers, L. A. (2010): Book-tax conformity, earnings persistence and the association between earnings and future cash flows, in: *Journal of Accounting and Economics* 50(1), S. 111–125.
- Austin, C. R./Wilson, R. J. (2017): An examination of reputational costs and tax avoidance: evidence from firms with valuable consumer brands, in: *The Journal of the American Taxation Association* 39(1), S. 67–93.
- Benzarti, Y./Wallossek, L. (2024): Rising Income Tax Complexity, in: *National Tax Journal* 77(1), forthcoming.
- Blaufus, K./Bob, J./Otto, P. E./Wolf, N. (2017): The effect of tax privacy on tax compliance – An experimental investigation, in: *European Accounting Review* 26(3), S. 561–580.
- Blaufus, K./Möhlmann, A./Schwäbe, A. N. (2019): Stock price reactions to news about corporate tax avoidance and evasion, in: *Journal of Economic Psychology* 72, S. 278–292.
- Blaufus, K./Reineke, J./Trenn, I. (2023): Perceived tax audit aggressiveness, tax control frameworks and tax planning: an empirical analysis, in: *Journal of Business Economics* 93(3), S. 509–557.

- Borrego, A. C./Lopes, C. M./Ferreira, C. M. (2016): Tax complexity indices and their relation with tax noncompliance: Empirical evidence from the Portuguese tax professionals, in: *Tékhnē* 14(1), S. 20–30.
- Brazel, J. F./Agoglia, C. P. (2007): An examination of auditor planning judgements in a complex accounting information system environment, in: *Contemporary Accounting Research* 24(4), S. 1059–1083.
- Castaño, M. S./Méndez, M. T./Galindo, M. Á. (2016): The effect of public policies on entrepreneurial activity and economic growth, in: *Journal of Business Research* 69(11), S. 5280–5285.
- CIA (2021): The World Factbook. <https://www.cia.gov/the-world-factbook/field/legal-system/> (accessed: 17.10.2021).
- Cox, S. P./Eger, R. J. (2006): Procedural complexity of tax administration: The road fund case, in: *Journal of Public Budgeting, Accounting & Financial Management* 18(3), S. 259–283.
- De Jong, M. G./Steenkamp, J.-B. E. M./Fox, J.-P./Baumgartner, H. (2008): Using item response theory to measure extreme response style in marketing research: A global investigation, in: *Journal of Marketing Research* 45(1), S. 104–115.
- DeBacker, J./Heim, B. T./Tran, A. (2015): Importing corruption culture from overseas: Evidence from corporate tax evasion in the United States, in: *Journal of Financial Economics* 117(1), S. 122–138.
- Dyreng, S. D./Hanlon, M./Maydew, E. L. (2008): Long-run corporate tax avoidance, in: *The Accounting Review* 83(1), S. 61–82.
- Dyreng, S. D./Hoopes, J. L./Wilde, J. H. (2016): Public pressure and corporate tax behavior, in: *Journal of Accounting Research* 54(1), S. 147–186.
- Edward Troup (2023): The Office of Tax Simplification. https://www.instituteforgovernment.org.uk/sites/default/files/2023-04/office-tax-simplification_0.pdf (accessed: 29.01.2024).
- Ernst & Young (2016): Worldwide Corporate Tax Guide. https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/tax/guides/ey-worldwide-corporate-tax-guide-2016.pdf (accessed: 06.02.2024).
- Esteller-More, A./Rizzo, L./Secomandi, R. (2021): The role of tax system complexity on foreign direct investment, in: *Applied Economics* 53(45), S. 5208–5220.
- Feldman, N. E./Katuščák, P./Kawano, L. (2016): Taxpayer confusion: Evidence from the child tax credit, in: *American Economic Review* 106(3), S. 807–835.

- Feller, A./Schanz, D. (2017): The three hurdles of tax planning: How business context, aims of tax planning, and tax manager power affect tax expense, in: *Contemporary Accounting Research* 34(1), S. 494–524.
- Financial Times (2016): Panama Papers leak highlights global elite’s use of tax havens. <https://www.ft.com/content/549c1e96-f9e7-11e5-8f41-df5bda8beb40> (accessed: 10.02.2024).
- Gallemore, J./Labro, E. (2015): The importance of the internal information environment for tax avoidance, in: *Journal of Accounting and Economics* 60(1), S. 149–167.
- Gallemore, J./Maydew, E. L./Thornock, J. R. (2014): The reputational costs of tax avoidance, in: *Contemporary Accounting Research* 31(4), S. 1103–1133.
- Goslinga, S./Siglé, M./Veldhuizen, R. (2019): Cooperative Compliance, Tax Control Frameworks and Perceived Certainty About the Tax Position in Large Organisations, in: *Journal of Tax Administration* 5(1).
- Graham, J. R./Hanlon, M./Shevlin, T./Shroff, N. (2014): Incentives for tax planning and avoidance: evidence from the field, in: *The Accounting Review* 89(3), S. 991–1023.
- Grottke, M./Lorenz, J. (2017): Tax consultants' incentives: A game-theoretic investigation into the behavior of tax consultants, taxpayers, and the tax authority in a setting of tax complexity. <https://www.econstor.eu/bitstream/10419/179479/1/1023395525.pdf> (accessed: 08.02.2024).
- Hoopes, J. L./Mescall, D./Pittman, J. A. (2012): Do IRS audits deter corporate tax avoidance?, in: *The Accounting Review* 87(5), S. 1603–1639.
- Hoppe, T./Schanz, D./Sturm, S./Sureth-Sloane, C. (2018): What are the drivers of tax complexity for MNCs? Global evidence, in: *Intertax* 46(8/9), S. 654–675.
- Hoppe, T./Schanz, D./Sturm, S./Sureth-Sloane, C. (2023): The tax complexity index—a survey-based country measure of tax code and framework complexity, in: *European Accounting Review* 32(2), S. 239–273.
- Huizinga, H./Laeven, L. (2008): International profit shifting within multinationals: A multi-country perspective, in: *Journal of Public Economics* 92(5-6), S. 1164–1182.
- Kanagaretnam, K./Lee, J./Lim, C. Y./Lobo, G. (2018): Societal trust and corporate tax avoidance, in: *Review of Accounting Studies* 23(4), S. 1588–1628.
- Kaplow, L. (1996): How tax complexity and enforcement affect the equity and efficiency of the income tax, in: *National Tax Journal* 49(1), S. 135–150.

- Khalil, S./Sidani, Y. (2022): Personality traits, religiosity, income, and tax evasion attitudes: An exploratory study in Lebanon, in: *Journal of International Accounting, Auditing and Taxation* 47, S. 100469.
- KPMG (2016): A look inside tax departments worldwide and how they are evolving. <https://assets.kpmg/content/dam/kpmg/xx/pdf/2016/11/global-tax-benchmarking-survey.pdf> (accessed: 17.10.2020).
- Krause, K. (2000): Tax complexity: Problem or opportunity?, in: *Public Finance Review* 28(5), S. 395–414.
- Kubick, T. R./Lynch, D. P./Mayberry, M. A./Omer, T. C. (2016): The effects of regulatory scrutiny on tax avoidance: An examination of SEC comment letters, in: *The Accounting Review* 91(6), S. 1751–1780.
- La Porta, R./Lopez-de-Silanes, F./Shleifer, A./Vishny, R. W. (1998): Law and finance, in: *Journal of Political Economy* 106(6), S. 1113–1155.
- Leone, A. J./Minutti-Meza, M./Wasley, C. E. (2019): Influential observations and inference in accounting research, in: *The Accounting Review* 94(6), S. 337–364.
- Marcuss, R./Contos, G./Guyton, J./Langetieg, P./Lerman, A./Nelson, S./Schafer, B./Vigil, M. (2013): Income taxes and compliance costs: How are they related?, in: *National Tax Journal* 66(4), S. 833–853.
- Milliron, V. C. (1985): A behavioral study of the meaning and influence of tax complexity, in: *Journal of Accounting Research*, S. 794–816.
- O'Donnell, E./Koch, B./Boone, J. (2005): The influence of domain knowledge and task complexity on tax professionals' compliance recommendations, in: *Accounting, Organizations and Society* 30(2), S. 145–165.
- OECD (2013): Action Plane on Base Erosion and Profit Shifting, OECD Publishing.
- OECD (2017): Tax Administration 2017, OECD Publishing.
- OECD (2022): Corporate tax revenues (indicator). https://stats.oecd.org/Index.aspx?DataSetCode=CTS_REV# (accessed: 13.06.2022).
- OECD (2023): OECD/G20 Inclusive Framework on BEPS - Progress report September 2022 - September 2023, OECD Publishing.
- Office of Tax Simplification (2022): Review of simplification: Approach and Interpretation. <https://www.gov.uk/government/publications/ots-review-of-tax-simplification/review-of-simplification-approach-and-interpretation> (accessed: 29.01.2024).

- Powers, K./Robinson, J. R./Stomberg, B. (2016): How do CEO incentives affect corporate tax planning and financial reporting of income taxes?, in: *Review of Accounting Studies* 21(2), S. 672–710.
- PwC (2021): Worldwide tax summaries. <https://www.pwc.com/gx/en/services/tax/worldwide-tax-summaries.html> (accessed: 01.06.2021).
- Rego, S. O. (2003): Tax-avoidance activities of US multinational corporations, in: *Contemporary Accounting Research* 20(4), S. 805–833.
- Richardson, G. (2006): Determinants of tax evasion: A cross-country investigation, in: *Journal of International Accounting, Auditing and Taxation* 15(2), S. 150–169.
- Richardson, M./Sawyer, A. (1997): Complexity in the Expression of New Zealand's Tax Laws: An Empirical Analysis, in: *Australian Tax Forum* 14, S. 325.
- Scotchmer, S. (1989): Who profits from taxpayer confusion?, in: *Economics Letters* 29(1), S. 49–55.
- Slemrod, J. (2005): The etiology of tax complexity: Evidence from US state income tax systems, in: *Public Finance Review* 33(3), S. 279–299.
- Slemrod, J./Blumenthal, M./Christian, C. (2001): Taxpayer response to an increased probability of audit: evidence from a controlled experiment in Minnesota, in: *Journal of Public Economics* 79(3), S. 455–483.
- The New York Times (2012): How Apple Sidesteps Billions in Taxes. <https://www.nytimes.com/2012/04/29/business/apples-tax-strategy-aims-at-low-tax-states-and-nations.html> (accessed: 10.02.2024).
- The New York Times (2017): How Corporations and the Wealthy Avoid Taxes (and How to Stop Them). <https://www.nytimes.com/interactive/2017/11/10/opinion/gabriel-zucman-paradise-papers-tax-evasion.html> (accessed: 10.02.2024).
- The World Bank (2021): GDP per capita in USD. <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD> (accessed: 16.10.2021).
- Thomsen, M./Watrin, C. (2018): Tax avoidance over time: A comparison of European and US firms, in: *Journal of International Accounting, Auditing and Taxation* 33, S. 40–63.
- Zwick, E. (2021): The costs of corporate tax complexity, in: *American Economic Journal: Economic Policy* 13(2), S. 467–500.