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How will the court decide? -

Tax experts and the estimation of tax risk

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Abstract Tax accounting and tax law concern the probability thresholds that can require the taxpayer to estimate the likelihood that a tax position would be upheld by a court. Tax complexity and the consequent ambiguity results in a reliance by most taxpayers on a tax expert estimate of this likelihood. This study examines whether the tax experts are able to accurately forecast the outcome of tax court decisions and compares tax expert predictions to those of laymen. Our results reveal no significant differences with respect to the forecasting performance of professional tax advisors and laymen. Moreover, the tax advisors exhibit a significantly higher level of overconfidence compared to laymen and the degree of overconfidence increases with professional experience. A comparison of two groups of tax experts, tax advisors and revenue agents demonstrates that the tax advisors exhibit the highest level of overconfidence and form stronger appeal recommendations that indicate a type of “advisor bias”.

Keywords tax risk · overconfidence · client advocacy · tax controversy · forecasting

JEL classification M40 · K20 · H20

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1 Introduction

Accounting standards often refer to probability expressions to define recognition thresholds (Simon 2002). With respect to tax accounting, the Financial Accounting Standards Board's Accounting Standard Codification 740 (FASB ASC 740) prescribes the recognition of uncertain income tax benefits if the tax position is more than 50 percent likely to be sustained by the court of last resort (Mills et al. 2010). The "more likely than not" standard also applies to firms that prepare their statements according to International Financial Reporting Standards (IAS 12). Thus, the recording of uncertain tax positions requires accountants and auditors to predict the likelihood that a tax court would not strike down the position.

Moreover, in certain countries, particularly in the United States, civil tax penalties depend on the likelihood that the taxpayer will prevail in a tax dispute. According to U.S. law, taxpayers who substantially underpay taxes are subject to a "substantial understatement penalty" that amounts to 20 % of the underpayment. However, taxpayers can avoid the penalty if they have "substantial authority" for the tax treatment (meaning a 35 to 40 % chance of success) or if they disclose the position on the tax return and form their decision based on "a reasonable basis", i.e., they should have a 10 to 25 % chance of success (Lawsky 2009). Similar to the correct application of accounting rules, taxpayers must forecast the outcome of a hypothetical tax court decision to avoid tax penalties.

Despite several proposals to simplify tax law (e.g., Schanz and Schanz 2010), it remains complex and ambiguous. Therefore, many taxpayers rely on tax expert judgment for advice concerning the likelihood that a tax position is sustainable in a future tax dispute. In practice, tax advisors often provide their clients with a written opinion to demonstrate that the client has the requisite level of belief in the justification of the tax position (Lawsky 2009). These opinions are used for tax accounting purposes; however, tax law also permits taxpayers to rely on the tax expert's advice to avoid penalties (Ayres et al. 1989).

The standard setters, legislators, and taxpayers are confident that tax experts are able to predict the outcome of tax court decisions. Even the insurance companies that offer legal expenses insurance or tax risk insurance contracts usually rely on tax expert judgment (Logue 2005). However, to the best of our knowledge no study exists that investigates whether tax experts are able to predict tax court decisions accurately, or at least more accurately than non-experts. This paper aims to fill this research gap by studying the prediction performance of tax experts and laymen.

It is reasonable to rely on expert judgment because experts possess superior tax knowledge. However, the previous prediction studies on Supreme Court decisions (Ruger et al. 2004) or stock price developments (Torngren and Montgomery 2004) cast doubt on the validity of this assumption. Moreover, the previous research has demonstrated that experts are subject to behavioral biases, such as anchoring (Andersson and Hellman 2007), client advocacy (Bobek et al. 2010), and overconfidence (Hilary and Hsu 2011, Samelson and Jeffrey 2000), and these could negatively affect the prediction performance.

To study whether experts are able to accurately predict the outcome of tax court decisions, we conducted an online survey among experts and laymen. A total of 700 tax experts (tax advisors and revenue agents) and 400 laymen (students) participated in this survey. The participant task was to

forecast the outcome of five cases that were pending at the German Federal Tax Court at the time the survey was conducted. Our results reveal almost no significant differences in the forecasting performance between the experts and the laymen. We demonstrate that tax court decisions are unpredictable events. This, however, questions the appropriateness of rules that render the treatment of accounting practices, or even taxpayer penalties, dependent on the prediction of these decisions. Moreover, the results of this study are relevant for firms that must decide whether to appeal a decision by the revenue service. The decision to appeal is a costly investment decision. Firms should be aware that tax court decisions are unpredictable and that a reliance on experts does not reduce this uncertainty.

Furthermore, we demonstrate that both experts and laymen perceive a higher personal performance level than they actually achieve. Tax advisor overconfidence is, however, significantly greater than that of laymen and revenue agents and increases with professional experience. Additionally, we provide evidence that the strength of the tax advisor recommendation to appeal against a negative local tax court decision is greater than that of revenue agents, although we control for the estimated chance of success. Both findings, the higher overconfidence of tax advisors compared to revenue agents in addition to the difference between these two groups of tax professionals with respect to recommendation decisions imply a type of “advisor bias” that has, to our knowledge, not been reported in the current research.

The remainder of this paper is organized as follows. Section 2 describes the institutional background with respect to German tax jurisdiction and the conditions for tax advisory services in Germany. Section 3 provides a brief literature review and derives our research hypotheses. Section 4 gives an overview of the survey instrument and the sample. The results of the empirical analysis are provided and discussed in section 5, and section 6 presents the conclusions.

2 Institutional background

The market for tax advisory services is highly regulated in Germany. Tax advisory services can only be rendered by certified tax advisors, called *Steuerberater*, lawyers, and Certified Public Accountants. The majority of tax advisory services are provided by *Steuerberater*. To obtain the credentials of *Steuerberater*, an individual must pass a specific state examination. The permit that is required to undertake the state examination demands an appropriate graduate degree, e.g., in economics or law, followed by a two to three years of practical work in the tax field. The state examination consists of three written exams, each lasting approximately six hours and an oral examination. The pass rate is approximately 40 to 60 %. In 2012, there were approximately 80.000 registered *Steuerberater* in Germany. After successfully passing the exam, *Steuerberater* are subject to professional supervision by the Federal Chamber of Tax Advisors and are bounded by certain professional standards such as discretion or conscientiousness. *Steuerberater* are client advocates and, therefore, must act in their client’s interest. However, they are also committed to the general welfare of the community and must ensure the correct application of tax law.

In court, *Steuerberater* are entitled to represent their clients in all tax-related law suits and render tax controversy services. They therefore possess the same authorization as attorneys at law. Tax-related law suits are litigated at the local tax court. Taxpayers may pursue the legal disputes themselves; however, this is rarely the case. At the Federal Tax Court stage of appeal, taxpayers must

be represented by an attorney at law or *Steuerberater*. Additionally, the filing of suits at the Federal Tax Court has to be conducted by an attorney at law or *Steuerberater*.

With respect to tax controversy services, the *Steuerberater's* "opponent" is the revenue agent. After three years of university-like education, the public servants typically work for three to six years with the fiscal authorities at local tax offices auditing tax revenues. They are then able to qualify as revenue agents. The decision for the respective appointment is based on internal criteria. Revenue agents can be considered tax experts similar to *Steuerberater*. The revenue agents audit taxpayer accounts and factual circumstances in companies. In the context of law suits, revenue agents advise the litigation department of the respective local tax office. This is the case for law suits at the local tax court and the Federal Tax Court.

To process an appeal at the Federal Tax Court, there must be a reason for an appeal against the decision of the local tax court. In addition to procedural flaws, only two reasons for an appeal are codified in Sec. 115 of the German Tax Court Code. Therefore, an appeal on points of law is only to be admitted if:

1. The legal matter is of fundamental significance, or
2. The further development of the law, or the interest in ensuring uniform adjudication, requires a decision to be handed down by the court hearing the appeal on points of law.

The appeal must be admitted based on the decision of the local tax court. If the local tax court has not admitted an appeal, it may also be admitted by the Federal Tax Court in a separate proceeding called *Nichtzulassungsbeschwerde*. These proceedings will not be addressed in the following sections. The decisions of the Federal Tax Court are generally irrevocable and an appeal against the decision is not possible.

An appeal against a decision of the local tax court can be lodged by the taxpayer in addition to the local tax office, depending on who was the unsuccessful party. If both parties of a lawsuit were partly (un)successful, both can lodge an appeal at the same time. In 2012, 628 appeals were lodged at the Federal Fiscal Court. Approximately 60 % of the proceedings were lodged by taxpayers. With respect to these appeals, approximately 40 % were decided in the taxpayer's favor. In the context of tax controversy services, *Steuerberater* are requested by their clients to estimate the chances of success with respect to potential appeals.

3 Literature Review and Research Hypotheses

Accounting and forecasting are closely linked (Penman 2010). Previous accounting research, however, has focused on the usefulness of accounting information with respect to predictions. Several studies examine analyst forecast performance (Glaum et al 2013) and management forecast performance (Rogers and Van Buskirk 2013); however, accounting requires that the accountant conduct several forecasts because the recognition and measurement criteria are usually defined with respect to future events.

The application of accounting standards with respect to tax accounting requires that the accountant estimate the probability that a tax position will be upheld by the court of last resort (Mills et al. 2010). The accountant, therefore, must predict the future or, specifically, the accountant must predict what a court would do in the future if it were to review the tax position (Lawsky 2009).

To our knowledge, no previous accounting study has examined this issue. We, therefore, extend previous forecasting research in accounting by investigating whether tax experts are able to predict the outcome of tax court decisions. Despite the practical relevance, the expert prediction performance with respect to court decisions has rarely been examined in previous research. Goodman-Delahunty et al. (2010) study lawyer litigation forecasts. The lawyers were asked to define ex ante a minimum goal for the case outcome and to estimate the probability of meeting this goal. The findings demonstrate that lawyers are overconfident in their predictions and that overconfidence does not diminish with years of legal experience. Ruger et al. (2004) compare a simple statistical model that relies on six general case characteristics with respect to the predictions by legal specialists. They find that the statistical model clearly outperforms the experts' predictions concerning US Supreme Court decisions. This is consistent with psychological research that demonstrates that simple statistical models conduct equal or even superior predictions than experts (Grove and Meehl 1996). However, Clement et al. (2007), in addition to other studies, find that experience increases forecast accuracy. In a review of forecasting research, Lawrence et al. (2006: 511) conclude the following: "We need to know more about the performance of experts in forecasting since different studies have yielded contradictory findings about the value of expertise." This research first examines therefore whether tax expert forecasting performance is superior to that of laymen. To address this issue we will test the following hypothesis:

H1: Tax expertise increases forecasting performance.

Whereas our first research topic examines whether experts are able to predict the outcome of tax court decisions, our second topic examines whether tax experts perceive that they are able to predict tax court decisions accurately. This issue relates to the strand of literature that studies overconfidence in individual judgment and decision making. Overconfidence refers to a behavioral bias by individuals who describes a tendency to systematically overestimate their own abilities or the precision of their knowledge. Overconfidence can lead to suboptimal decisions by investors and managers. Previous accounting research demonstrates, for example, that manager overconfidence affects financial reporting behavior (Ahmed and Duellmann 2013, Schrand and Zechman 2012) in addition to the going concern predictions of auditors (Simnett 1996). Consistent with previous research, we expect both laymen and experts to be overconfident.

H2: Tax experts and laymen are overconfident with respect to their forecasting performance.

A significant issue is whether behavioral biases disappear or at least diminish through learning by experience. This is assumed in theoretical models such as Gervais and Odean (2001). However, the previous comparisons between professional and laymen overconfidence have provided conflicting results (Glaser et al. 2012, Menkhoff et al. 2013). The relationship between overconfidence and expertise is unclear. One reason why laymen might be less overconfident is because they are lacking tax knowledge and perceive the forecasting task to be a random choice and, therefore, acknowledge that they only guess. Contrastingly, we expect the tax experts to rationalize their decisions in the context of their tax knowledge and to neglect that tax court decisions may be unpredictable events. Davis et al. (1994) find that more information, even if redundant, increases overconfidence. Thus, the perceived information advantage might increase tax expert overconfidence. In summary, while learning effects could explain a lower level of overconfidence among experts, the expert perceived information advantage could explain a higher degree of expert overconfidence compared to laymen. Which effect is dominant is an empirical issue. Our third hypothesis is, therefore, non-directional.

H3: Tax experts and laymen differ in their degree of overconfidence.

Our last topic addresses the potential impact of a “taxpayer advocacy bias” on tax professional recommendation decisions concerning an appeal to the Federal Tax Court. The tax advisors must balance a desire to act in the client's interest with the necessity to follow professional standards and manage the risk associated with making inappropriate recommendations (Kadous et al. 2008). The previous research finds that tax law ambiguity encourages tax advisors to adopt a favorable position for their clients (Davis and Mason 2003; Ayers et al. 1989) and to overweight evidence that supports a client's aggressive tax position (Bobek et al. 2010; Cuccia et al. 1995). We therefore expect that case outcome predictions and the resulting recommendation decisions of tax advisors are biased towards the presumed client's interest. Thus, the predictions, in addition to the recommendation decisions with respect to an appeal between tax advisors and revenue agents, should differ as a result of the differing levels of taxpayer advocacy.

H4: The probability of a pro-taxpayer forecast, in addition to the strength of a recommendation to appeal against a contra-taxpayer decision, increases if the tax expert is a tax advisor.

4 The Survey Instrument and Sample

The data were collected via an online survey from June to September 2010. The questionnaire was composed of five cases. All questions were single choice. Four of the questions included two possible answers (yes/no), whereas one case included an additional third possible answer (yes/partly/no). The five cases that were assessed in the questionnaire can be described as follows: the first case concerned an appraisal by the court as to whether a Swiss talk show host was a resident or possessed a habitual abode in Germany. One of the criteria has to be satisfied to result in an unlimited tax liability in Germany. The Swiss plaintiff had used a long-term rented hotel room for several weeks, typically from Monday to Thursday. The second case concerned a hair salon that had issued Christmas coupons granting a one-time rebate on any service. The plaintiff wanted to establish a provision for the year that the coupons were issued. The third case concerned a judgment by the court as to the useful lifespan of wind power stations. The plaintiff pled for depreciation over a 12-year-period – in accordance with the relevant depreciation tables of the German tax authorities. Contrastingly, the tax authorities referred to the business concept of the plaintiff and considered an amortization within 20 years as appropriate. The fourth case concerned the assessment of the deductibility of the cost of a sailing trip. The fifth case concerned the examination by the court as to whether the tax authorities could tax the (fictitious) private use of a Porsche 911 by a law firm (partnership) partner, if the partners have comparable private cars. All of the cases are outlined in detail in the Appendix.

The structure of the questionnaire was the following: first, the respective case was outlined. The necessary extracts of the tax law were provided. Second, the subjects were asked to predict how the court would decide. Third, to obtain a more precise prediction, subjects were asked to declare the likelihood of one of the possible court decisions. Fourth, assuming that the local tax court decided in favor of the revenue office, the subjects were asked whether they would recommend an appeal against the decision. Finally, the subjects were asked whether their recommendation was based on experience, guesswork, or was based on research. Subsequent to predicting the last case, the subjects were asked to estimate the number of decisions they thought they had predicted correctly. Moreover, subjects had to state how many decisions they believed a laymen and an expert would

predict correctly. Additionally, subjects had to answer certain demographic questions with respect to gender, their professional experience or the duration of their study.

The tax advisors were contacted with the help of chambers of tax advisors. The revenue agents were recruited with the support of the local revenue service in Berlin, Germany. All of the students attended the European University Viadrina in Frankfurt (Oder), Germany. The subjects received passwords to begin the questionnaire. To increase students' response rate, they were able to win vouchers from an online retailer. Moreover, the survey was designed as a competition. The survey invitations announced that the successful students would receive vouchers from an online retailer and tax advisors would be published as contest winners in a well-reputed German tax practitioner journal. To prevent sample selection bias, anonymous participation was allowed, too. A total of 1135 subjects participated in the survey and 62 % were tax experts. Table 1 provides an overview of the number of participants in both groups. With respect to the total number of tax experts, 28 % were female and 3 out of 4 had at least ten years of experience as a tax advisor and revenue agent. With respect to the total number of students, 55 % were female and had studied for an average of two years.

Tax experts	Tax Advisors	600
	Revenue Agents	106
Laymen	Students	429

Table 1: Number of subjects in each group

5 Results

Expected forecasting performance

Subsequent to the prediction of the last decision, the subjects were asked to state the number of cases that they believed a laymen and an expert would predict correctly. The results are presented in Table 2. All three groups, on average, believe that tax expertise leads to better forecasting performance. The difference between experts and laymen are significant for all three groups and are demonstrated by non-parametric 2-sample tests (Mann-Whitney, $p < 0.001$ in all three tests). Interestingly, the tax advisors and revenue agents assume that laymen are a worse predictor than chance. If all five court decisions were predicted using chance, the expected result would be 2.33 correct predictions.¹

	Experts	Laymen
Tax Advisors	3.68	1.97
Students	4.00	2.30
Revenue agents	3.42	1.92

Average number of cases that experts and laymen are able to predict correctly as estimated by subjects.² At most, 5 correct predictions are possible.

Table 2: The estimation of forecasting skills by others

In summary, the participants expect that tax expertise increases forecasting performance. However, is this assumption valid?

¹ In case 4, three different outcomes are possible. Therefore, the expectation is given by $4 \times 0.5 + 1 \times 0.33 = 2.33$.

² Estimations of forecasting skills by tax advisors and revenue agents with respect to laymen are significant lower than 2.33 (Mann-Whitney, $p < 0.001$) whereas estimations of forecasting skills by students with respect to laymen do not significantly deviate from 0 (Mann-Whitney, $p = 0.4657$).

Forecasting performance

To test whether the forecasting performance is affected by tax expertise, the court decisions of all five cases were analyzed. Prior knowledge of the outcomes enabled us to evaluate the subject predictions. We measured tax experience in three different ways. First, we compared the forecasting performance between tax professionals (tax advisors and revenue agents) and laymen (students). Second, we measured professional experience according to time and used an indicator variable that equaled 1 if the subject had operated for more than 10 years as a tax advisor or revenue agent. Third, we used participant subjective assessments with respect to whether they based their answers on experience.

Table 3, panel A, presents the mean, standard deviation, and median of correct predictions for tax experts and students. It demonstrates that tax advisors provided an average of 2.42 correct predictions, the students provided an average of 2.36 correct predictions and the revenue agents provided an average of 2.70 correct predictions. As mentioned above, pure guessing would lead to an average of 2.33 correct predictions. Thus, the tax experts, on average, are only slightly more reliable than chance.³ In total, a total of 379 tax experts (54 %, 333 tax advisors and 46 revenue agents) demonstrated less accurate predictions than chance (a maximum of 2 correct predictions).

We conducted pairwise⁴ non-parametric tests to verify the significance in the differences. With respect to forecasting performance, the tax advisors are not significantly more accurate than students (Mann-Whitney, $p = 0.701$) but the revenue agents are (Mann-Whitney, $p = 0.020$). One possible explanation may be lower opportunity costs of revenue agents as compared to tax advisors. Therefore, one might expect revenue agents to take more time for digest every single case. However, a comparison of the means shows that this explanation does not hold as revenue agents need on average 7.7 minutes per case whereas tax advisors need on average 7.6 minutes, which is roughly the same. Another conceivable explanation may be the fact that tax advisors predict more cases in favor of taxpayers whereas the court decided only in two of the five cases in behalf of taxpayers. It will be pointed out later that this cannot explain the differences between tax advisors and revenue agents. However, although the difference in forecasting performance between revenue agents and students is statistically significant; this is not the case from an economic point of view because the difference of 0.34 correct predictions is negligible.

Furthermore, we used time with respect to professional experience as a measure of experience. The results are shown in Table 3, panel B. There is no significant difference between individuals with more than ten years of experience as a tax professional and the other participants (Mann-Whitney, $p = 0.339$).

³ To be precisely, tax advisors are not significantly better than chance (sign test, $p = 0.695$) but revenue agents are (sign test, $p = 0.014$).

⁴ All p-values are adjusted according to the Holm method. Without adjustment results are qualitatively unchanged.

	Forecasting Performance		
	Mean	Std. dev.	Median
Panel A: Professionals versus laymen			
Tax advisors	2.42	1.03	2.00
Students	2.36	1.08	2.00
Revenue agents	2.70	0.95	3.00
Panel B: Length of professional working time			
Has <i>more</i> than ten years of experience as a tax professional	2.44	1.02	2.00
Has <i>less</i> than ten years of experience as a tax professional	2.52	1.04	2.00
Panel C: Basis of prediction-making			
Experience – Yes	2.48	1.03	2.00
Experience – No	2.43	1.02	2.00
Research – Yes	2.56	1.14	3.00
Research – No	2.44	1.01	2.00

The table shows the descriptive results of the subjects' forecasting performance (mean, standard deviation and median) for different measures of tax experience. A maximum of five correct predictions are possible. In panel B, only tax experts are considered.

Table 3: Forecasting performance

However, it could be argued that both groups, the tax professionals and laymen, have simply guessed. Therefore, following each case the subjects were asked to state whether their prediction is based on experience, research or guesswork. The subjects are classified into one of three groups according to their response. To be assigned to the experience (research, guessing) group, a subject had to state in at least four of the five cases that the prediction was based on experience (research, guesswork). Please note that these are all subjective assessments because it is not possible to verify subject statements. The number of subjects in each group, tax advisors, students and revenue agents is presented in Table 4. As expected, "guesswork" is the most popular predictive method in the student group, where "experience" is the most popular method in both of the professional groups.

	Experience	Research	Guessing	None of them
Tax advisors	58.2	14.5	12.7	25.7
Students	12.6	9.6	49.2	35.0
Revenue agents	73.6	0	14.2	17.9
Mean	42.4	11.3	26.6	28.5

The table shows the ratio of subjects in each group (tax advisors, students, revenue agents) that is based on their predictions using experience, research and guesswork. The table reads as follows: 58.2 % of all tax advisors based their predictions in at least 4 out of 5 cases on experience. Because there is a total of 600 tax advisors, 58.2 % equals 349 tax advisors (c. Table 1). The row sums do not necessarily add up to 1 because multiple assessments are possible.

Table 4: The basis of prediction-making

Does the basing of predictions on experience or research have any impact on forecasting performance? Table 3, panel C, demonstrates that the subjects who base their predictions on experience and research are, on average, slightly more accurate than others. However, non-parametric tests demonstrate that the differences are not significant (Mann-Whitney, $p = 0.555$ and 0.302). The use of personal experience or research knowledge does not impact forecast performance. These results are consistent even if students are excluded from the analysis.

In summary, the univariate analysis implies a rejection of Hypothesis 1: tax experience does not affect forecasting performance.

To examine the determinants of forecasting accuracy in a multivariate scenario, we used the panel structure of our survey (every subject has to predict five different cases) and estimated a random effects one way error component model with individual effects. The individual forecasting accuracy is used as a response variable. The standard errors are clustered at the individual level.

We began with a simple model in column (1). The only regressors that we included were group and gender, and the group represented the variable indicating whether the subject belonged to the tax advisor subgroup, the revenue agent subgroup, or the student subgroup. The students represented the reference category for the group variable. The male indicator variable equals 1 if the subject is male. With respect to Model (1), the group category is used as a proxy for experience because tax advisors and revenue agents have more experience than students.

In column (2) the amount of professional experience measured by time is included as an additional proxy for experience. It is measured by an indicator variable that equals 1 if the subject has more than 10 years of experience as a tax advisor and revenue agent.

In column (3) we used self-assessment as an additional proxy for experience. Experience and research are indicators that are defined in Table 4. We included the interaction effects between the group variable and both assessment indicators. The results for all three models are presented in Table 5.

Model (1) in Table 5 demonstrates that univariate results from Table 3, Panel A, hold in the multivariate scenario, conditional on gender. The revenue agents were more likely to accurately predict a court decision than students, but this was not the case for tax advisors. Moreover, the men demonstrated higher accuracy than the women.

Column (2) demonstrates that the results were unchanged when the amount of professional work experience was included. Revenue agents demonstrated significantly more accurate forecasting than students, whereas this was not the case for the tax advisors. Experience – measured by years of professional work – had no impact on the forecasting accuracy.

Finally, the results were the same after including self-assessments with respect to the basis of prediction-making. Neither the main effects nor the interactions are significant. The results for each group and for the years of professional experience remained unchanged.

We can conclude that experience has no impact on forecasting performance. These results are stable even when students were excluded from the analysis. Although the revenue agents provided slightly better forecasts, this was not the result of experience because the main effects and the interaction effects were insignificant.

The evidence suggests that tax experience does not affect forecasting performance. Therefore, we reject Hypothesis 1.

Moreover, the low adjusted R^2 in all three models is an indicator that the court decisions are unpredictable.

	(1)	(2)	(3)
Intercept	-0.169*** (0.049)	-0.170*** (0.049)	-0.163*** (0.053)
Tax advisor	0.011 (0.055)	0.097 (0.084)	0.051 (0.097)
Revenue agent	0.255*** (0.086)	0.358*** (0.114)	0.357** (0.157)
Male	0.124** (0.053)	0.127** (0.054)	0.127** (0.055)
Professional experience for > 10 years		-0.110 (0.081)	-0.103 (0.080)
Experience (self-assessment)			-0.076 (0.114)
Research (self-assessment)			0.020 (0.166)
Tax advisor x experience			0.101 (0.133)
Revenue agent x experience			0.057 (0.193)
Tax advisor x research			0.103 (0.197)
Revenue agent x research			NA

One-way error component model, 1135 x 5 observations, response variable: forecasting accuracy (equals 1 if prediction is correct). All of the regressors are indicator variables. The students serve as the reference category for the group variable. The tax advisors and revenue agents are proxy variables for experience in all three models. In the second model, professional experience is added—measured by an indicator variable that equals 1 if the subject has more than 10 years of experience. Finally, in Model 3 the self-assessed basis of prediction (experience and research) is included. Moreover, the interactions between the group and the basis are considered. No revenue agent stated that the predictions were based on research. Standard errors in parentheses.

*** p<.01, ** p<.05, * p<.1

Table 5: Random effects panel estimation (forecasting accuracy)

Overconfidence

To test whether the tax experts and laymen are overconfident with respect to their forecasting performance, the subjects were asked to state approximately how many cases they believed they had predicted correctly. A comparison of subject beliefs with the actual number of correct predictions provides the following equation for calculating individual overconfidence

$$OC_i = B_i - \sum_{j=1}^5 C_j,$$

where OC_i represents the overconfidence of subject i , B_i is the subject's belief and C_j is an indicator variable that equals 1 if prediction j is correct. If $OC_i > 0$, the subject i is overconfident (number of correct predictions smaller than belief), if $OC_i = 0$, the subject i is well calibrated and, finally, if $OC_i < 0$, the subject i is underconfident. Table 6 gives an overview of the average level of overconfidence, the standard deviation and median for tax advisors and students.

	Tax advisors	Students	Revenue Agents
Mean	1.48	0.68	0.53
Std. dev.	1.39	1.49	1.39
Median	1	1	1

The table shows descriptive results (mean, standard deviation and median) of subject overconfidence based on the definition of OC_i . The possible overconfidence values range from -5 (particularly underconfident) to +5 (particularly overconfident).

Table 6: Subject overconfidence

Table 6 demonstrates that the tax advisors believed on average that they predicted 1.48 more cases correctly than they actually did, the students believed on average that they predicted 0.68 more cases correctly than they actually did and the revenue agents believed on average that they predicted 0.53 more cases correctly than they actually did. All of the means are significantly greater than 0 (t test, $p < 0.001$ for all three groups). Therefore, Hypothesis 2 is confirmed. The tax experts and laymen are overconfident with respect to their forecasting performance.

To test whether experts and laymen differ in their degree of overconfidence, we applied pairwise 2-sample parametric tests to the results from Table 6. The differences between the tax advisors and students (t test, $p < 0.001$), in addition to the tax advisors and revenue agents (t test, $p < 0.001$), are highly significant. Contrastingly, the students and revenue agents do not differ (t test, $p = 0.34$).

These results are further confirmed on examination of the three different, possible types of overconfidence based on the definition of OC_i . The subjects may be overconfident, well calibrated, and underconfident. The ratio in Table 7 of well-calibrated subjects is higher for the students and the revenue agents, whereas the ratio of overconfident subjects is highest for the tax advisor group.

	Tax advisors	Students	Revenue agents
Overconfident	75.5	53.1	52.8
Well calibrated	16.3	27.7	31.1
Underconfident	8.2	19.2	16.0

The table shows the percentage of subjects in each group that is overconfident ($OC_i > 0$), well calibrated ($OC_i = 0$) and underconfident ($OC_i < 0$) for each group.

Table 7: The distribution of type of overconfidence (in %) per group

To verify the results with respect to overconfidence that were obtained by univariate tests, we ran a multivariate regression analysis using the model from Table 5. The response variable is OC_i . We used the same three models that were used in Table 5. The results are presented in Table 8.

	(1)	(2)	(3)
Intercept	0.563*** (0.080)	0.567*** (0.080)	0.465*** (0.086)
Tax advisor	0.736*** (0.094)	0.492*** (0.143)	0.616*** (0.161)
Revenue agent	-0.183 (0.155)	-0.478** (0.202)	-0.719** (0.304)
Male	0.250*** (0.090)	0.241*** (0.090)	0.174* (0.092)
Professional experience for > 10 years		0.314** (0.138)	0.302** (0.138)
Experience			0.827*** (0.208)
Research			0.292 (0.233)
Tax advisor x Experience			-0.760*** (0.238)
Revenue agent x Experience			-0.292 (0.374)
Tax advisor x Research			-0.312 (0.285)
Revenue agent x Research			NA
Adj. R^2	0.083	0.087	0.098

1135 observations. Response variable: overconfidence (OC_i). All regressors are indicator variables. Students represent the reference category for the group variable. Tax advisors and revenue agents are proxy variables for experience in all three models. In the second model, professional experience is added—measured by an indicator variable that equals 1 if the subject has more than 10 years of experience. Finally, in Model 3, the self-assessed basis of prediction (experience and research) is included. Moreover, the interactions between group and basis are considered. No revenue agent stated that the predictions were based on research. Standard errors in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .1$.

Table 8: The determinants of overconfidence, OLS results

Table 8 demonstrates that the tax advisors were more overconfident and the revenue agents were less overconfident than students. However, in column (1) the coefficient for revenue agents was not significant. Consistent with the literature (e.g., Bengtsson et al. 2005) we found that men are more overconfident than women.

Column (2) demonstrates that the overconfidence increased with the amount of professional experience. The other results remained unchanged, but the revenue agents are now significant.

The results from the last model demonstrated that basing predictions on experience increased overconfidence. The research and all but one interaction effects are not significant. The tax advisors are more overconfident and the revenue agents are less overconfident than the students. Basing the prediction on own experience increases overconfidence. This does not hold for tax advisors because the main experience effect and the interaction effect almost neutralize each other.

Overall, it can be concluded that, first, experts and laymen differ in their degree of overconfidence, i.e., experience affects overconfidence. Tax advisors are more overconfident than laymen and laymen are more overconfident than revenue agents. Therefore, Hypothesis 3 can be confirmed. Secondly, subjects overestimate the impact of experience on their own performance.

Taxpayer advocacy bias

With respect to the outcome of the proceedings, all five decisions of the local tax courts were confirmed by the Federal Tax Court. Accordingly, all appeals were dismissed, regardless of whether they were lodged by the taxpayer or the local tax office. Two of the five proceedings (cases 3 and 5) were judged in the taxpayer's favor.

To test whether the probability of a pro-taxpayer forecast increases if the tax expert is a tax advisor, we examined the number of predictions in favor of taxpayers for tax advisors and revenue agents. The results are presented in Table 9.

	Tax advisors	Revenue agents
Mean	2.40	2.47
Std. dev.	1.05	1.05
Median	2.50	2.50

The table presents the descriptive statistics (mean, standard deviation and median) of the number of pro-taxpayer forecasts for tax advisors and revenue agents. The maximum number of pro-taxpayer forecasts is 5.

Table 9: The descriptive statistics of pro-taxpayer forecasts

Table 9 demonstrates that revenue agents do predict more decisions in favor of taxpayers than tax advisors. However, the difference is not significant in the non-parametric 2-sample test (Mann-Whitney, $p = 0.381$). The probability of a pro-taxpayer forecast does not increase if the tax expert is a tax advisor.

The subjects were asked to state to what degree they would recommend an appeal against the court decision, assuming that the local tax court decided in favor of the revenue office.⁵ To test whether the strength of a recommendation to appeal against a contra-taxpayer decision increases if the tax expert is a tax advisor, we used the descriptive results presented in Table 10.⁶

	Tax advisors	Revenue agents
Mean	0.50	0.49
Std. dev.	0.18	0.18
Median	0.50	0.50

The table shows descriptive results (mean, standard deviation and median) of the strength of a recommendation to appeal against a contra-taxpayer decision.

Table 10: The strength of a recommendation to appeal

Table 10 demonstrates that there is no difference in the strength of recommendation between both groups of tax experts. However, the descriptive analysis in Table 10 does not control for individual differences with respect to the estimated likelihood of a pro-taxpayer decision. We therefore used the panel structure of our survey and estimated a random effects one-way error component model with individual effects. The recommendation to appeal was used as a response variable. Standard errors are clustered at the individual level.

⁵ In the questionnaire for revenue agents, the agents were asked for the strength of a recommendation against a pro-taxpayer decision.

⁶ Subjects had to answer on a Likert scale from 1 to 7 where 1 corresponded to a strength of the recommendation of 0 % whereas 7 corresponded to 100 %. In the following these probabilities are used.

To check for differences between the tax advisors and the revenue agents we included an indicator variable that was equal to 1 for tax advisors. Moreover, a stronger recommendation for subjects that estimated a higher likelihood of a pro-taxpayer court decision was expected. Therefore, the likelihood is included in the model. The results are presented in Table 11.

	Coef.	Std. E.	P
Intercept	0.157	0.016	< 0.001
Tax advisor	0.053	0.015	< 0.001
Likelihood	0.667	0.015	< 0.001

Response variable recommendation, adj. $R^2 = 0.042$,

Standard errors are clustered at the individual level.

Table 11: Recommendation to appeal, random effects results

Table 11 demonstrates that the higher the likelihood of a pro-taxpayer court decision the stronger the recommendation to appeal. The tax advisors are more likely to recommend an appeal against a contra-taxpayer decision than the revenue agents, indicating a potential “taxpayer advocacy bias”. This result is interesting because as Table 10 demonstrates, on average, there is no difference in pro-taxpayer forecasts. Therefore, Hypothesis 4 is only confirmed with respect to the strength of the recommendation.

6 Conclusions

We examined the ability of tax professional to forecast tax court decisions. We conducted an online survey among 600 certified tax advisors, 100 revenue agents, and 400 laymen. All participants were asked to predict the outcome of five pending court decisions at the German Federal Tax Court at the time the survey was conducted. While it is generally assumed that tax experts are superior in predicting court decisions, our results reveal that tax knowledge and experience do not affect forecasting performance. Overall, the results of the study imply that laymen and professional predictive abilities correspond to guesswork. Our evidence suggests that the tax decisions at the court of last resort are unpredictable events. Kahneman and Klein (2009) have argued that expertise matters only if the environment is sufficiently constant to be predictable and if the subjects have the opportunity to learn these regularities through prolonged practice. The previous research demonstrates that tax knowledge increases tax research performance (Cloyd 1997, Barrick 2001, Magro 2005), i.e., tax experts are more proficient in searching the tax code for relevant authority with which to solve their client’s questions. This confirms that tax experts are able to acquire superior knowledge regarding the tax environment. However, this does not necessarily imply that tax experts are also more proficient in predicting the outcome of tax disputes because this would presume that court decisions are predictable events. However, by definition, a court decision is only necessary if tax experts – tax advisors and revenue agents – disagree on the correct tax treatment. Particularly, the court of last resort will only decide cases where the tax treatment is especially unclear. Why should tax knowledge help to predict the outcome in such ambiguous issues where the involved tax experts disagree? Although Chang and McCarty (1988) and Ayres et al. (1989) find that experts and non-experts, in addition to CPAs and other tax-preparers, differ in their judgments concerning the determination of substantial authority, these studies do not provide evidence with respect to real forecasting performance. Whereas tax experts doubtlessly have superior tax knowledge, our results demonstrate that this knowledge does not affect the forecasting of real tax court decisions because these decisions are basically unpredictable.

The unpredictability of court decisions casts doubt on the relevance of rules that form the correct accounting treatment or taxpayer penalties dependent on the prediction of these decisions. Using concrete likelihood thresholds may only cause an illusion of objectivity. Moreover, constituting that uncertain income tax benefits are only recognized if the tax position is more than 50 percent likely to be sustained by the court of last resort might create an expectation gap because of the de facto impossibility of predicting the decision.

In addition to the accounting standard setters and the tax legislators, our results are significant for all firms who have to decide whether to appeal against a decision of the revenue service. Choosing to appeal is often a costly investment decision that requires carefully predicting future outcome. Our results demonstrate that firms should be prudent in their reliance on experts that form predictions concerning the chances of success. Not only is this impossible, but we also find that tax advisors are subject to substantial overconfidence with respect to their prediction performance. While we also find revenue agents and laymen to be overconfident, the tax advisor level of overconfidence significantly exceeds the overconfidence of others. Moreover, the level of overconfidence increases with tax advisor professional experience. One reason for this result could be that tax advisors rationalize their decisions with a perceived knowledge and experience advantage and neglect the fact that tax court decisions are unpredictable. According to Davis et al. (1994) additional information, even if redundant, increases overconfidence. Thus, a perceived information advantage might increase tax expert overconfidence. However, this does not explain why revenue agents are less overconfident than tax advisors. The results of this study suggest an “advisor bias”. Certain studies indicate that positive self-evaluations increase professional success (for a review see Borghans et al. 2008). Thus, it is possible that advisors have learned that self-confidence is a positive trait in managing client relationships.

Our study reveals another difference in the tax expert group. Although revenue agents and tax advisors do not significantly differ in the number of pro-taxpayer forecasts, we find that the strength of advisor appeal recommendations against a contra-taxpayer decision to be significantly greater than that of revenue agents. Therefore, advisors may strongly recommend appealing against a local tax court decision in cases where a revenue agent may provide a weaker recommendation given the same estimation of the likelihood of a specific tax court outcome. This could be a result of the different business environments under which both groups of tax experts operate. Future research should examine the differences among tax professionals in more detail as this may highlight additional behavioral differences.

Moreover, future research could expand the study of tax expert forecasting ability concerning negotiations with the revenue service during a tax audit or to the decisions of lower levels of jurisdictions (e.g., local tax court decisions). Certain anecdotal evidence exists that tax professionals take into consideration knowledge concerning a judge's personal attitudes and characteristics. It would be valuable to investigate whether such knowledge increases expert forecasting performance. The previous studies from the United States indicate that the personal characteristics of judges, such as gender, education, and political attitudes, may indeed affect tax court decisions (e.g., Schneider 2002, Schneider 2005, Staudt et al. 2006).

Appendix: Questionnaire

A scientific study regarding pending cases at the German Federal Tax Court

Thank you for your willingness to participate in our scientific study.

The Federal Tax Court is the highest German court for taxes and customs. At December, 31st 2009 there were 2.450 cases pending at the Federal Tax Court. For our study we have chosen five cases and preprocessed the facts. Hereafter we would request your assessment on these cases.

Case 1

The plaintiff is the host of a daily talk show. She lives with her family in Switzerland. Her labor agreement was a four-year-contract. The plaintiff could terminate the contract without notice at any time. So she completed six months before the contract expired.

The production company rented a hotel room for the plaintiff in Germany. It was rented all year (also on weekends) except for a 6-week summer break and a short Christmas break. During the production periods, the plaintiff generally stayed from Monday till Thursday in Germany. For the plaintiff, further attendance was not mandatory. The actual presence of the plaintiff amounted to less than six months a year, whereas the hotel room was available to her for a (notably) longer period.

The local tax office took the view that the plaintiff had her residence or habitual abode in Germany. Against this assumption, the plaintiff filed a suit.

Statutory sources

Section 8 German Fiscal Code – Residence

Persons shall be resident at the place at which they maintain a dwelling under circumstances from which it may be inferred that they will maintain and use such dwelling.

Section 9 German Fiscal Code – Habitual abode

Persons shall have their habitual abode at the place at which they are present under circumstances indicating that their stay at that place or in that area is not merely temporary. An unbroken stay of not less than six months' duration shall be invariably and from the beginning of such stay regarded as a habitual abode in the territory of application of this Code; brief interruptions shall be excepted. The second sentence shall not apply where the stay is undertaken exclusively for visiting, recuperation, curative or similar private purposes and does not last more than one year.

Questions:

Which results do you expect from the proceeding at the Federal Fiscal Court?

A residence respectively habitual abode in Germany is existent.

Yes No

What is the probability of the Federal Fiscal Court deciding that a residence respectively habitual abode in Germany is existent?

0 %, definitely no residence
respectively habitual abode in
Germany 100 %, definitely a residence
respectively habitual abode in
Germany

Assuming that the local tax court decided that there was a residence respectively habitual abode in Germany: Would you recommend that the taxpayer appeal against the decision to the Federal Fiscal Court?

Appeal definitely not
recommended Appeal definitely recommended

My recommendation is based on (multiple answers possible):

- Experience
- Guess
- Research
- Other (please specify)

Case 2

In December, a hair salon issued Christmas coupons to its customers who had obtained service during that time span. Those coupons were collectable by February of the following year and granted the customers a one-time rebate on any service amounting to 5 Euros on any service. The coupons could neither be redeemed in cash nor cumulated. The names of the customers were not written on the coupon nor listed separately. The hair salon has made provisions for the coupons, meaning that the estimated reduction in earnings was recognized in the balance sheets in the year of the issuance of the coupons.

The local tax office took the view that the reduction in earnings has to be recognized in the year the coupons are redeemed. Against this assumption the taxpayer filed a suit.

Statutory sources

Section 249 German Commercial Code – Provisions

(1) Provisions have to be recognized for contingent liabilities and contingent losses from pending transactions. Moreover, provisions have to be recognized for

1. maintenance expenses deferred to within the first three months of the following financial year together with a provision for major overhauls,
2. warranties provided with or without a legal obligation.

(2) Provisions are not to be recognized for other purposes than named before. Only expenditures that relate to the original provision are set against it.

Questions:

Which results do you expect from the proceeding at the Federal Fiscal Court?

Is a deduction of business expenses allowed in the year the coupons were issued?

Yes No

What is the probability of the Federal Fiscal Court deciding that a deduction of business expenses is allowed in the year the coupons were given out?

0 %, definitely no business expenses in the year the coupons were issued 100 %, definitely business expenses in the year the coupons were issued

Assuming that the local tax court decided that a deduction of business expenses was not allowed in the year the coupons were issued: Would you recommend that the taxpayer appeal against this decision to the Federal Fiscal Court?

Appeal definitely not recommended Appeal definitely recommended

My recommendation is based on (multiple answers possible):

- Experience
- Guess
- Research
- Other (please specify)

Case 3

The plaintiff operates a wind park. According to the advertised concept of the plaintiff the useful life of the wind power station is 20 years. In accordance with the relevant depreciation tables of the German tax authorities, however, the useful life of such facilities is 12 years. Hence, the plaintiff has amortized the power stations over 12 years. The tax authorities – in reference to the business concept of the plaintiff – considered an amortization of the facilities within 20 years as appropriate. Against this assumption the taxpayer filed a suit.

Which results do you expect from the proceeding at the Federal Fiscal Court?

A divergence from relevant depreciation tables of the German tax authorities is necessary?

Yes No

What is the probability of the Federal Fiscal Court deciding that a divergence from relevant depreciation tables of the German tax authorities is necessary?

0 %, definitely no divergence necessary 100 %, definitely a divergence necessary

Assuming that the local tax court decided that a divergence from relevant depreciation tables of the German tax authorities is necessary: Would you recommend that the taxpayer appeal against the decision to the Federal Fiscal Court?

Appeal definitely not recommended Appeal definitely recommended

My recommendation is based on (multiple answers possible):

- Experience
- Guess
- Research
- Other (please specify)

Case 4

The plaintiff, an asset-management partnership, organized a regatta-accompanying trip on a historic sailing vessel for business partners and employees. The costs incurred for the trip amounted to EUR 10.000. The expenses were appropriate and were recognized as operating expenses. The tax authorities disagreed and considered the costs as fully non-deductible. Against this assumption the taxpayer filed a suit.

Which results do you expect from the proceeding at the Federal Fiscal Court?

Statutory sources

Section 4 German Income Tax Act – Profit concept in general

[...]

(5) The following business expenses must not reduce the profit for income tax purposes:

[...]

- 4. Expense for hunt or fishery, for sailing yachts or motor yacht as well as similar purposes and related business entertainment;

[...]

A deduction of business expenses is allowed?

Yes Partly No

What is the probability of the Federal Fiscal Court deciding that a deduction of business expenses is allowed?

0 %, definitely no business expenses 100 %, definitely full business expenses

Assuming that the local tax court decided that a deduction of business expenses was not allowed: Would you recommend that the taxpayer appeal against the decision to the Federal Fiscal Court?

Appeal definitely not recommended Appeal definitely recommended

My recommendation is based on (multiple answers possible):

- Experience
- Guess
- Research
- Other (please specify)

Case 5

The plaintiff is a law firm (partnership). A Porsche 911 is part of the business assets of the law firm and is licensed to one of the partners. The tax authority assumes that the respective partner uses the Porsche 911 for private purposes as well and, hence, would like to tax the private proportion of utilization. However, the plaintiff states that the relevant partner privately owns comparable cars. The partner is owner of a Porsche 928 and his wife owns a Volvo. The five children of the couple are minors.

The local tax court has agreed with the law firm. The tax authorities have appealed against this decision to the Federal Fiscal Court. Which results do you expect from the proceeding at the Federal Fiscal Court?

Decision of the local tax court in Saxony-Anhalt, May 6th, 2009, file reference 2 K 442/02

The Senate of the court argued that the relevant partner as well as his wife had roughly comparable cars, privately held, at their disposal. The pleading that no private trips were undertaken with the car in question, seems plausible. According to the argumentation line of the senate the private ownership of two comparable cars would have been economically unreasonable, if the plaintiff had used the business car for private purposes. The existence of the two comparable, privately held cars of the partner was documented with registration records and registration plates. Thus, the court did not agree with the tax authority's assumption of the private use of the Porsche 911 that forms part of the law firm's assets.

Statutory sources

Section 6 German Income Tax Act – Evaluation

(1) For the evaluation of single assets that have to be regarded as business assets due to Section 4 para. 1 or Section 5 of the German Income Tax Act, the following rules apply:

[...]

- 4. Withdrawals of the taxpayer for themselves, for his household or for other external purposes are to be assessed at the part-value (Teilwert); in the cases of Section 4 para. 1 sent. 3 of the German Income Tax Act the withdrawal is to be assessed at the common value (gemeiner Wert). The private use of an automobile which is used for more than 50 percent for business purposes is to be assessed for every calendar month at 1 percent of the domestic list price at the time of the first licensing, plus the costs for extra equipment including VAT. The private use may, deviating from sentence 2, be recognized with the expenditures allocated to the private journeys if all the expenditures originating for the automobile are substantiated by documents and the proportion between private and other journeys is proven by a duly maintained driver's logbook [...]

A private use of the Porsche 911 has to be calculated and is taxable.

Yes No

What is the probability of the Federal Fiscal Court deciding that a private use of the Porsche 911 has to be calculated and is taxable?

0 %, definitely no taxable private use 100 %, definitely a taxable private use

Assuming that the local tax court decided that no private use of the car has to be calculated for tax purposes: Would you recommend that the taxpayer appeal against the decision to the Federal Fiscal Court?

Appeal definitely not recommended Appeal definitely recommended

My recommendation is based on (multiple answers possible):

- Experience
- Guess
- Research
- Other (please specify)

6. How many decisions do you think you have predicted correctly?

7. Please assume that a layman had to predict the decisions in the five cases above. How many decisions do you think a layman would have predicted correctly?

8. Please assume that an expert had to predict the decisions in the five cases above. How many decisions do you think an expert would have predicted correctly?

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