

Stock price reactions to news about corporate tax avoidance and evasion[☆]



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ABSTRACT

This study examines stock market responses to news on corporate tax strategies. Our dataset includes 176 tax news items regarding listed German firms over the period from 2003 to 2016. In contrast to previous research, we distinguish between news about corporate tax strategies that are legal (tax avoidance) and illegal (tax evasion). We show that stock market responses differ significantly between news items concerning legal and illegal activities. We find negative abnormal returns for tax evasion news, while we find no general effect for tax avoidance news. Moreover, we do not observe any evidence of average reputation or agency costs exceeding the positive effect of legal tax planning. However, we find positive stock price reactions to legal tax planning when firms' tax risk is low. Our findings contribute to the ongoing debate among researchers, politicians, and corporate managers on the benefits and costs of corporate tax strategies and address the issue of morals in markets.

1. Introduction

Is it worth investing in corporate tax planning? This is an important question for investors and the financial management of a firm.¹ In order to answer this question, we study stock price reactions as a response to newspaper articles that report tax avoidance or evasion efforts of publically listed companies. At first sight, a negative effect of tax planning news on stock prices may be surprising because corporate tax planning can lead to significant tax savings (Mills, Erickson, & Maydew, 1998), and anticipated future tax savings should increase shareholders' wealth. However, there are also substantial costs associated with tax planning. Recent news concerning tax avoidance by multinational firms such as Amazon, Google, and Starbucks has sparked a public outcry. Several corporations have been publicly accused of not paying their fair share of corporate taxes. Being publicly regarded as tax aggressive may harbor reputation risks and potentially negative responses from customers and other stakeholders, which could negatively affect firm

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¹ We use the term 'tax planning' to describe legal and illegal corporate strategies that encompass ex ante tax planning, in which the best investment and financing alternatives are chosen based on an after-tax assessment of the alternatives, and ex post tax minimization, in which tax implications from a given investment or financing alternative are minimized in hindsight (Feller & Schanz, 2017).

value. In line with this argument, Hardeck and Hertl (2014) as well as Antonetti and Anesa (2017) demonstrate that consumers' purchase intentions and willingness to pay are negatively affected by aggressive corporate tax strategies. This indicates that consumers incorporate moral costs of tax planning into their consumption decisions. However, the two studies rely on hypothetical consumption decisions without monetary consequences for participants. Therefore, investors may still doubt whether 'real' consumers respond negatively to news on corporate tax planning. Moreover, prior research (e.g., Falk & Szech, 2013; Bartling, Weber, & Yao, 2015) shows that in market settings moral costs may be lower than in individual choice settings because "markets provide a strong framing and focus on materialistic aspects such as bargaining, negotiation, and competition, and may divert attention from possible adverse consequences and moral implications of trading" (Falk & Szech, 2013, p. 708). Thus, it is an open question how stock prices respond to news on corporate tax planning.

Prior empirical research has yielded mixed results regarding the effect of corporate tax strategies on firm value (see Hardeck & Hertl, 2014 for an overview). Some studies provide evidence that aggressive corporate tax strategies negatively affect firm value (e.g., Desai, Dyck, & Zingales, 2007; Hanlon & Slemrod, 2009; Kim, Li, & Zhang, 2011; Mironov, 2013). However, there is also evidence for a positive market valuation of tax planning activities (Frischmann, Shevlin, & Wilson, 2008; Hill, Kubick, Lockhart, & Wan, 2013; Desai & Hines, 2002; Huesecken, Overesch, & Tassius, 2017), and a non-significant effect on firm value (Desai & Dharmapala, 2009).

We contribute to the discussion whether tax planning affects firm value by analyzing the stock price reaction to news concerning tax avoidance or evasion by German listed firms over the period from 2003 to 2016. In contrast to previous research, we distinguish between news on legal tax planning (tax avoidance) and illegal tax planning (tax evasion) and we consider firms' tax risk as additional moderating variable. Using a dataset of 176 news items concerning corporate tax planning, we conduct an event study analysis. We calculate cumulative abnormal returns (CARs), which are the unexpected portion of realized returns and are calculated as the difference between the realized and the expected return. These CARs are scrutinized through univariate and multivariate analyses.

We find that market reactions differ significantly between reports of legal and illegal activities. The response to tax evasion news is, on average, significantly negative. The average evasion firm loses about 182 million euros market value, which is the average of evasion firms' market capitalization multiplied by abnormal returns. In contrast, the market response to tax avoidance is on average not significantly different from zero. Thus, the legality of tax planning should be considered when evaluating the effect of corporate tax strategies. Shareholders seem to differentiate with respect to legality.

Moreover, for low tax risk firms (low volatility of the firms' tax burden), we observe significantly positive cumulative abnormal returns to tax avoidance news amounting to 1.29%, whereas we do not observe a significant stock market response to tax avoidance news for other firms. Interestingly, we do not find that the previous level of a firm's tax burden determines stock market response. This suggests that stock market participants do not punish "low-tax rate firms" for further investing into legal tax planning. Furthermore, our results suggest that, on average, possible reputation costs associated with tax avoidance news are not exceeding the benefit of tax savings, as we do not find a negative effect of proxies for reputation risks on stock price reactions. Additionally, we find that also potential agency costs do not exceed average savings from tax avoidance because stock market responses do not differ between firms with high and low corporate governance (measured either by the corporate governance score provided by Datastream or the percentage of institutional ownership).

Our findings complement prior research on the effect of corporate tax strategies by demonstrating that legality and tax risk are important determinants of market response to corporate tax strategies. Moreover, we also contribute to the current discussion on corporate social responsibility and tax planning (Lanis & Richardson, 2012; Davis, Guenther, Krull, & Williams, 2015) by demonstrating that, on average, stock market investors do not expect reputational costs of legal tax planning to exceed tax savings benefits. Finally, our results also concern the issue of morals in markets (and how morals may not matter).

The remainder of this paper is organized as follows. In Section 2, we present an overview of the relevant literature and derive our hypotheses. In Section 3, we describe the event selection, the variable measurement, and the sample. The results as well as robustness checks are provided and discussed in Section 4. Section 5 concludes.

2. Hypotheses development

Prior studies on the effect of tax planning news on firm value do not distinguish between news about legal tax avoidance and illegal tax evasion. However, we believe that this distinction is important. The classical distinction between tax avoidance and tax evasion is that tax evasion is present only if the taxpayer provides intentionally inaccurate or incomplete information to the tax authorities to reduce the tax burden. Therefore, Germany and most other countries apply criminal penalties only when the taxpayer knew of his non-compliance or acted in gross negligence (Friese, Link, & Mayer, 2008). In contrast, tax avoidance as such is neither prohibited nor punishable as long as the taxpayer does not provide inaccurate or incomplete information to the revenue service (Brown, 2011, p. 165). Of course, due to ambiguities in tax law and the resulting uncertainty in interpretation, tax avoidance is often subject to the risk that a specific tax position could not be sustained in a future tax dispute (Blaufus, Bob, Lorenz, & Trinks, 2016). In this case, as with detected tax evasion, back taxes and interest charges must be paid. Nevertheless, in contrast to other countries such as France or the United States, in Germany, tax avoidance leads to neither civil nor criminal penalties. Thus, avoidance and evasion differ with respect to penalty risk.

Moreover, the legality of tax planning may also affect potential reputational risks. According to the expressive law approach, law expresses social values (Cooter, 1998; Cooter, 2000) and legality may serve as a reference point when individuals make moral evaluations of a firm's tax planning strategy (Blaufus, Hundsdorfer, Jacob, & Sünwoldt, 2016). Moral evaluations differ with respect to the legality of tax planning, with a positive (negative) perception of tax avoidance (evasion); business people associate tax avoidance with the terms "legal", "tax savings", and "cleverness" whereas tax evasion is associated with "illegal",

“fraud”, and “criminal prosecution” (Kirchler, Maciejovsky, & Schneider, 2003). Moreover, engaging in an illegal behavior leads to a “psychic cost” that influences taxpayers’ attitude to a greater extent than concerns about penalties (Bobek & Hatfield, 2003). Furthermore, the qualification of tax planning activities as illegal (versus legal) can reduce tax planning significantly and perceived legality affects perceived ethicality of corporate tax strategies (Blaufus, Hundsdoerfer et al., 2016; DeZoort, Pollard, & Schnee, 2017).

Nevertheless, even legal tax planning might result in significant reputational costs. A corporate tax strategy that is described as legal but aggressive results in a lower willingness to pay and purchase intention regarding the products of the respective corporation (Hardeck & Hertl, 2014). However, even if legal tax planning also leads to significant reputational and agency costs, it is an empirical question whether these costs may exceed the tax savings benefits.

Our setting allows us to investigate the market response to tax planning news that presumably bear no penalty risk.² We assume that in such case, i.e., tax avoidance news, adjusted market expectations of future tax savings, on average, outweigh the potential agency and reputation costs.³ Therefore our first hypothesis is:

Hypothesis 1. News about corporate tax avoidance positively affect stock market prices.

By contrast, we expect news about a reasonable suspicion of tax evasion to have a negative impact on stock market prices because of the likely payment of back taxes and penalties. Moreover, we expect the reputation costs of being declared a tax evader to be higher than those of being declared a tax avoider. This assumption is in line with previous psychological research on the perception of tax planning where tax evasion is perceived negatively, while tax avoidance is perceived positively (Kirchler et al., 2003). Thus, our second hypothesis is as follows:

Hypothesis 2. News about corporate tax evasion negatively affect the stock market price.

Although we expect, on average, a positive market response to tax avoidance news, the market reaction could be moderated by a firm’s reputation risk. In particular, firms in the public eye bear the risk of being publicly named and shamed as a “poor corporate citizen” for not paying their “fair share” of corporate taxes to ensure the financing of public goods (Lanis & Richardson, 2012). Evidence regarding the reputational costs of corporate tax strategies is, however, mixed. On the one hand, consumers’ purchase intentions and willingness to pay are negatively affected by aggressive corporate tax strategies (see the experimental studies of Hardeck & Hertl (2014) and Antonetti & Anesa (2017)). Moreover, the studies of Hanlon and Slemrod (2009) and Graham, Hanlon, Shevlin, and Shroff (2014) indicate that stock market participants and corporate tax executives of U.S. firms anticipate a consumer backlash. On the other hand, Gallemore et al. (2014) find no evidence for significant reputation costs measured by, for example, lost sales or decreased media reputation. Furthermore, firms do not appear to sacrifice tax planning opportunities to preserve brand value (Austin & Wilson, 2013). In sum, it is an open empirical question whether legal tax avoidance result in reputation cost that are sufficiently large to exceed tax planning benefits.

Assuming significant reputation costs of tax avoidance, we would expect that stock market prices of firms with a high consumer backlash risk respond more negatively to news of corporate tax avoidance than otherwise comparable firms with lower consumer backlash risk:

Hypothesis 3. A firm’s reputation risk negatively affects the stock market reaction to news about corporate tax avoidance.

In addition to reputation costs, also agency costs between managers and shareholders could arise from tax avoidance (Desai et al., 2007; Kim et al., 2011; Mironov, 2013). Managers can use complex structures that are supposed to save taxes but, in fact, use these structures for managerial diversion. In line with this assumption, incentive payments for managers decrease tax avoidance for firms with a weak corporate governance structure (Desai & Dharmapala, 2006), tax planning significantly improves firm value only for well-governed firms (Desai & Dharmapala, 2009), governance is weakly associated with domestic and foreign tax avoidance (Minnick & Noga, 2010), and increasing institutional ownership (and thereby increasing governance) decreases effective tax rates and increases the use of tax haven subsidiaries (Bird & Karolyi, 2016). However, Hanlon and Slemrod (2009) find no conclusive evidence that market reactions to tax shelter news are moderated by the firms’ corporate governance structure and Khurana and Moser (2012) show that increasing ownership by long-horizon institutional investors is associated with lower tax avoidance. Moreover, Armstrong, Blouin, Jagolinzer, and Larcker (2015) do not find a general relation between tax avoidance and governance, but find that governance is associated with the extreme levels of tax avoidance.

If stock market participants fear that increasing tax avoidance comes along with increasing managerial rent extraction opportunities, stock market responses to news on tax avoidance should be more negatively in the case of firms with low corporate governance. In line with this reasoning, we state our fourth hypothesis:

² In line with prior research (Hanlon & Slemrod, 2009; Gallemore, Maydew, & Thornock, 2014), our empirical analysis refers to the interpretation of the tax strategy given by the press outlets themselves.

³ This hypothesis is in line with the results of Frischmann et al. (2008), Hill et al. (2013), Desai and Hines (2002), Huesecken et al. (2017). Frischmann et al. (2008) study the market reaction to the balance sheet disclosure of unrecognized tax benefits and report that the market seems to view this contingency account positively, which is consistent with a positive perception of tax planning activities. Hill et al. (2013) find that shareholders value tax-motivated lobbying. Desai and Hines (2002) find positive stock price reactions to announcements of corporate inversions. Huesecken et al. (2017) report positive stock market reactions as response to the disclosure of advance tax rulings in Luxembourg (“Luxembourg Leaks”).

Hypothesis 4. A firm's corporate governance quality positively affects the stock market reaction to news about corporate tax avoidance.

Due to difficulties in interpreting the existing ambiguous tax laws, many tax avoidance strategies (albeit legal) are subject to the risk that a tax position cannot be sustained in a future tax dispute with the tax authorities. If a firm's tax position could not be sustained upon a tax audit, back taxes and interest charges must be paid. It is, therefore, reasonable to assume that investors take into account tax risk when evaluating the effect of news regarding tax avoidance. Only if firms are able to reliably signal to investors that their tax managers are able to defend its corporate tax strategy against the tax authority in potential future tax disputes, one should expect a positive market response to tax avoidance news. Thus, we expect that stock market investors use proxies on the firms' past tax volatility to estimate future tax risk and that this tax risk will moderate the effect of tax avoidance news on market responses.

We are not aware of any previous study investigating this moderating effect on stock market responses to news on tax avoidance. However, recent evidence using panel data of US firms, is in line with this prediction. Tax risk moderates the positive valuation of tax avoidance (Drake, Lusch, & Stekelberg, 2019), firms with relatively low cash effective tax rates bear significantly greater tax risk (Dyreng, Hanlon, Maydew, & Edward, 2019) and the volatility of cash tax rates is associated with future stock volatility, i.e., firm risk (Guenther, Matsunaga, & Williams, 2017). Hence, we expect that the stock market should respond more positively to news on tax avoidance in the case of low tax risk firms:

Hypothesis 5. A firm's tax risk negatively affects the stock market reaction to news about corporate tax avoidance.

The stock price reaction could also be moderated by the market's ex ante perceptions regarding the tax aggressiveness of the firm. Hanlon and Slemrod (2009) use the previous cash effective tax rate as a proxy for the market's expectations and find that firms with relatively high disclosed cash effective tax rates (signaling low previous tax aggressiveness) have a less negative market reaction. Hence, we expect that stock prices react more positively for firms, which are formerly not viewed as tax planner and state the following hypothesis:

Hypothesis 6. The market's ex ante perception regarding the level of the firm's previous tax planning negatively affects the stock market reaction.

3. Event selection, variable measurement, and descriptive statistics

3.1. Event selection

Prior research finds that newspaper articles provide information and are valued by the capital market. For example, news reports on companies that are reported to behave (ir)responsibly towards the environment experience a significant stock price increase (decrease) (Flammer, 2013). Moreover, the stock market price reacts positively (negatively) to customer services increases (decreases) (Nayyar, 1995) and positively to news on hiring of management consulting firms (Bergh & Gibbons, 2011). Therefore, newspaper articles form a suitable foundation for an event study.

We obtain the sample by broad news research in the news archive Genios.de and FAZ-Online Archive as well as for AD-HOC news in the Bundesanzeiger (Federal Gazette). We cover all important transregional newspapers (e.g., *Frankfurter Allgemeine Zeitung*, *Süddeutsche Zeitung*, *Frankfurter Rundschau*, *Die Welt*, *Die Tageszeitung*, and *Handelsblatt*), many regional newspapers, and weekly news magazines.

The German language has a variety of terms to describe tax planning activities. We therefore developed a list that covers the most common descriptions (see Appendix B for the full list). For example, the list contains "Steuersparmodell" (tax relief scheme), "Steuerloase" (tax haven) or "Steuer sparen" (saving tax). To differentiate between tax avoidance and tax evasion, we add terms to our list that capture tax evasion (e.g., "Steuerbetrug" (tax fraud), "Steuerhinterziehung" (tax evasion) or "Steuer hinterziehen" (evading tax)).

The following criteria were used to select the tax avoidance articles in our sample:

- We always select the first published article that mentions a specific tax planning activity of a firm.
- The tax planning activity has to be the main focus of the article.
- The tax planning activity has to be linked to the reported corporation.
- We exclude private manager tax planning activities.
- We exclude articles including earnings reports to avoid confounding effects.
- We exclude one article on cooperation between a firm and tax authorities.

For tax evasion events, we add two further criteria. First, we select only cases of suspected tax evasion, as a case of tax evasion resulting in a conviction with a stated fine could distort the results because a fine that is unexpectedly low could give a positive signal to the capital market. We furthermore exclude articles on firms that self disclose tax evasion.

Entering the search terms into the online news archive Genios.de limited to a research period from 2003/01/01 to 2016/06/30 produces a total number of over 200,000 potential news articles.

As we wish to examine abnormal returns, we limit our sample to listed firms. A list of potential firms is created by accumulating

the index constituents of the CDAX from 2003/01/01 to 2016/06/30 in three-month steps using Datastream.⁴ The CDAX is a German stock market index that contains all firms on the Frankfurt stock exchange that are listed in the General or Prime Standard. This list was completed by the historical index constituents list published by Deutsche Börse (2008). After cleaning this list to remove double entries caused by common stocks and preferred stocks, we ultimately have a total of 976 firms.

After combining our lists and excluding articles because they violated selection criteria, we obtain a sample of 180 observations. We exclude four firms with missing data due to a delisting from the stock exchange, which produces a sample of 176 events. Some firms are related to more than one news article. Thus, we deleted articles if a firm was mentioned in earlier articles that dated back fewer than 120 days. Our final sample, therefore, results in 99 articles⁵ containing 176 observations of 66 different firms.

As tax laws are ambiguous and the classification into strictly legal or illegal events may depend on the subjective opinion of the reader, we conduct a survey among 6 tax researchers and 37 tax master students. In the survey, participants had to assess on a five-point scale whether they consider the tax planning case of the article as legal (= 5) or illegal (= 1). For each article we obtain at least five independent ratings. Since we have different raters for different items, we use Krippendorff's Alpha for interval data (Krippendorff, 1980) to evaluate the ratings. We obtain an alpha value of 0.753 over all articles and raters. The alpha value is in the acceptable range of $0.7 \leq \alpha \leq 0.9$ (Lombard, Snyder-Duch, & Bracken, 2002, p. 596). Thus, we can use the score for further analyses.

Because some hypotheses require a dichotomization of avoidance and evasion events, we use the ratings' mean value for each article for separation. We classify articles with a mean rating ≤ 3 as illegal and other articles as legal. This way, we end up with 144 tax avoidance (legal) and 32 tax evasion (illegal) events.

We find articles with a variety of avoidance activities as well as articles on tax evasion. Examples of tax evasion include the deduction of illegal payments (such as bribe payments) which is not allowed according to German tax law, illegal employment practices of foreign subsidiaries or value added tax fraud. The tax avoidance articles refer to common strategies such as international profit shifting or the exploitation of local tax loopholes. See Table 1 for a categorization of tax planning events. Among our events, 97 are related to profit shifting to tax havens. Of these events, 77 concern international profit shifting by multinational corporations to low-tax countries, 36 events are classified as tax relief schemes, tax loopholes or tax dodges. In this category, we include tax planning strategies that use losses to offset taxable income, use group structures to avoid thin capitalization rules or shift equity to countries where interest on equity is tax deductible (e.g., Belgium). Our final category consists of articles which mention companies with particularly low effective tax rates (ETRs) in general. We define ETRs as a firm's income taxes over its pre-tax income.

3.2. Variable measurement

3.2.1. Dependent variable (cumulative abnormal returns)

To study stock price reactions to news items concerning corporate tax planning, we use an event study methodology with a three-trading-day event window centered on the event date. The three-day centered event window accounts for the fact that information may have entered the market the day before the news was published. Furthermore, it takes into account that investors could react with delay to new information, in our case a delay of one day. This choice of the event window is in line with prior studies (e.g. Hanlon & Slemrod, 2009; Field & Hanka, 2001). We re-date news dates falling on non-trading days to the next consecutive trading day. To measure stock price returns, we use the total shareholder returns obtained from Datastream.

Abnormal returns are the unexpected part of realized returns. The challenge of an event study is to estimate contra-factual stock returns for the case that the specific event did not happen. To compute the expected returns and the resulting abnormal returns, we use the market model (see, for example, Nelson, Price, & Rountree, 2008; Fang & Peress, 2009; Edmans, 2011).

We begin by estimating the parameters α and β for each day in the event window in linear regressions of the form⁶

$$R_{i,t} = \alpha_i + \beta_i R_{M,t} + \epsilon \quad (1)$$

where $R_{i,t}$ is the daily return of a sample firm i on day t and $R_{M,t}$ is the stock market return on day t .⁷

Let $E[R_{i,t}]$ be the expected return calculated using the parameters α , β and $R_{M,t}$, and $AR_{i,t} = R_{i,t} - E[R_{i,t}]$ the abnormal return of firm i on day t . The cumulated abnormal return (CAR) is defined as the sum of abnormal returns within the three-day event window centered on event date d and therefore describes the overall short-term stock price reaction.

$$CAR_i = \sum_{t=d-1}^{d+1} AR_{i,t} \quad (2)$$

Previous research uses various methods to calculate expected returns. We use three additional established models to calculate expected returns. First, we compute the expected return based on the market-adjusted model (e.g., Hanlon & Slemrod, 2009; Horton & Serafeim, 2010; Kelly & Ljungqvist, 2012). In this case, the expected return equals the market return.

⁴ We use 2003/01/01 as the starting date because some lagged variables (i.e., corporate governance and shareholder data) are first available in 2002.

⁵ 66 articles mention only one firm, and 33 articles address multiple firms.

⁶ We use an estimation window of 100 trading days beginning 107 trading days before day t . This way the event is excluded from the estimation period and cannot affect the estimation parameters. This is important to obtain a suitable contra-factual estimate of returns.

⁷ The market return is approximated by the index return of the CDAX, the performance index of all German stocks in the General Standard or Prime Standard listed on the Frankfurt stock exchange.

Table 1
Tax planning categories.

| Tax avoidance category | n |
|--|-----|
| Profit shifting to tax havens | |
| National: Taking advantage of different levels of local trade tax rates. | 20 |
| International: Income shifting to low tax countries (e.g., Malta, Ireland). | 77 |
| Tax relief schemes/tax loophole/tax dodge | |
| Use of losses (group taxation, depreciation). | 18 |
| Income Taxes (e.g., interest on equity, usage of models to avoid thin capitalization rules). | 14 |
| Other taxes (land transfer tax, vehicle tax, nuclear fuel tax). | 4 |
| Low ETR-articles | 11 |
| Tax evasion category | |
| Deduction of illegal payments (e.g., bribes) | 15 |
| Value Added Taxes (e.g., abuse of environmental certificates) | 8 |
| Illegal international income shifting | 3 |
| Special cases (e.g., fictitious accounting transactions) | 6 |
| Events total | 176 |

$$E[R_{i,t}] = R_{M,t} \quad (3)$$

We estimate further expected returns with the Fama-French three-factor and the Carhart four-factor models (see, for example, Fang & Peress, 2009; Kelly & Ljungqvist, 2012). We calculate the expected returns of the Fama-French three-factor model as follows:

$$E[R_{i,t}] = \alpha + \beta_1 R_{M,t} + \beta_2 SMB_t + \beta_3 HML_t + \epsilon, \quad (4)$$

where $R_{M,t}$ is the total return of our market portfolio - the CDAX. *SMB* and *HML* are mimicking portfolios to account for size and book-to-market-equity-related risks (see Fama & French, 1993).

Carhart (1997) incorporated an additional momentum factor to take into account the premium for winners and losers. We calculate expected returns of the Carhart four-factor model as follows:⁸

$$E[R_{i,t}] = \alpha + \beta_1 R_{M,t} + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 WML_t + \epsilon, \quad (5)$$

where $R_{M,t}$ is the total return of the market portfolio - the CDAX. *SMB* and *HML* are mimicking portfolios to account for size and book-to-market-equity-related risks. The fourth factor is the momentum factor (*WML*).

3.2.2. Independent variables

Our main variable of interest is *LEGAL*. To consider the potential ambiguity regarding the legality of news items, we score news items on a gradual scale. To this aim, we collect for each article a score ranging from 1 = *illegal* to 5 = *legal* from at least 5 independent raters (see Section 3.1). To test Hypotheses 1 and 2 in a bivariate context and to test further hypotheses in an avoidance subsample, we separate tax avoidance news from tax evasion news. We set a dummy variable *AVOIDANCE* to 1 for which *LEGAL* is higher than 3 and zero otherwise.⁹

To measure reputation risk (Hypothesis 3), we use two different variables. First, in line with Fombrun and Shanley (1990), we assume that advertising can help to present a firm in a favorable light and is used for image building. Thus, intense advertising is accompanied by higher firm reputation risk. Therefore, we expect that higher advertising expenses result in a higher consumer backlash risk and, thus, higher reputation risk. We use *ADVERTISING*, which measures the gross marketing expenses scaled by sales provided by The Nielsen Company. Nielsen collects data on companies' advertising activities (e.g., television commercials, radio commercials, poster advertising, internet advertising or advertising on public transportation). Based on market prices, Nielsen estimates gross advertising expenses. Because of the widespread collecting techniques of Nielsen, we can reasonably assume that companies with missing values engage in virtually no advertising. Thus, we set missing values to 0. Second, we use a family firm dummy. In line with Chen, Chen, Cheng, and Shevlin (2010), we assume that family firms bear a higher reputation risk than their non-family counterparts. *FAMILY* takes the value 1 if a firm is listed on the DAXplus family index, 0 otherwise. We therefore merge the index constituent lists of the DAXplus family index at 2010/12/03, 2013/10/16, 2015/02/01 and 2016/12/29. As listing requirement for the DAXplus family index, the founding family must hold at least 25% of the firm's shares. If a member of the founding

⁸ The factor data for the Fama-French three factor model as well as the Carhart four-factor model may be found at <http://www.wiwi.hu-berlin.de/professuren/bwl/bb/data/fama-french-factors-germany>.

⁹ As the perceived aggressiveness of tax planning activities might affect stock market responses, in addition to the assessment regarding the legality of news items, we asked all raters whether they consider the tax planning activity as morally legitimate on a five-point scale (1 is morally illegitimate and 5 is legitimate). Again we take the mean value of all raters for each article. We find a high correlation between the legality measure and the morality measure (Pearson-correlation, $r = 0.94$) confirming our assumption that legality serves as a reference point for moral evaluations. Replacing *LEGAL* by *LEGITIMATE* in our analysis yields nearly identical results. Results are available upon request. See, however, Hasseldine and Morris (2017) for a detailed and critical discussion of equating legality and acceptability of tax planning. These authors aim at identifying legal but unacceptable tax related behavior.

family is on the supervisory board, the required shareholding is decreased to 5% (see [Deutsche Börse, 2013](#)).

We use two different variables to measure a firm's corporate governance level ([Hypothesis 4](#)). First, in line with [Chung and Zhang \(2011\)](#), we assume that a firm's corporate governance level is positively related to the amount of institutional ownership. The variable *INSTITUTIONAL* is the amount of shares that are held by investment companies.¹⁰ We replace missing values with data from the following year. In bivariate analyses, we use the variable *INSTITUTIONAL_OWNER* (*NON-INSTITUTIONAL*) which equals one for all firms with (without) institutional shareholders, and is zero otherwise. Second, we use the variable *GOVERNANCE* to measure a firm's corporate governance quality. *GOVERNANCE* is a firm's Corporate Governance Score. Higher Scores of *GOVERNANCE* indicate better corporate governance quality. The variable is set to 0 for missing values. In these cases *NOSCORE* takes the value one, and is zero otherwise. The variable *GOVERNANCE_HIGH* (*GOVERNANCE_LOW*) equals one for all firms with a governance score above (below) the sample median, otherwise it is zero. The Corporate Governance Score is provided by Datastream. In detail, it describes a company's systems and processes that ensure that the executives act in the best interest of their shareholders and generate long-term shareholder value (see [Datastream International, 2013](#)). The Corporate Governance Score consists of five categories: Board Structure, Compensation Policy, Board Functions, Shareholder Rights and Vision and Strategy. The score is calculated with respect to the composition of the board (e.g., size of the board, percentage of non-executive board members, experts on the board with a financial or industrial background) and monitoring (e.g., monitoring board functions due to an established corporate governance committee or the monitoring of senior executives by a compensation committee).

To test [Hypothesis 5](#), firm's tax risk is measured as firm's volatility of total tax expense scaled by assets over the previous five years (e.g., [Gallemore & Labro, 2015](#); [Guenther et al., 2017](#)). *LOW_TAX_RISK* is 1 for firms with a scaled tax volatility below the event sample 0.25-quantile, and zero otherwise.

We use the effective tax rate (*ETR*) derived from the firm's consolidated financial statements as a proxy for the market's ex ante perceptions regarding the firm's previous tax planning level ([Hypothesis 6](#)). We define *ETR* as taxable income divided by pre-tax book income and winsorize *ETRs* at zero and one. We set *ETRs* of loss firms to zero. We will use alternative measures of tax aggressiveness perceptions in Section 4.3.

3.2.3. Control variables

Firms differ in their tax planning opportunities, tax planning benefits, and costs of tax planning which include tax and non-tax costs. As our sample includes only large, multinational firms, we assume that all firms have similar tax planning opportunities. Nevertheless, to consider differences in opportunities, we control for firm size. Tax planning opportunities should increase and average tax planning costs should decrease with increasing firm size. Thus, we included $\log(\text{ASSETS})$ as control variable, defined as the natural logarithm of total assets in EUR 1000s, to control for the firm's size. Moreover, tax planning benefits may vary across firms due to differences in profitability. We, therefore, also control for a firm's financial status. To this aim, we use the dummy variable *LOSS*, which will take the value 1 for firms with negative pretax income, 0 otherwise. In addition, we use industry sector variables, in the form of one-digit SIC Codes, which control for different business models.¹¹ We combine SIC Codes 1, 5, 7 and 8 into a single category because of small group sizes. Moreover, the variables *FAMILY* and *ADVERTISING* measure differences in potential reputational costs and *GOVERNANCE* and *INSTITUTIONAL* account for differences in agency costs (see Section 3.2.2). In addition to consolidated financial data, we add an article-specific variable. *SAMEARTICLE* counts the amount of sample firms mentioned in the article. We include this variable because stock market reactions may be less pronounced for articles mentioning several companies.

3.3. Descriptive statistics

The sample includes many large German corporations such as Siemens, Daimler, and Deutsche Bank. [Table 2](#) displays descriptive statistics for firm and article characteristics.¹² The advertising expenses are higher in the tax evasion sample. This result is biased because one firm's ([Travel24.com](#)) *ADVERTISING* amounts to 0.824. Excluding this observation, the mean declines to 0.0138 for the evasion sample. However, the mean is still higher than in the avoidance sample. Similarly, the percentage of family firms (*FAMILY*) is slightly higher in the evasion sample (12.5%) than in the avoidance sample (8%). The mean value of *GOVERNANCE* is 31.678 (33.823) in the avoidance (evasion) sample. For firms with no available Corporate Governance Score (*NO_SCORE* = 1), *GOVERNANCE* is zero. After removing these firms, the mean of *GOVERNANCE* is 40.368 in the avoidance sample and 47.058 in the evasion sample. These high corporate governance levels could be due to the fact that the Corporate Governance Score is positively correlated with a firm's size. In the avoidance sample, 4.7% of firms' shares are held by institutional shareholders (*INSTITUTIONAL*). In contrast, only 1.8% of firms' shares are held by institutional shareholders in the evasion sample. The percentage of firms' with low tax volatility over the previous five years (*LOW_TAX_RISK*) in the avoidance (evasion) sample amounts to 0.264 (0.188). Thus, the amount of low

¹⁰ Datastream reports the percentage of total shares in issue of holdings of 5% or more held by investment companies (pension funds). Hence, we probably underestimate the percentage of institutional shareholders as only those shareholders are considered whose interest exceeds the 5% threshold. We use the sum of pension fund and investment companies' holding shares. In the end, we use solely the amount of shares held by investment companies, because the percentage of shares held by pension funds never exceeds the 5% threshold.

¹¹ The effects of a firm's business model complexity might also moderate the stock price reactions. Worldscope provides information on up to ten business segments ordered by size. Further segments are consolidated with the tenth segment. *COMPLEX* counts the number of business segments of sample firms. In unreported tests, we include *COMPLEX* as additional control variable into our regressions. The variable is insignificant over all model specifications and the main reported results remain unchanged.

¹² The event dates, news sources, firm names and the legal scores are available online at: <http://dx.doi.org/10.17632/cysyn7w4sd.1>.

Table 2
Descriptive statistics.

| AVOIDANCE | n | mean | SD | median | min | max |
|---------------|-----|--------|--------|--------|-------|--------|
| ADVERTISING | 144 | 0.003 | 0.008 | 0.001 | 0.000 | 0.061 |
| FAMILY | 144 | 0.083 | 0.277 | 0.000 | 0.000 | 1.000 |
| GOVERNANCE | 144 | 31.678 | 25.450 | 29.420 | 0.000 | 91.890 |
| NO_SCORE | 144 | 0.215 | 0.412 | 0.000 | 0.000 | 1.000 |
| INSTITUTIONAL | 144 | 4.729 | 11.776 | 0.000 | 0.000 | 92.000 |
| LOW_TAX_RISK | 144 | 0.264 | 0.442 | 0.000 | 0.000 | 1.000 |
| ETR | 144 | 0.275 | 0.185 | 0.286 | 0.000 | 1.000 |
| LOSS | 144 | 0.118 | 0.324 | 0.000 | 0.000 | 1.000 |
| log(ASSETS) | 144 | 17.255 | 2.227 | 17.622 | 9.122 | 21.509 |
| SAMEARTICLE | 144 | 3.951 | 2.873 | 3.000 | 1.000 | 10.000 |
| EVASION | n | mean | SD | median | min | max |
| ADVERTISING | 32 | 0.039 | 0.160 | 0.0002 | 0.000 | 0.824 |
| FAMILY | 32 | 0.125 | 0.336 | 0.000 | 0.000 | 1.000 |
| GOVERNANCE | 32 | 33.823 | 30.247 | 34.485 | 0.000 | 85.280 |
| NO_SCORE | 32 | 0.281 | 0.457 | 0.000 | 0.000 | 1.000 |
| INSTITUTIONAL | 32 | 1.750 | 2.951 | 0.000 | 0.000 | 10.000 |
| LOW_TAX_RISK | 32 | 0.188 | 0.397 | 0.000 | 0.000 | 1.000 |
| ETR | 32 | 0.285 | 0.208 | 0.277 | 0.000 | 1.000 |
| LOSS | 32 | 0.156 | 0.369 | 0.000 | 0.000 | 1.000 |
| log(ASSETS) | 32 | 16.786 | 3.104 | 17.382 | 8.508 | 21.364 |
| SAMEARTICLE | 32 | 1.312 | 0.644 | 1.000 | 1.000 | 3.000 |

Note. This table presents the descriptive statistics. *ADVERTISING* are the gross advertising expenses in EUR scaled by sales in EUR. *FAMILY* takes the value 1 for companies of the DAXplus Family Index, otherwise 0. *GOVERNANCE* is a firm's Corporate Governance Score. Missing values are set to 0 and *NOSCORE* to 1, otherwise 0. *INSTITUTIONAL* is the amount of shares held by institutional shareholders (investment companies) in percent. *LOW_TAX_RISK* is one if firms' volatility of tax expense scaled by total assets over the five prior years is below the 0.25-sample-quantile, and zero otherwise. *ETR* is a firm's effective tax rate. *LOSS* is set to 1 if a company has negative pretax income, otherwise 0. *log(ASSETS)* is the natural logarithm of assets in EUR 1000s. *SAMEARTICLE* counts the number of sample firms within the same news article. Note that all firm characteristic variables are based on prior year values.

tax risk firms is higher in the avoidance sample. The median sample firm in the avoidance (evasion) sample has an effective tax rate of 0.286 (0.277). The median firm has total assets amounting to EUR 31 billion. Thus, our sample consists of particularly large firms. Moreover, 11.8% (15.6%) of tax avoidance (evasion) firms are firms with negative pretax income (*LOSS*).

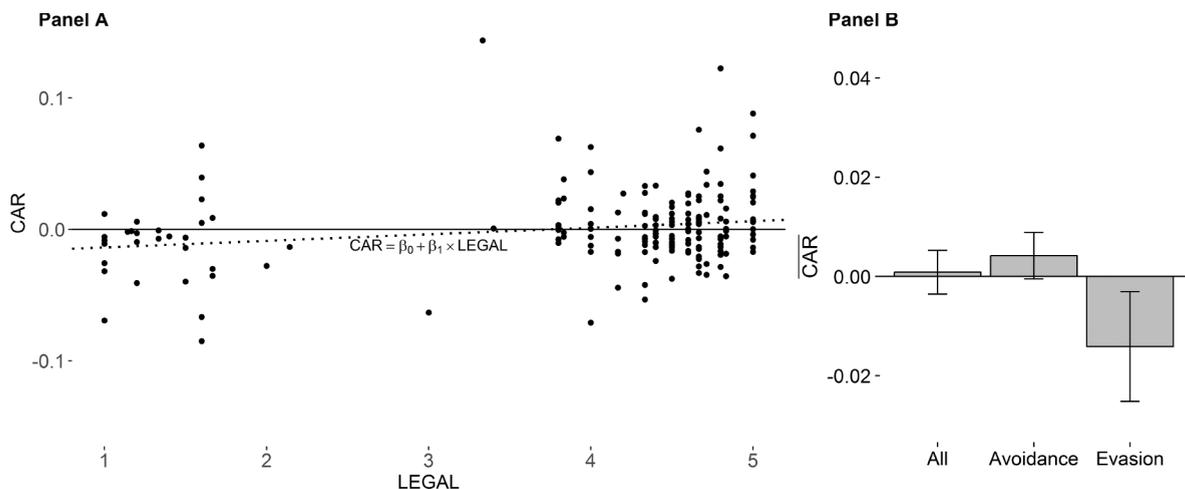


Fig. 1. Cumulative Abnormal Returns (CAR). Panel A shows a scatterplot of LEGAL and CARs. The trendline is obtained by the following regression equation: $CAR = \beta_0 + \beta_1 \times LEGAL$. Panel B shows the mean value of CARs for the full sample as well as the Avoidance ($LEGAL \leq 3$) and Evasion ($LEGAL > 3$) subsample. The black bars indicate the 95% confidence interval. CARs are the cumulative abnormal returns of event firms using the market model. LEGAL is the mean value of LEGAL score of newspaper articles obtained by at least five raters.

Table 3
Cumulative abnormal returns.

| | <i>n</i> | \overline{CAR}_{MM} | <i>pos/neg</i> | <i>t</i> | <i>t_{bet}</i> |
|--------------------|----------|-----------------------|----------------|----------|------------------------|
| HIGH_ADVERTISING | 76 | 0.0082 | 40/36 | 2.3266** | 1.8264* |
| LOW_ADVERTISING | 68 | −0.0003 | 32/36 | −0.1003 | − |
| FAMILY | 12 | 0.0051 | 7/5 | 0.6797 | 0.1240 |
| NON-FAMILY | 132 | 0.0041 | 65/67 | 1.6397 | − |
| GOVERNANCE_HIGH | 69 | 0.0046 | 34/35 | 1.4422 | −0.1262 |
| NON-GOVERNANCE_LOW | 44 | 0.0053 | 22/22 | 1.2251 | − |
| NO_SCORE | 31 | 0.0016 | 16/15 | 0.2716 | − |
| INSTITUTIONAL | 57 | 0.0041 | 29/28 | 1.1937 | −0.0411 |
| NON-INSTITUTIONAL | 87 | 0.0043 | 43/44 | 1.3147 | − |
| LOW_TAX_RISK | 38 | 0.0129 | 23/15 | 2.3441** | 1.9574** |
| HIGH_TAX_RISK | 106 | 0.0011 | 49/57 | 0.4277 | − |
| HIGH_ETR | 72 | 0.0052 | 38/34 | 1.6989* | 1.1969 |
| LOW_ETR | 55 | −0.0001 | 24/31 | −0.0173 | − |
| LOSS | 17 | 0.0137 | 10/7 | 1.1838 | − |

Note. This table displays the bivariate analysis of the avoidance subsample. \overline{CAR}_{MM} is the mean value of market model CARs for the specific group. *HIGH_ADVERTISING* are firms with gross advertising expenses scaled by sales above the event sample median, otherwise *LOW_ADVERTISING*. *FAMILY* are firms listed in the DAXplus family index, otherwise *NON-FAMILY*. *INSTITUTIONAL* (*NON-INSTITUTIONAL*) are all firms with (without) institutional shareholders. *GOVERNANCE_HIGH* are all firms with a governance score above the sample median, otherwise *GOVERNANCE_LOW*. *LOW_TAX_RISK* are firms with a five year volatility of income taxes scaled by assets below the event sample 0.25-quantile, otherwise firms are classified as *HIGH_TAX_RISK*. *HIGH_ETR* are firms with an effective tax rate above the event sample 0.75-quantile, otherwise *LOW_ETR*. *LOSS* are all firms with a negative pretax income. Note that all firm characteristic variables are based on prior year values. The t-test (*t*) is tested against 0. *t_{bet}* is a t-test between groups (e.g., *HIGH* vs *LOW ADVERTISING* or *FAMILY* vs *NON-FAMILY*). In case of *AVOIDANCE* *t_{bet}* is tested against *EVASION*). P-values of two-tailed t-tests are indicated as follows: **p* < 0.1, ** *p* < 0.05, *** *p* < 0.01.

4. Results

4.1. Univariate statistics

The abnormal returns are the portion of realized returns that are unexpected. We use two-tailed t-tests to test whether CARs are different from zero and t-tests of CARs between groups. We consider p-values of less than 0.05 to be statistically significant.

Fig. 1 Panel A displays a scatterplot of CARs and LEGAL. The graph reveals two important results. First, LEGAL is u-shaped as 85% of LEGAL scores are above 4 or below 2 and thus separates legal and illegal events quite well. Second, the majority of CARs for illegal events are below zero (left side of the plot). In contrast, we do not observe such a pattern of positive CARs for legal events (right side of the plot). For further analyses, we separate the events into avoidance (*LEGAL* > 3) and evasion (*LEGAL* ≤ 3) events.

Fig. 1 Panel B illustrates cumulative abnormal returns for the full sample, the avoidance and the evasion subsample. Overall, we obtain an average CAR of 0.09% with a high standard deviation of 2.97%. This estimate is not significantly different from zero. Hence, on average, news on tax planning do not affect firm value. The separation of sample events into legal and illegal events has a huge effect. While we do not find significant CARs for tax avoidance events (p-value = 0.08), CARs of evasion firms are significantly negative (p-value = 0.014). With respect to Hypotheses 1 and 2, we provide initial evidence that legality matters. While we do not find support for Hypothesis 1 as CARs for avoidance events are not significantly different from zero, we observe significantly negative returns for tax evasion events which is in line with Hypothesis 2. We now turn to the analysis regarding the expected moderating effects on market responses to tax avoidance news (Hypotheses 3 to 6).

Table 3 displays descriptive statistics of CARs for tax avoidance news. First, we investigate the moderating effect of reputation risk for tax avoidance events. For this purpose, we examine subsamples divided by the reputation proxies *ADVERTISING* and *FAMILY*. The idea is to determine whether, in line with Hypothesis 3, stock price reactions differ between firms with high reputation risk and firms with low risk.

We obtain positive CARs for firms with high advertising expenses and a positive but not significant mean for family firms. Thus, we cannot find any negative impact of reputation risks on stock price responses to tax avoidance news. In contrast, we find that CARs for *HIGH_ADVERTISING* are significantly positive (p-value = 0.023). The difference in CARs between firms with high and low advertising expenses is not significant (p-value = 0.07). These findings contrast with the idea that news of tax avoidance results in a significant reputation loss that reduces shareholder value (which motivated us to formulate Hypothesis 3).

Moreover, we neither find significant differences between CARs for *GOVERNANCE_HIGH* and *GOVERNANCE_LOW* nor between *INSTITUTIONAL* and *NON-INSTITUTIONAL*. Hence, we cannot find evidence for a moderating effect of corporate governance for tax avoidance news, and therefore, we obtain no support for Hypothesis 4.

Furthermore, we observe positive significant abnormal returns (p-value = 0.025) for firms with a low tax risk (*LOW_TAX_RISK*), while we find no reaction for high tax risk firms. The difference between these groups is significantly different from zero (p-value = 0.028). Thus, the stock market reacts positively when firms' tax risk is low, which corresponds to Hypothesis 5. Finally, we separate the sample into presumably tax-aggressive and presumably non-tax-aggressive firms based on their effective tax rate (ETR).

In detail, we consider two categories of firms: First, firms with ETR above the 0.75-quantile and, second, firms with ETRs below or equal the 0.75-quantile. We do not find any impact on stock prices for any group and thus, no evidence for [Hypothesis 6](#). The stock price reactions of non-tax aggressive firms do not differ from other firms. This result is in contrast to the findings of [Hanlon and Slemrod \(2009\)](#) who report that U.S. firms with relatively high disclosed cash effective tax rates have a less negative market reaction. One reason for this difference may be the different tax setting under which U.S. and German firms operate. For U.S. firms (before 2018), the U.S. worldwide tax system applies whereas Germany applies a territorial tax system. This might affect the usage of the ETR as a measure of tax aggressiveness by market participants which is more appropriate under the worldwide tax system. Note, however, that our results hold using a variety of other tax aggressiveness proxies (see [Section 4.3](#)). We always find that it is the tax rate volatility (tax risk) that matters, and not the level of the previous tax rate.

Our average CARs ranging from -1.41% for evasion events up to $+1.29\%$ for low tax risk avoidance events is quite similar to other tax- or accounting-related studies. [Hanlon and Slemrod \(2009\)](#) observe, on average, CARs for tax shelter events amounting to -0.53% for their whole sample and -2.6% for firms in the retail sector. Furthermore, [Cummins, Lewis, and Wei \(2006\)](#) and [Sturm \(2013\)](#) find comparable magnitudes of CARs for loss announcements of banks ranging from -1.25% to -0.6% . [Bartov, Lindahl, and Ricks \(1998\)](#) find negative stock price reactions in a four-day event window ranging from -0.75% to -2.1% for announcements of write-offs. [Hammersley, Myers, and Shakespeare \(2008\)](#) observe negative stock price reactions to internal control and, especially, material weaknesses amounting to -0.54% and -0.95% , respectively. However, compared to accounting restatement studies, these effects are rather small. [Palmrose, Richardson, and Scholz \(2004\)](#) and [Desai, Hogan, and Wilkins \(2006\)](#) find CARs between -9.2% and -11% over a two-day (three-day) event window surrounding a restatement announcement.

We abstain from analyzing the stock price reaction for tax evasion events at the firm-category level because of the small sample size. To enhance our understanding of the variation of CARs, we now turn to a cross-sectional analysis.

4.2. Cross-sectional analysis of cumulative abnormal returns

To investigate the relationship between CARs and the type of news as well as firm characteristics, we estimate the following linear regression:

$$CAR_i = \alpha + \beta_1 LEGAL_i + \beta_2 FIRM_i + \beta_3 ARTICLE_i + \beta_4 INDUSTRY_i + \beta_5 YEARS_i \quad (6)$$

where $LEGAL_i$ measures on a five-point scale (where 1 is illegal and 5 is legal) whether the article is considered to be legal, $FIRM_i$ is a vector of firm characteristics, and $ARTICLE_i$ is a vector of article characteristics. As firm characteristics, we include *ADVERTISING*, *FAMILY*, *GOVERNANCE*, *NO_SCORE*, *ETR*, *LOSS*, *LOW_TAX_RISK*, an article specific variable *SAMEARTICLE*, industry and year fixed effects.¹³ Note that all firm characteristic variables are based on prior year values.

We compute multiple regressions to investigate firms' CARs. Models (1) to (4) of [Table 4](#) are linear regressions using the full sample. We use four different models to calculate abnormal returns. Models (1) to (4) use the market model, the market-adjusted, the Fama–French three-factor and the Carhart four-factor model, models (5) to (8) of [Table 4](#) are defined analogously for the avoidance sample.

To test whether the perceived legality of tax planning affect stock market responses ([Hypotheses 1 and 2](#)), we use the full sample (columns (1) to (4) of [Table 4](#)). Confirming the previous univariate results, we find a significantly positive effect of *LEGAL*. This indicates that stock markets react differently to news concerning corporate tax planning depending on whether the strategy is legal (avoidance) or illegal (evasion).

To test hypotheses (3) to (6), we use the avoidance sample (Columns (5) to (8) of [Table 4](#)). We do not run a separate regression of tax evasion news because of the small sample size. With respect to our reputation risk variables, we obtain no significant effects (except the significant positive effect for family firms in model (7)). Thus, stock prices of firms with high reputation risks are not reacting more negatively to tax avoidance news than other firms, which contrasts with the idea that tax avoidance is accompanied by significant reputation losses. Thus, we do not confirm [Hypothesis 3](#) that legal tax planning is related to reputation costs that, on average, exceed tax planning benefits. Moreover, our results do not support [Hypothesis 4](#), as both measures of the level of corporate governance (*GOVERNANCE* and *INSTITUTIONAL*) remain insignificant in models (5) to (8). We find, however, a positive effect of *LOW_TAX_RISK* in models (7) and (8), which supports our [Hypothesis 5](#) and suggests that market reactions to news about corporate tax avoidance are particularly pronounced for firms with low tax risks. Again, contrary to [Hypothesis 6](#), we find no effect of prior effective tax rates (ETRs) on CARs. Thus, stock price reactions do not differ between presumably non-tax-aggressive and tax-aggressive firms.

4.3. Robustness checks

We subjected our analysis to a set of robustness tests. First, we added two additional article-specific control variables to the regression analysis. (i) We identified newspapers that are aimed at an economically interested readership (*Handelsblatt*, *Handelsblatt*

¹³ The distribution of the industries is as follows: Manufacturing - customer goods (SIC Code 2): $n = 28$, Manufacturing - industrial goods (SIC Code 3): $n = 55$, Transportation, Communications, Electric, Gas and Sanitary service (SIC Code 4): $n = 40$, Finance, Insurance and Real Estate (SIC Code 6): $n = 37$ and Other industries: $n = 16$. Regarding the category "Other industries", we merge (because of small sample sizes) the codes 1 (mining and construction, $n = 2$), 5 (Trade, $n = 4$), 7 (private services, $n = 7$), and 8 (public services, $n = 3$) into one group.

Table 4
Multivariate analysis of cumulative abnormal returns.

| | All | | | | Avoidance | | | |
|-------------------------|---------------------|---------------------|--------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| | (1) CAR_{MM} | (2) CAR_{MA} | (3) CAR_{3F} | (4) CAR_{4F} | (5) CAR_{MM} | (6) CAR_{MA} | (7) CAR_{3F} | (8) CAR_{4F} |
| LEGAL | 0.006*** (0.002) | 0.006*** (0.002) | 0.006** (0.002) | 0.005** (0.002) | | | | |
| ADVERTISING | -0.038 (0.038) | -0.039 (0.038) | 0.003 (0.043) | 0.008 (0.043) | 0.568 (0.374) | 0.633* (0.371) | 0.456 (0.414) | 0.348 (0.420) |
| FAMILY | 0.008 (0.012) | 0.009 (0.012) | 0.027** (0.014) | 0.022 (0.014) | 0.017 (0.014) | 0.015 (0.014) | 0.031** (0.015) | 0.024 (0.015) |
| GOVERNANCE | 0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) | -0.000 (0.000) | -0.000 (0.000) | -0.000 (0.000) | -0.000 (0.000) |
| NO_SCORE | -0.011 (0.009) | -0.012 (0.009) | -0.015 (0.010) | -0.014 (0.010) | -0.017* (0.010) | -0.017* (0.009) | -0.021** (0.011) | -0.020* (0.011) |
| INSTITUTIONAL | 0.000 (0.000) | -0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) | -0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) |
| LOW_TAX_RISK | 0.012 (0.008) | 0.011 (0.008) | 0.016* (0.009) | 0.015* (0.009) | 0.015* (0.008) | 0.014* (0.008) | 0.019** (0.009) | 0.019** (0.009) |
| ETR | 0.014 (0.015) | 0.001 (0.015) | 0.017 (0.017) | 0.014 (0.017) | 0.013 (0.016) | -0.005 (0.016) | 0.014 (0.018) | 0.011 (0.018) |
| LOSS | 0.010 (0.009) | -0.003 (0.009) | 0.012 (0.010) | 0.011 (0.010) | 0.005 (0.010) | -0.010 (0.010) | 0.006 (0.011) | 0.006 (0.011) |
| log(ASSETS) | -0.001 (0.002) | -0.001 (0.002) | -0.001 (0.002) | -0.001 (0.002) | -0.000 (0.002) | -0.001 (0.002) | -0.000 (0.002) | -0.000 (0.002) |
| SAMEARTICLE | -0.002* (0.001) | -0.001 (0.001) | -0.001 (0.001) | -0.001 (0.001) | -0.002** (0.001) | -0.002* (0.001) | -0.001 (0.001) | -0.001 (0.001) |
| Constant | -0.008 (0.030) | 0.014 (0.030) | 0.016 (0.034) | 0.018 (0.034) | 0.013 (0.029) | 0.041 (0.029) | 0.035 (0.032) | 0.033 (0.032) |
| Industry Dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year Dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 176 | 176 | 176 | 176 | 144 | 144 | 144 | 144 |
| R ² | 0.188 | 0.156 | 0.260 | 0.231 | 0.226 | 0.188 | 0.302 | 0.271 |
| Adjusted R ² | 0.033 | -0.005 | 0.119 | 0.084 | 0.046 | -0.000 | 0.140 | 0.102 |

Note. This table reports the regression results of our baseline models. Models (1) to (4) contain the whole sample, while models (5) and (8) include solely avoidance events. CAR_x are the cumulative abnormal returns of sample firms using the market model ($X = MM$), the market adjusted model ($X = MA$), the Fama-French three-factor model ($X = 3F$) or the Carhart four-factor model ($X = 4F$). *LEGAL* is the mean value of ratings on a five point scale whether the tax planning strategy is considered to be legal (= 5) or illegal (= 1). *ADVERTISING* is a firm's gross advertising expenses scaled by sales. *FAMILY* takes the value one for firms listed in the DAXplus family index and zero otherwise. *GOVERNANCE* is a firm's corporate governance score obtained by datastream and 0 for missing data. *NO_SCORE* takes the value one for firms with a missing corporate governance score and zero otherwise. *INSTITUTIONAL* is the amount of shares held by institutional shareholders (investment companies) in percent. *LOW_TAX_RISK* is one for firms with a volatility of firm's current tax expense scaled by total assets over the five prior years below the sample 0.25-quantile and zero otherwise. *ETR* is the firm's effective tax rate defined as income taxes divided by pretax income. Cases with negative pretax income are set to zero. *ETR* is winsorized at zero and one. *LOSS* takes the value one for firms with a negative pretax income, and zero otherwise. *log(ASSETS)* is the natural logarithm of total assets in EUR 1000s. *SAMEARTICLE* counts the number of sample firms within the same news article. Note that all firm characteristic variables are based on prior year values. Coefficients' standard errors are in brackets. P-values of two-tailed t-tests are indicated as follows: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Online, Wirtschaftswoche, Wirtschaftswoche Online, and Börsenzeitung) and included a dummy variable *EN* that is one for these sources and zero otherwise. (ii) We controlled for how intensively the media reported about a specific event. Therefore, we added a new variable *OUTCRY* that counts the number of German news articles in our event-window when using our search terms and the corresponding firm name of the event. In both additional tests, our main findings remain qualitatively unchanged.

Second, in order to test [Hypothesis 3](#), we used an alternative approach to measure a firm's reputation risk based on its media presence during a forty-day window beginning two days before the tax planning event ([Vega, 2006](#)). Just as in the main regression, we do not find a negative effect of our reputation risk proxy.

Third, low effective tax rates are more persistent than high effective tax rates ([Guenther et al., 2017](#)). Therefore, we checked whether our results regarding a firm's tax risk ([Hypothesis 5](#)) are simply driven by its tax level. We found no effect of a firm's level of taxes on CARs. Thus, a firm's tax risk and not its level of taxes determines the stock market responses.

Fourth, related to [Hypothesis 6](#), we tested whether alternative measures for firms' tax aggressiveness have an impact on CARs. We used book-tax differences, a two-year GAAP ETR, CURRENT ETR (current tax expense over pre-tax income), the ratio of ETR and statutory tax rate, and the difference between the ETR and the statutory tax rate. As in the main analysis, we find no significant effect on stock market responses for any measure of tax aggressiveness.

Fifth, we checked whether our results are biased due to possible confounding events. We used the online database of the Federal Gazette to obtain business disclosure data (e.g., dividend announcements, changes of supervisory board) for the sample firms. Since

2003, listed firms have been obliged to file firm announcements required by company or capital market law to the Federal Gazette. We removed 17 events because of potentially confounding events. Even after removing these events, main findings remain unchanged.

5. Discussion

By investigating short-term stock price reactions to news concerning corporate tax planning strategies, our study advances previous research on the effect of corporate tax strategies on firm value in three ways. First, we find that legality is an important determinant that moderates the effect of tax planning on firm value. We observe negative market responses to tax evasion news, while we do not find a general effect for tax avoidance news. Thus, the legality of tax planning matters and has to be considered if one is evaluating the consequences of tax planning for the firm's shareholders. Second, while prior studies show that also legal tax planning can lead to reputational costs (Hardeck & Hertl, 2014; Antonetti & Anesa, 2017), we find that stock market participants do not expect that, on average, reputational and agency costs exceed legal tax planning benefits. Third, we find that prior tax risk determines market responses to tax avoidance news. Only if tax risk is low, i.e., past tax volatility is low, the stock market response to tax avoidance news is positive. This complements recent research regarding the relationship between tax risk and tax avoidance (Guenther et al., 2017; Drake et al., 2019; Dyreng et al., 2019).

Our results have implications for tax policy as well as practice. Regarding practitioners, our findings highlight the importance of firms' tax compliance management systems. These systems should ensure that firms are compliant with all legal tax requirements to reduce the risk of negative firm value effects caused by tax evasion. Moreover, our results suggest that the stock market considers tax avoidance as a positive net present value investment only if tax management is able to persistently reduce the tax burden which requires a professional tax risk management. Currently, an important issue for tax managers is to decide whether also legal tax planning bears significant reputational risks. Our result that we don't find a significant moderating effect of reputation risk on market responses to avoidance news is in line with the results of Gallemore et al. (2014). From a shareholder viewpoint, this result causes doubt on the justification of tax manager statements that potential harm to firm reputation is the second-most important reason preventing firms from engaging in tax planning (Graham et al., 2014).

From a tax policy perspective, our results reveal that the definition of the borderline between legality and illegality of tax planning has an important effect on corporate tax strategies. Law expresses social values and legality may act as a reference point when individuals rationalize tax planning decisions (Blaufus, Hundsdorfer et al., 2016). For example, in contrast to other countries such as Canada, in Germany even not complying with the general anti-avoidance rule is not under penalty. Moreover, governments and other actors such as "Fair Tax Mark" organizations may recognize that reputational costs of tax avoidance might not be as high as expected and, therefore, should not overestimate effects of new tax transparency rules that "name-and-shame" tax avoiding firms. There is much evidence in economic psychological research regarding the effect of moral costs on individual tax compliance decisions. Our findings show that future research should look more closely at the impact of moral costs on tax compliance in the market environment. Previous studies suggest that morality may have less impact on markets than on individual choices (e.g., Falk & Szech, 2013; Bartling et al., 2015).

In sum, the results of this paper provide new insights into the ongoing discussions among both academics and managers regarding whether tax planning strategies yield positive net shareholder value. Our findings suggest that tax avoidance is on average a positive net present value investment only for those firms that exhibit particularly low tax risk. However, we are aware that our sample consists primarily of large, multinational companies. Therefore, we should be cautious when transferring our results to small and medium-sized enterprises. Furthermore, note that our interpretation is based on the assumption that investors correctly envisage consumer reactions in their investment decisions. This must not be necessarily true. In addition, the amount of tax evasion events is relatively small and thus these events could not be examined separately. Moreover, investors may anticipate that corporate managers engaging in tax evasion will also engage in a "diffusion of responsibility" strategy to ensure that it will be difficult to determine and prosecute a responsible individual. Such diffusion may have a negative effect on management practices generally, so that investors may interpret evasion information as a signal of bad management practices in non-tax areas, too. While we cannot fully exclude this interpretation, note that we explicitly control for the firms' corporate governance level. Finally, any interpretation of our results must keep the German institutional and cultural context in mind. Prior research finds that national culture affects firm-level tax compliance (Alm & Torgler, 2006). Additionally, there are also institutional differences across countries that could affect tax planning decisions. For example, in Germany, there are neither criminal nor civil penalties for legal tax avoidance while in other countries penalties for legal (but aggressive) tax planning exist. Thus, an interesting task for future research would be to examine whether the costs of tax planning, especially reputation costs, differ between countries.

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Appendix A. Appendix A

The access to Genios.de is authorized by Stadtbibliothek Hannover. The availability of newspapers provided by Genios.de depends on the specific license. For example, the license held by the Stadtbibliothek does not contain news articles of "Chemnitzer Morgenpost", that is why we have reported a list of newspapers that were taken into account in the news research (see Table 5).

Table 5
Newspapers included in database research.

| | | |
|---------------------------------------|----------------------------------|----------------------------------|
| Aachener Nachrichten | Hamburger Morgenpost | Rhein-Hunsrück-Zeitung |
| Aachener Zeitung | Handelsblatt | Rheinische Post |
| Aar-Bote | Handelsblatt Live | Rhein-Lahn-Zeitung |
| Alb Bote | Handelsblatt Magazin | Rhein-Zeitung |
| Allgemeine Zeitung Mainz | Handelsblatt Newcomer-Zeitung | Rundschau für den Schwäb. Wald |
| B.Z. | Handelsblatt online | Saale-Zeitung |
| Badische Zeitung | Harburger Anzeigen&Nachrichten | Saarbrücker Zeitung |
| Bayerische Rundschau | Heilbronner Stimme | Sächsische Zeitung |
| Bayerische Staatszeitung | Hochheimer Zeitung | Schwäbische Zeitung |
| Bergedorfer Zeitung | Höchster Kreisblatt | Schweriner Volkszeitung |
| Bergische Morgenpost | Hofheimer Zeitung | Solinger Morgenpost |
| Berliner Kurier | Hohenloher Tagblatt | Sonntag aktuell |
| Berliner Morgenpost | Hohenzollersche Zeitung | SPIEGEL ONLINE |
| Berliner Morgenpost online | HÖRZU | SPIEGEL Online International |
| Berliner Zeitung | Idsteiner Zeitung | SPIEGEL special |
| Bersenbrücker Kreisblatt | Jüdische Allgemeine | Sport Bild |
| Bild der Frau | Kölner Stadt-Anzeiger | Stern |
| Bonner General-Anzeiger | Kölnische Rundschau | Straubinger Tagblatt |
| Börsen-Zeitung | Kreis-Anzeiger | Stuttgarter Nachrichten |
| Bramscher Nachrichten | KulturSPIEGEL | Stuttgarter Zeitung |
| Brigitte | Lamprather Zeitung | Sublokalteile der Stutt. Zeitung |
| BUNTE | Landshuter Zeitung | Süddeutsche Zeitung |
| Bürostädter Zeitung | Lausitzer Rundschau | Süddeutsche Zeitung Magazin |
| chrismon | Lauterbacher Anzeiger | Süddeutsche Zeitung PRIMETIME |
| Coburger Tageblatt | Leipziger Volkszeitung | Süddeutsche Zeitung WISSEN |
| Darmstädter Echo | Lingener Tagespost | Südkurier |
| Der Prignitzer | Main-Post | Südthüringer Zeitung |
| DER SPIEGEL | Main-Spitze | SÜDWEST PRESSE |
| Der Tagesspiegel | Main-Taunus-Kurier | sueddeutsche.de |
| DIE KITZINGER | Märkische Allgemeine | SUPERillu |
| DIE WELT | Meininger Tagblatt | tagesspiegel.de |
| DIE ZEIT | Meller Kreisblatt | Taunus Zeitung |
| DIE ZEIT online | Meppener Tagespost | taz |
| Döbelner Allgemeine Zeitung | Metzinger Uracher Volksblatt | Thüringer Allgemeine |
| Dresdner Neueste Nachrichten | Mittelbayerische Zeitung | Thüringische Landeszeitung |
| Ems-Zeitung | Mitteldeutsche Zeitung | Torgauer Zeitung |
| Euro | Münchner Abendzeitung | Trierischer Volksfreund |
| EXPRESS | Nassauische Neue Presse | UNISPIEGEL |
| FAZ.net | Neue Osnabrücker Zeitung | Usinger Anzeiger |
| Financial Times Deutschland | Neue Presse | WELT AKTUELL |
| FTD online | Neue Westfälische | WELT am SONNTAG |
| FOCUS | Neue Württembergische Zeitung | WELT KOMPAKT |
| FOCUS-MONEY | Neuss-Grevenbroicher Zeitung | WELT ONLINE |
| Frankenpost | Norddeutsche Neueste Nachrichten | Westdeutsche Zeitung |
| Frankfurter Allgemeine Zeitung | Nordkurier | Westerwälder Zeitung |
| Frankfurter Neue Presse | Nürnberger Nachrichten | Westfalen-Blatt |
| Frankfurter Rundschau | Nürnberg Zeitung | Wiesbadener Kurier |
| Fränkischer Tag | Oberhessische Zeitung | Wiesbadener Tagblatt |
| Frau von Heute | Oeffentlicher Anzeiger | WirtschaftsWoche |
| Freie Presse | Oschatzer Allgemeine Zeitung | WirtschaftsWoche Green |
| Freies Wort | Osterländer Volkszeitung | WirtschaftsWoche online |
| Funk Uhr | Osthüringer Zeitung | Wirtschaftszeitung |
| Gelnhäuser Tageblatt | Passauer Neue Presse | Wittlager Kreisblatt |
| Gießener Anzeiger | Potsdamer Neueste Nachrichten | Wormser Zeitung |
| Hamburger Abendblatt | Reutlinger General-Anzeiger | ZEIT Campus |
| Hamburger Abendblatt online | Reutlinger Nachrichten | ZEIT Geschichte |

Note. This table contains all newspaper of our underlying database. Newspaper with articles in our sample are highlighted in bold characters.

Appendix B. Appendix B

For tax avoidance we used the following search terms:

\$COMPANYNAME AND ((steuer OR steuern) ndj2 (sparen OR spart OR drückt OR drücken OR umgehen OR umgeht OR vermeiden OR vermeidet OR minimieren OR minimiert) OR steuerdumping OR steuerzuflucht OR steuerflucht OR steuerdeal OR steuerparadies OR steueroase OR steuerspar* OR steuertrick* OR steuerloch OR steuerschlupfloch OR steuerloch OR steuerkniff OR steuerarbitrage OR steuervorteil*)

For tax evasion, we used the following search terms:

\$COMPANYNAME AND ((steuer OR steuern) AND (hinterziehen OR hinterzogen OR hinterzieht OR hinterzog) OR *steuerbetrug* OR *steuerfahnd* OR *steuerhinterziehung* OR *steuerrazzi* OR *steuerstrafat* OR *steuervergehen OR *steuerdelikt*)

"\$COMPANY is replaced with the company names from our potential firm list. ndj2 means that the search terms may occur in any sequence and with up to two words between them. * is a wildcard for any number of characters.

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