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RESEARCH ARTICLE

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Tax avoidance in different firm types and the role of nonfamily involvement in private family firms

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This study simultaneously distinguishes between private family firms, private nonfamily firms, public family firms, and public nonfamily firms. We show that private family firms avoid taxes less than public family firms and public nonfamily firms; however, we do not find a difference between private family firms and private nonfamily firms. Therefore, building on family firm heterogeneity, our results indicate that tax avoidance in private family firms differs depending on the involvement of nonfamily owners and/or managers. We find that private family firms that are wholly owned and managed by family members indeed avoid taxes less than private nonfamily firms.

JEL CLASSIFICATION
H25; H26; H32; D22; L21

1 | INTRODUCTION

Interest in corporate tax avoidance has intensified recently due to economic and political developments that have increased the awareness of corporate tax activities (Hanlon & Heitzman, 2010; Wilde & Wilson, 2018). In this context, the tax-planning actions of well-known public firms have attracted the attention of academics, politicians, and the general public (e.g., Garside, 2016; Hakim, 2014; Schwarz, 2009). However, the majority of firms are not public but rather private firms, which often have been disregarded by the literature (Balsmeier & Czarnitzki, 2017). In particular, most firms worldwide are private family firms, which make significant economic contributions (Claessens, Djankov, & Lang, 2000; Faccio & Lang, 2002; Klein, 2000). Given their economic importance, it is remarkable that only a few studies investigate tax avoidance in private family firms (e.g., Steijvers & Niskanen, 2014). Against this background, (at least) two research questions at the intersection of private family firms and tax avoidance are unanswered.

First, prior literature has focused on tax avoidance either in private and public firms (Badertscher, Katz, & Rego, 2013; Mills & Newberry, 2001; Penno & Simon, 1986) or in family and nonfamily firms (Chen, Chen, Cheng, & Shevlin, 2010; Mafrolla & D'Amico, 2016; Steijvers & Niskanen, 2014). Accordingly, previous studies have either investigated the exposure to capital market pressure that emerges because of a firm's stock exchange listing or the attribute "family firm." However, an investigation of potentially relevant interdependencies between the two characteristics—capital market pressure and the attribute family firm—is still missing. Therefore, by considering both characteristics simultaneously in one sample, we try to fill this research gap to better understand whether tax avoidance varies between different firm types. In this context, the bundling of these two characteristics enables us to differentiate between four types of firms: private family firms, private nonfamily firms, public family firms, and public nonfamily firms.

Second, variations within the group of private family firms are no less considerable than differences between family and nonfamily firms (Chua, Chrisman, Steier, & Rau, 2012). Specifically, treating private family firms as a homogeneous group is most likely appropriate only at first glance (Zellweger & Kammerlander, 2015). In this context, previous studies indicate that heterogeneity within the family firms group influences the magnitude of tax avoidance (e.g., Brune, Thomsen, & Watrin, 2019; Mafrolla & D'Amico, 2016). With our study, we

incrementally add to this stream of research by investigating an additional dimension of heterogeneity in private family firms: nonfamily involvement in management and ownership. Prior research shows that both owners and managers generally participate in decision-making processes (Vilaseca, 2002). Hence, with regard to corporate tax avoidance, we take the next step and analyze the simultaneous interaction of both ownership and management. More precisely, we investigate the question of whether private family firms that are wholly owned and managed by members of the family differ in their tax avoidance behavior from private family firms that are partly owned and/or managed by nonfamily members.

Our study contributes to academic research on family businesses and corporate tax avoidance in different ways. First, to the best of our knowledge, there exists no study that differentiates among four firm types to analyze the association of tax avoidance with the simultaneous interaction of capital market pressure and the attribute family firm. Regarding these two characteristics, we are the first to take potentially relevant interdependencies into account, and our findings suggest that public nonfamily firms are associated with the highest engagement in tax avoidance, followed by public family firms. Hence, capital market pressure seems to be more associated with tax avoidance than the attribute family firm. In short, we make an incremental contribution regarding the research question of whether some (family) firms engage less in tax avoidance than others.

Second, we contribute to the debate on the heterogeneity of family firms (Molly, Uhlander, De Massis, & Laveren, 2019). Our study provides (further) evidence that researchers must account for heterogeneity if they want to unpack the "black box" of tax avoidance in private family firms. Stated differently, we provide new insights by showing that the involvement of nonfamily owners or managers are likely two important dimensions of heterogeneity that are associated with the extent of tax avoidance. Family owners should be aware that a gradual rise in the number of nonfamily shareholders or managers is associated with an increase in tax avoidance. Specifically, transferring ownership or management responsibilities to nonfamily members can reduce the family's ability to enforce their family-specific objectives (Chrisman, Chua, De Massis, Frattini, & Wright, 2015).

Third, our study contributes knowledge regarding the interaction of what are presumably the two most important corporate spheres: ownership and management. By considering both spheres simultaneously, our results indicate that the inclusion of just one nonfamily owner and/or manager seems to be associated with an increase in tax avoidance. However, if made public, engagement in tax avoidance might endanger the reputation of the family. Accordingly, family members should take into account that not only selling shares to nonfamily members but also hiring nonfamily managers could reduce their capability to pursue their "family agenda."

Fourth, we extend the knowledge regarding tax avoidance in private (family) firms. Because of data restrictions, prior studies only use the generally accepted accounting principles (GAAP) effective tax rate (ETR) as a measure of tax avoidance when analyzing private firms (e.g., Brune et al., 2019; Chen et al., 2010; Mafrolla & D'Amico, 2016; Steijvers & Niskanen, 2014). Thus, it is unclear whether other tax avoidance proxies (e.g., cash ETR or long-run GAAP ETR) may lead to different takeaways in private firms. Specifically, a survey by Graham, Hanlon, Shevlin, and Shroff (2014) indicates that public firms attach greater importance to the GAAP ETR, whereas private firms focus more on the cash ETR. Therefore, we hand-collect data on cash taxes paid by private firms to analyze a broader spectrum of tax avoidance, thereby contributing to the abovementioned discussion. In our unique dataset, our results indicate that the inferences drawn from our study when using the GAAP ETR are similar to the findings we obtain when considering the cash ETR or the long-run GAAP ETR.

This paper continues as follows. Next, we elaborate on tax avoidance and the related advantages and disadvantages, and we derive our hypotheses. The research design is explained in Section 3. Section 4 illustrates the results of our main tests before we conclude the paper.

2 | THEORY AND HYPOTHESES

2.1 | Tax avoidance and the related advantages and disadvantages

Definitions of tax avoidance vary considerably (Hanlon & Heitzman, 2010). Several studies define tax avoidance as the reduction of explicit taxes (e.g., Chen et al., 2010). We use a similar approach in this study. Accordingly, the generic term "tax avoidance" represents all (business) transactions that affect the explicit tax liability of a firm (e.g., Dyreng, Hanlon, & Maydew, 2008); that is, we do not specifically analyze distinct tax strategies. Instead, we concentrate on the overall intention to ease a firm's tax burden. However, we implicitly assume that large reductions in tax payments arise from aggressive (i.e., reputation-damaging) tax strategies, such as shifting income into tax havens while being aware that smaller tax savings may also stem from "innocent" (i.e., not reputation-damaging) tax strategies, such as the choice of depreciation methods.

Engaging in tax avoidance involves advantages and disadvantages (Shackelford & Shevlin, 2001; Wilde & Wilson, 2018). On the one hand, tax avoidance can be beneficial because particular schemes can reduce tax liability and therefore increase liquidity. Furthermore, higher after-tax earnings improve a firm's performance ratios, for example, earnings per share, and those ratios are particularly important for public firms. Thus, lower tax payments (i.e., decreased cash outflow) could be interpreted as good signals to (potential) shareholders, thereby cutting the cost of equity capital.

On the other hand, avoiding taxes generates costs. More precisely, avoiding taxes requires (costly) expert advice because specific structures must be implemented and monitored. Additionally, nontax costs may arise; for example, reputational and political consequences could emerge if tax avoidance strategies are made public. Stated differently, firms do not want to be exposed to negative media coverage; that is, having their name in the newspapers in a bad light is costly. Furthermore, tax authorities will eventually require settlement of the unpaid

tax liability if a position is overturned because of a tax audit. In this context, Gergen (2001) supposes that the risk of detection increases (a) as specific tax avoidance strategies become more popular among firms and (b) with the length of the period during which firms pursue their respective schemes.

Overall, the decision to engage in tax avoidance strategies requires careful balancing of advantages and disadvantages. In general, entering into a tax avoidance scheme is considered to be beneficial if the economic advantages outweigh the disadvantages (Hanlon & Heitzman, 2010).

2.2 | Different firm types and tax avoidance

Based on different theoretical frameworks, prior literature has paid some attention to the question of whether tax avoidance is more prevalent in some firm types than in others. However, previous studies have investigated tax avoidance either in public and private firms or in family and nonfamily firms. Taking the existing theoretical arguments and empirical findings into account, we add to prior research by bundling the two characteristics (i.e., exposure to capital market pressure and the attribute family firm) that differentiate public from private firms and family from nonfamily firms. In this context, we must first highlight the discrepancies between public and private firms and between family and nonfamily firms that most likely affect their tax avoidance behavior. On this basis, we then analyze the simultaneous association of these two characteristics with tax avoidance.

According to previous investigations, public firms show a stronger tendency than private firms to adopt nonconforming tax strategies (Badertscher et al., 2013; Cloyd, Pratt, & Stock, 1996). In comparison to private firms, public firms are characterized by a highly fragmented ownership structure (La Porta, Lopez-de-Silanes, & Shleifer, 1999), and management is determined by a hierarchy of professional executives (Chandler, 1977). Especially in public firms, the relation between owners (i.e., principals) and managers (i.e., agents) is an important determinant of the corporate agency setting because there is little overlap between management and ownership. Managers are generally expected to act on the owners' behalf by focusing on profit maximization, which includes considering all strategies to reduce the overall tax liability as long as the expected advantages exceed the disadvantages. However, agency theory argues that—given the opportunity—managers act in a self-interested way that is not necessarily consistent with the owners' interests (e.g., Eisenhardt, 1989; Jensen & Meckling, 1976; Ross, 1973; Wiseman, Cuevas-Rodríguez, & Gómez-Mejía, 2012). Therefore, the separation of ownership and management evokes Type I agency problems, that is, owner–manager conflicts (Villalonga & Amit, 2006). In fact, separation of ownership and control could cause tax decisions that reflect the private interests of managers but not necessarily the interests of owners. This owner–manager conflict is most likely stronger in public firms than in private firms because separation of ownership and management is more prevalent in public firms.

In terms of tax avoidance, it is important to consider the accompanying consequences of having access to the capital market. On the one hand, a firm's public listing could be associated with a decrease in tax avoidance. Their public status requires listed firms to fulfill high corporate governance standards and exposes them to strong legal obligations that protect the property rights of shareholders (Bruno & Claessens, 2010). Furthermore, public firms face comprehensive transparency obligations and substantial monitoring by capital market participants (Pagano & Röell, 1998).

On the other hand, in contrast to private firms, public firms are exposed to the pressures of capital markets (Desai, 2005; McGuire, Omer, & Wilde, 2014).[1] Specifically, capital market pressure seems to increase the incentive of public firms to avoid taxes in order to satisfy shareholder expectations. Shareholders are interested in high (financial) earnings and, ultimately, in an increase in the value of their investment. Demands for improved short-term performance enhance the focus on quarterly results and increase public firms' willingness to bear the accompanying risks (Carney, van Essen, Gedajlovic, & Heugens, 2015). Consequently, managers of public firms are generally concerned about the stock market reaction to reported financial earnings (Penno & Simon, 1986). In an analysis of survey responses, Graham et al. (2014) show that 57% of public firms state that rising net earnings per share is an important result of a tax strategy.

On the basis of these theoretical arguments and consistent with the abovementioned empirical findings, we claim that tax avoidance is more prevalent in public firms than in private firms. Specifically, capital market pressure incentivizes public firms to improve their financial performance. In other words, capital market pressure motivates decision makers of public firms to exploit all opportunities to increase after-tax earnings.

Regarding tax avoidance in family and nonfamily firms, previous literature suggests that public family firms in the United States avoid taxes less than U.S. public nonfamily firms (Chen et al., 2010). Further research confirms this finding for Italian (Mafrolla & D'Amico, 2016) and Canadian (Landry, Deslandes, & Fortin, 2013) public family and nonfamily firms. Using Finnish data, Steijvers and Niskanen (2014) observe that private family firms avoid taxes less than private nonfamily firms. In contrast to nonfamily firms, a family firm's ownership structure is usually characterized by a blockholding family and other (smaller) nonfamily shareholders. The specific ownership structure of family firms therefore causes Type II agency conflicts, that is, problems between controlling majority (i.e., family) and noncontrolling minority (i.e., nonfamily) shareholders (Burkhart, Panunzi, & Shleifer, 2003; Goel, Voordeckers, van Gils, & van den Heuvel, 2012; Shleifer & Vishny, 1986).[2] In fact, this specific agency setting could incentivize family owners not to act in the best interest of minority (nonfamily) shareholders (Desai & Dharmapala, 2009; Graham & Tucker, 2006). More precisely, family owners could adjust the firm's tax strategy according to their personal preferences. Therefore, because the benefits from tax avoidance are higher for family owners than for other firm owners, agency theory suggests that family firms are more likely to avoid taxes than nonfamily firms (Kalm & Gómez-Mejía, 2016).

However, the outcome predicted by agency theory is not necessarily in line with the abovementioned empirical inferences (Chen et al., 2010; Landry et al., 2013; Steijvers & Niskanen, 2014). Following Steijvers and Niskanen (2014), our line of argumentation is that the theoretical lens of agency theory are perhaps too narrow when making predictions regarding tax avoidance in family and nonfamily firms. Accordingly, we broaden the theoretical perspective and additionally base our argumentation on the socioemotional wealth concept (Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuentes, 2007), which draws on behavioral agency theory (Wiseman & Gómez-Mejía, 1998). Socioemotional wealth captures the whole set of nonfinancial resources that the family has embedded in the firm, for example, the family's reputation and status in the community (Berrone, Cruz, & Gómez-Mejía, 2012). In fact, family owners are considered to be loss averse in terms of socioemotional wealth (Neacsu, Martin, & Gómez-Mejía, 2016). Thus, when deciding whether to engage in tax avoidance, family firms will pay special attention to nonfinancial goals, particularly because of three important characteristics that differentiate them from nonfamily firms: higher ownership concentration, long investment horizons, and reputational concerns.

First, family firms exhibit a highly concentrated ownership structure, leading to family owners' overinvestment in their own firms. Therefore, family owners are highly exposed to idiosyncratic risk. Consequently, in line with the concept of socioemotional wealth, they have a strong interest in the well-being of their firms. Hence, compared with nonfamily firms, family firms could be more reluctant to bear the risk of the potential negative outcomes (e.g., additional tax payments for past years) that may result from the implementation of tax avoidance strategies.[3] Stated differently, the risk aversion of family firms could be higher because the family's wealth is strongly tied to their firm. Thus, despite potentially being risk seeking in periods of losses—in order to secure the firm's survival and the associated socioemotional wealth—profitable family firms may generally accept lower financial returns if doing so preserves their socioemotional wealth (Kalm & Gómez-Mejía, 2016).

Second, because of their long investment horizons, family owners are willing to undertake long-term projects; the aim to retain the firm for subsequent generations, which is one determinant of socioemotional wealth (Berrone et al., 2012), reinforces this attitude (James, 1999; Zellweger, 2007). More precisely, despite potential short-term benefits, tax avoidance schemes could be discovered by tax authorities in subsequent years. Thus, family owners may be unwilling to bear the significant costs that can arise from the potential negative consequences of tax avoidance in the long term, as those costs could harm socioemotional wealth.

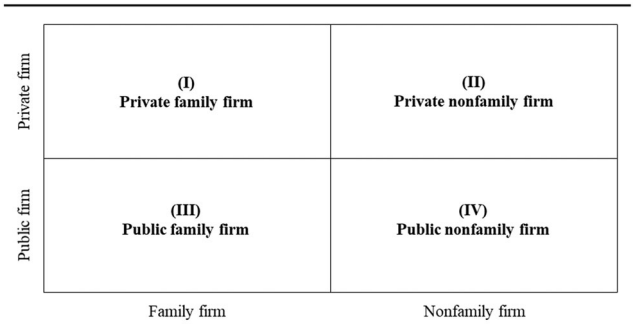
Third, current research considers the association between tax avoidance and reputational concerns (e.g., Austin & Wilson, 2017; Dyreng, Hoopes, & Wilde, 2016; Gallemore, Maydew, & Thornock, 2014; Hanlon & Slemrod, 2009). In this context, families fear the deterioration of their firm's reputation. Stated differently, families often regard their firm as an asset that they want to preserve for subsequent generations; their objective is to maintain the firm's good reputation or, if it has suffered recently, to improve its reputation significantly. Family owners are assumed to be more concerned when the firm's reputation is at risk because they fear the potential costs imposed by adverse media coverage of the firm's tax avoidance practices.[4] For these reasons, family firms may reject tax avoidance because they derive socioemotional wealth from being recognized as "good corporate citizens" who contribute to public welfare by paying taxes.

Based on these characteristics (i.e., high ownership concentration, long investment horizons, and reputational concerns) and their strong attachment to nonfinancial aspects, we suppose that family owners worry about the adverse outcomes related to tax avoidance—outcomes that may reduce their socioemotional wealth. Accordingly, consistent with prior research, we suggest that the tendency to avoid taxes is lower in family firms than in nonfamily firms.

The arguments presented above strengthen the view that (a) private firms avoid taxes less than public firms and (b) family firms engage in tax avoidance less than nonfamily firms. However, the two characteristics—the attribute family firm (i.e., family firm or nonfamily firm) and exposure to capital market pressure (i.e., public firm or private firm)—do not apply exclusively. In fact, capital market pressure and corporate family involvement are generally intertwined; for this reason, we assume that these two aspects have a combined association with corporate tax avoidance. Therefore, as shown in Figure 1, considering the two characteristics simultaneously yields four different groups of firms: private family firms (I), private nonfamily firms (II), public family firms (III), and public nonfamily firms (IV).

Private family firms (I) exhibit the distinct features of family firms and are likely to prioritize nonfinancial aspects of the family business to preserve socioemotional wealth. Additionally, these firms are not listed and therefore are not exposed to capital market pressure. Thus, assuming that private firms and family firms are associated with lower tax avoidance than public firms and nonfamily firms, respectively, suggests that private family firms (I) avoid taxes less than the other firm types.

By contrast, we argue that the remaining three groups of firms (i.e., private nonfamily firms, public family firms, and public nonfamily firms) show a stronger tendency to avoid taxes than private family firms



Note. We divide firms into four categories (i.e., private family firms, private nonfamily firms, public family firms, and public nonfamily firms) based on two determinants: the attribute "family firm" and capital market pressure.

FIGURE 1 Firm type overview

(I). More precisely, private nonfamily firms (II) are nonfamily firms, which most likely enhances their engagement in tax avoidance. Additionally, both public family firms (III) and public nonfamily firms (IV) are public firms. Therefore, they are likely to engage more in tax avoidance than private family firms (I). Thus, we formally state our hypothesis as follows:

> H1. : Tax avoidance is less prevalent in private family firms than in the other three firm types.

2.3 | Heterogeneity of private family firms and tax avoidance

Previous literature shows that variations between family firms can be larger than discrepancies among family and nonfamily firms (Bennedsen, Perez-Gonzalez, & Wolfenzon, 2010). Accordingly, treating family firms as homogenous units may be useful to distinguish their tax avoidance behavior from that of other firm types, but most likely, this is an appropriate distinction only at first glance. This observation is particularly relevant to private family firms due to both their ubiquity (Klein, 2000) and their significant economic contribution (Astrachan & Shanker, 2003). Thus, we argue that accounting for the heterogeneity of private family firms is highly relevant if we want to better understand their decision-making behavior. In this context, prior research has investigated several dimensions of family firm heterogeneity, for example, generation (Stockmans, Lybaert, & Voordeckers, 2010) and internationalization (Arregle, Naldi, Nordqvist, & Hitt, 2012). Additionally, prior research has started to verify the relevance of nonfamily involvement in family firms (Tabor, Chrisman, Madison, & Vardaman, 2018).

Regarding the heterogeneity of family firms and tax avoidance, prior research analyzes varying ownership and management structures. Steijvers and Niskanen (2014) investigate the relation between CEO ownership and tax avoidance. The results reveal that a lower CEO ownership share is associated with higher levels of tax avoidance in family firms than in family firms whose CEOs own a greater share. Chen et al. (2010) investigate different CEO types; according to the results, family firms with a descendant CEO engage more in tax avoidance than founder CEO family firms. In our study, we first test the association between tax avoidance and nonfamily involvement in ownership and management separately. Second, we take the next step and analyze the interaction of the two attributes. More precisely, we investigate whether family firms that are wholly owned and managed by family members differ in their tax avoidance behavior from family firms that are partly owned and/or managed by nonfamily members.

Starting with nonfamily involvement in terms of ownership, it is important to emphasize that family firms are generally considered to have a low fraction of nonfamily members in their ownership structure. This is true particularly for archetypical private family firms, which are usually owned by a single family. Such closely held family firms with negligibly small or no influence from outside most likely concentrate on nonfinancial objectives. To ascertain family control of the firm, owners may generally be unwilling to pass on ownership to nonfamily members for several reasons (Nyman & Silbertson, 1978). For example, if nonfamily members acquire shares, Type II agency conflicts arising because of conflicting interests of minority and majority shareholders may emerge (La Porta et al., 1999; Shleifer & Vishny, 1997). In this context, majority (family) owners can be considered agents for minority (nonfamily) owners; importantly, majority owners may possess more knowledge and power to exploit minority shareholders by entrenching themselves in important positions or by extracting private benefits (Le Breton-Miller & Miller, 2009). Hence, to circumvent the conflict, family owners are likely to approve share dealing to family members, who are also interested in preserving socioemotional wealth; that is, family owners are likely to circumvent selling shares to "outsiders" who primarily focus on financial performance (Westhead & Howorth, 2006).

However, due to "honest incompetence," limiting the pool of shareholders could cause misjudgment in terms of strategic decisions (Chrisman, Chua, & Litz, 2004; Hendry, 2002). Thus, some owners of private family firms could be willing to sell shares to nonfamily members (e.g., external investors), who are not "family" to the owners of the business (Mishra & McConaughy, 1999). In this context, potential motives for family owners of private firms to revise their opinion and sell shares to nonfamily members are the ambition to keep the business running or the intention to tackle obstacles in the way of business development (Westhead & Howorth, 2006). Consequently, the importance of financial objectives is likely to increase if nonfamily investors own shares of the firm.

Thus, we expect tax avoidance to increase as more outsiders acquire ownership of private family firms because they most likely focus on shareholder value exclusively and therefore engage more in tax avoidance to save costs. Thus, we hypothesize the following:

> H2a. : An increase in the proportion of nonfamily owners is associated with an increase in tax avoidance.

Regarding nonfamily involvement in terms of management, one should consider that the family's labor pool may not provide the required quality (Casson, 1982). Specifically, a firm that is increasingly exposed to strong competition requires the top management team members to have an excellent skillset and comprehensive leadership experience (Dyreng, Hanlon, & Maydew, 2010). However, family owners, who occupy key managerial positions in the firm, may lack the necessary knowledge and experience to perform their duties successfully (Lee, 2006), particularly in the domain of tax-planning schemes. In this context, previous research suggests that "outside" managers can offer specialist advice, professional expertise, and capabilities that a private family firm does not have (Westhead & Howorth, 2006). More precisely, Kesner and Dalton (1994) state that nonfamily managers are likely to be more assertive in turning around poorly performing firms because they can override past practices more easily as they are less committed to previous strategic decisions. In fact, despite potentially benefitting the preservation of socioemotional wealth, selecting managers based on family relationships may preclude the recruitment of more suitable candidates

and could hamper financial performance. Equally, nonfamily managers have the goal of improving their career prospects. Therefore, they are likely to consider all measures when trying to maximize a firm's financial performance because they want to signal the quality of their management skills. Thus, nonfamily managers are presumably more willing than family members to engage in tax avoidance, as the latter tend to fear the potential negative consequences regarding socioemotional wealth more than they appreciate the financial benefits. In sum, we expect tax avoidance in private family firms to increase as more outside managers enter the firm.

> H2b. : An increase in the proportion of nonfamily managers is associated with an increase in tax avoidance.

Based on the abovementioned arguments, "pure" private family firms (i.e., wholly owned and managed by family members) should engage less in tax avoidance than private family firms with nonfamily involvement in ownership and/or management (Carney et al., 2015; Chua, Chrisman, & Chang, 2004). Specifically, compared with pure private family firms, we expect private family firms with both nonfamily owners and nonfamily managers to avoid taxes more as nonfamily members strive to enforce their financial goals in both spheres (i.e., ownership and management). In this regard, it is important to acknowledge that prior research has shown that members of both spheres generally participate in decision-making processes (Vilaseca, 2002). Therefore, it is very likely that nonfamily involvement even in only one of the two spheres of private family firms introduces at least a partial focus on financial goals. Consequently, if nonfamily members enter just one of the two spheres (i.e., either ownership or management), the initial focus on nonfinancial aspects shifts towards a mixture of financial and nonfinancial goals. Therefore, compared with pure private family firms, this partial nonfamily involvement is associated with more tax avoidance.

We claim that private family firms' structures of ownership and management should be considered simultaneously as both spheres are generally intertwined. Because both owners and managers possess decision-making power, we assume that the two spheres have a combined association with corporate tax avoidance. Stated differently, neglecting the composition (i.e., the partitioning among family and nonfamily members) regarding either ownership or management could lead to misleading inferences regarding tax avoidance. In pure family firms, the clear focus on preserving socioemotional wealth is not weakened by nonfamily members, who are primarily interested in financial goals. Because of the consensus between the ownership and management spheres in pure family firms, we expect these firms to show the lowest level of tax avoidance, leading to the following hypothesis:

> H2c. : "Pure" private family firms avoid taxes less than private family firms with nonfamily members as owners and/or managers.

2.4 | Economic and regulatory setting in Germany

Regarding the German setting, one should recognize that the country has been experiencing stable economic development in recent years. According to the Organization for Economic Cooperation and Development (OECD), recovery from the global financial and economic crisis has been stronger in Germany than in the euro area as a whole during the observation period of this study (OECD, 2016). The rather favorable economic development has had a positive influence on corporate profitability, leading to rising (corporate) tax revenue (OECD, 2016). Nevertheless, the statutory corporate income tax rate in Germany has remained at a higher level than in most high-income OECD member states (OECD, 2016). In fact, the German (combined) statutory corporate income tax rate is approximately 30%, and corporations are taxed on their worldwide income if they are resident in Germany (KPMG, 2019).

However, based on the observation that corporate ETRs have declined in many OECD countries (Thomsen & Watrin, 2018), it is worthwhile to evaluate the prevalence of corporate tax avoidance in Germany, especially in light of recent attempts of the OECD and the European Union to address corporate tax base erosion and profit shifting (BEPS). German tax legislation has already implemented many of the anti-BEPS initiative's suggestions to fight disproportionate tax planning, for example, in terms of rules concerning interest deduction limitation and exit taxation. Acknowledging these developments, the spread between the (combined) statutory corporate income tax rate and firm's ETR, on average, has decreased over time in Germany (and in many other European countries), suggesting a reduced tendency to avoid taxes (Thomsen & Watrin, 2018). Nevertheless, the measures are likely to still leave some leeway for tax-planning strategies, especially for corporate groups (Collier, Kari, Ropponen, Simmler, & Todtenhaupt, 2018).

Regarding the generalizability of our inferences, it is important to consider the particularities of the German setting described above. Accordingly, the results of this study are likely to be generalizable to other countries that are characterized by a similar economic structure, regulatory environment, and tax system.

3 | RESEARCH DESIGN

Our analysis requires a clear distinction among the four firm types: private family firms, private nonfamily firms, public family firms, and public nonfamily firms.

We differentiate between private firms and public firms depending on their exchange quotation in Germany. Furthermore, if founders or members of the family (including kinsmen/kinswomen and spouses) own a minimum of 50% of the firm's equity, we classify private firms as family firms. This approach corresponds to prior studies (e.g., Rau, Werner, & Schell, 2018). Regarding public family firms, we also refer to families' equity ownership but apply a lower threshold (i.e., 5%); this procedure has been established by previous academic work (e.g., Chen et al., 2010). Employing the Amadeus Shareholders file, which is provided by Bureau van Dijk, we (hand-)collect data on families' equity

share. Furthermore, we consult other public sources (e.g., company websites) if there are any inconsistencies.[5] Similar to prior investigations (Ali, Chen, & Radhakrishnan, 2007; Brune et al., 2019), we assume that this mid-2015 classification is valid for the whole observation period.

As stated above, combining exposure to capital market pressure and the family firm attribute yields four different types of firms. In accordance with this classification and with H1, we estimate Equation (1) to examine whether private family firms (I) avoid taxes less than private nonfamily firms (II), public family firms (III), and public nonfamily firms (IV):

$$\begin{aligned} GAAPETR_{i,t} = {} & \beta_0 + \beta_1 PRIVATE\_NONFAMILY_i \\ & + \beta_2 PUBLIC\_FAMILY_i + \beta_3 PUBLIC\_NONFAMILY_i \\ & + \beta_4 ROA_{i,t} + \beta_5 LEV_{i,t} + \beta_6 PPE_{i,t} + \beta_7 INTAN_{i,t} \\ & + \beta_8 SIZE_{i,t} + \beta_9 R\&D_{i,t} + \beta_{10} FORSUBS_i + IndustryFE \\ & + YearFE + \varepsilon_{i,t}. \end{aligned} \quad (1)$$

In line with previous investigations, the GAAP ETR (*GAAPETR*) is our primary proxy for tax avoidance (Chen et al., 2010; Dyreng et al., 2010; Graham et al., 2014). *GAAPETR* is the ratio of total income tax expense (*TAXA*) and pretax book income (*PLBT*). *TAXA* refers to all of a firm's taxes in the accounting period. *PLBT* corresponds to a firm's pretax book income. A lower value of *GAAPETR* is expected to indicate more tax avoidance.

In our model, we compare the *GAAPETR* of private family firms with the *GAAPETR* of the other three firm types. Divergences regarding the extent of tax avoidance between private family firms and private nonfamily firms (i.e., *PRIVATE_NONFAMILY*) are represented by β_1. We expect β_1 to be negative, consistent with private family firms avoiding taxes less than private nonfamily firms. Similarly, β_2 indicates variations in tax avoidance between private family firms and public family firms (i.e., *PUBLIC_FAMILY*). Corresponding to our expectation that public family firms engage more in tax avoidance than private family firms, we predict β_2 to be smaller than zero. If tax avoidance is less prevalent in private family firms than in public nonfamily firms (i.e., *PUBLIC_NONFAMILY*), β_3 should be smaller than zero. Therefore, our examination of H1 simultaneously incorporates all four types of firms. Considering H1, we expect private family firms (I) to avoid taxes less than the other three firm types.

We add several control variables. This procedure is in line with previous research. Return on assets (*ROA*) and leverage (*LEV*) account for the operating performance of a firm and its use of debt financing, respectively (Frank, Lynch, & Rego, 2009). Furthermore, controlling for property, plant, and equipment (*PPE*) accounts for differences in terms of depreciation charges, which are (a) likely to be higher in capital-intensive firms and (b) handled differently in financial accounts than in tax accounts (Mills, 1998). Likewise, *INTAN* takes into account distortions caused by the use of intangible assets (Dyreng et al., 2008). We also include *SIZE* as tax avoidance could differ depending on firm size (Manzon & Plesko, 2002; Rego, 2003); moreover, we consider a firm's involvement in research and development (*R&D*). Furthermore, we include the number of foreign subsidiaries (*FORSUBS*) to account for firms' extent of operations in foreign jurisdictions. Finally, in all models, we add fixed effects regarding industries (*IndustryFE*) and years (*YearFE*).

To test H2a, we estimate the following Equation (2):

$$\begin{aligned} GAAPETR_{i,t} = {} & \beta_0 + \beta_1 NONFAM\_OWNERS_i + \beta_2 ROA_{i,t} \\ & + \beta_3 LEV_{i,t} + \beta_4 PPE_{i,t} + \beta_5 INTAN_{i,t} + \beta_6 SIZE_{i,t} \\ & + \beta_7 R\&D_{i,t} + \beta_8 FORSUBS_i + IndustryFE + YearFE \\ & + \varepsilon_{i,t}. \end{aligned} \quad (2)$$

NONFAM_OWNERS is the number of nonfamily shareholders scaled by the total number of shareholders. A value of zero indicates that a private family firm is exclusively owned by family members. Stated differently, a higher value of *NONFAM_OWNERS* captures higher nonfamily ownership involvement. In line with H2a, we predict β_1 to be smaller than zero, consistent with our expectation that a rise in the proportion of nonfamily owners is associated with an increase in tax avoidance. Similarly, to examine H2b, we replace *NONFAM_OWNERS* in Equation (2) by *NONFAM_MANAGERS*, which is calculated as the ratio of the top management team's nonfamily managers and the total number of managers on the top management team. Values can vary between zero (i.e., the top management team exclusively consists of family members) and one (i.e., the top management team exclusively consists of nonfamily managers). We hand-collect information regarding the composition of the top management team using publicly available sources.[6] If a rise in the proportion of nonfamily managers is related to an increase in tax avoidance, β_1 should be smaller than zero. Regarding the definition of other variables, we relegate to our previous remarks.

Finally, to investigate H2c, we use the following regression Equation (3):

$$\begin{aligned} GAAPETR_{i,t} = {} & \beta_0 + \beta_1 FOWNERS\_NFMANAGERS_i \\ & + \beta_2 NFOWNERS\_FMANAGERS_i \\ & + \beta_3 NFOWNERS\_NFMANAGERS_i + \beta_4 ROA_{i,t} \\ & + \beta_5 LEV_{i,t} + \beta_6 PPE_{i,t} + \beta_7 INTAN_{i,t} + \beta_8 SIZE_{i,t} \\ & + \beta_9 R\&D_{i,t} + \beta_{10} FORSUBS_i + IndustryFE + YearFE \\ & + \varepsilon_{i,t}. \end{aligned} \quad (3)$$

Using regression Equation (3), we compare the *GAAPETR* of pure private family firms (i.e., wholly managed and owned by family members) with the *GAAPETR* of private family firms having nonfamily involvement in ownership and/or management. More precisely, *FOWNERS_NFMANAGERS* is an indicator variable equal to one if a private family firm is wholly owned by family members but the top management team consists of at least one nonfamily manager. Likewise, *NFOWNERS_FMANAGERS* is a binary variable set to one if a private family firm has at least one nonfamily owner but is wholly managed by family members. Finally, *NFOWNERS_NFMANAGERS* is equal to one if both spheres (i.e., ownership and management) consist of (at least some) nonfamily members and zero otherwise. In terms of the other variables, we refer to the definitions presented above. In line with H2c, we expect β_1, β_2, and β_3 to be negative.

TABLE 1 Sample composition

Panel A: Sample selection	
Criteria	**Firm years**
Initial sample: all firm years of German corporations between 2011 and 2016	17,411
Without taxation (i.e., income taxes) or pretax income below zero	(*−3,748*) = 13,663
Without missing values for taxation or pretax income	(*−168*) = 13,495
Without an ETR greater than one	(*−513*) = 12,982
Without missing values for control variables and industries	(*−2,164*) = 10,818
Without all private and public firms that are not business groups	(*−179*) = 10,639
Without possible classification into the four firm types (private family, private nonfamily, public family, and public nonfamily firms)	(*−6,498*) = 4,141

Panel B: Comparing sample and Amadeus observations			
Parameter	**Sample mean**	**Amadeus mean**	**Diff.**
$ROA_{i,t}$	0.063	0.056	0.007***
$LEV_{i,t}$	0.155	0.159	−0.004
$PPE_{i,t}$	0.275	0.342	−0.067***
$INTAN_{i,t}$	0.077	0.057	0.020***
$SIZE_{i,t}$	18.682	18.639	0.043
$R\&D_{i,t}$	0.004	0.002	0.002***
$FORSUBS_i$	1.193	0.736	0.457***

Note. In this table, Panel A explains the sample selection criteria used in this study. Panel B compares the characteristics of our sample to those of the Amadeus population. All variables are defined in Appendix A.

Abbreviation: ETR, effective tax rate.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

4 | EMPIRICAL ANALYSIS

4.1 | Sample selection

In Panel A of Table 1, we report our sample selection. We use consolidated data of German firms from the Amadeus dataset compiled by Bureau van Dijk. We investigate firm years from 2011 to 2016. Initially, our sample consists of 17,411 firm years of German corporations. As suggested by previous academic work (Dyreng et al., 2008), firm years with income taxes or pretax income smaller than zero are excluded because prior research suggests that interpretation of negative ETRs is problematic. This decreases the sample to 13,663 firm years. Additionally, all firm years with missing income taxes or pretax income are eliminated (thus, 168 firm years are excluded). Furthermore, we omit both firm years with GAAP ETRs greater than one (513 firm years are excluded) and firm years with no data on controls and industries (2,164 firm years are excluded).

Moreover, when analyzing public and private (family and nonfamily) firms, it is necessary to consider differences in terms of financial statements. In general, public firms have a business group structure; accordingly, being a stand-alone entity is more common in the context of private firms. Stand-alone firms in Germany file only individual financial statements, whereas business groups disclose consolidated (and unconsolidated) financial statements. In this context, referring to the quality of earnings in public and private firms, prior studies in this field produce contradictory results (Ball & Shivakumar, 2005; Burgstahler, Hail, & Leuz, 2006; Givoly, Hayn, & Katz, 2010; Hope, Thomas, & Vyas, 2013) that potentially stem from considering different types of financial statements. Thus, by focusing on (public and private firms') consolidated financial statements, we ensure that this issue does not create bias. Consequently, our sample is reduced by 179 firm years, as we require firms to have at least one subsidiary. This adjustment leads to a subtotal sample size of 10,639 firm years.

Furthermore, it is necessary to have information regarding whether a firm must be classified as a private family firm (I), private nonfamily firm (II), public family firm (III), or public nonfamily firm (IV); if the classification is ambiguous, we omit the respective observations (6,498 firm years are excluded). Ultimately, our full sample includes 4,141 firm year observations.

Table 1, Panel B, compares the firm characteristics of the final sample to those of Bureau van Dijk's Amadeus population to ensure that the sample selection process does not create a bias. Firms in our sample have similar leverage and size. Additionally, the average firm in our sample is slightly more profitable and has more intangible assets than the broader Amadeus population.

TABLE 2 Descriptive statistics

Panel A: Descriptive statistics by firm type					
Variable	***N***	**Mean**	***SD***	**p25**	**p75**
Tax avoidance measure: $GAAPETR_{i,t}$					
Full sample	4,141	0.321	0.148	0.251	0.365
PRIVATE_FAMILY (I)	2,312	0.334	0.142	0.263	0.376
PRIVATE_NONFAMILY (II)	643	0.334	0.168	0.255	0.391
PUBLIC_FAMILY (III)	242	0.298	0.111	0.247	0.330
PUBLIC_NONFAMILY (IV)	944	0.288	0.148	0.212	0.335
Control variable: $ROA_{i,t}$					
Full sample	4,141	0.063	0.048	0.030	0.081
PRIVATE_FAMILY (I)	2,312	0.064	0.046	0.031	0.086
PRIVATE_NONFAMILY (II)	643	0.063	0.054	0.027	0.081
PUBLIC_FAMILY (III)	242	0.073	0.054	0.041	0.083
PUBLIC_NONFAMILY (IV)	944	0.056	0.047	0.028	0.068
Control variable: $LEV_{i,t}$					
Full sample	4,141	0.155	0.151	0.034	0.225
PRIVATE_FAMILY (I)	2,312	0.141	0.139	0.035	0.200
PRIVATE_NONFAMILY (II)	643	0.182	0.169	0.033	0.290
PUBLIC_FAMILY (III)	242	0.148	0.122	0.047	0.235
PUBLIC_NONFAMILY (IV)	944	0.175	0.170	0.028	0.258
Control Variable: $PPE_{i,t}$					
Full sample	4,141	0.275	0.196	0.115	0.399
PRIVATE_FAMILY (I)	2,312	0.308	0.190	0.154	0.429
PRIVATE_NONFAMILY (II)	643	0.299	0.210	0.115	0.439
PUBLIC_FAMILY (III)	242	0.171	0.128	0.081	0.244
PUBLIC_NONFAMILY (IV)	944	0.203	0.187	0.041	0.298
Control variable: $INTAN_{i,t}$					
Full sample	4,141	0.077	0.127	0.004	0.082
PRIVATE_FAMILY (I)	2,312	0.028	0.056	0.003	0.026
PRIVATE_NONFAMILY (II)	643	0.071	0.122	0.004	0.064
PUBLIC_FAMILY (III)	242	0.243	0.180	0.072	0.412
PUBLIC_NONFAMILY (IV)	944	0.159	0.159	0.030	0.253
Control variable: $SIZE_{i,t}$					
Full sample	4,141	18.682	1.628	17.519	19.401
PRIVATE_FAMILY (I)	2,312	18.037	0.948	17.402	18.540
PRIVATE_NONFAMILY (II)	643	18.238	1.112	17.406	18.868
PUBLIC_FAMILY (III)	242	20.041	1.689	18.745	21.163
PUBLIC_NONFAMILY (IV)	944	20.217	1.969	18.742	21.880
Control variable: $R\&D_{i,t}$					
Full sample	4,141	0.004	0.014	0.000	0.000
PRIVATE_FAMILY (I)	2,312	0.000	0.005	0.000	0.000
PRIVATE_NONFAMILY (II)	643	0.001	0.005	0.000	0.000
PUBLIC_FAMILY (III)	242	0.022	0.028	0.000	0.043
PUBLIC_NONFAMILY (IV)	944	0.010	0.020	0.000	0.007

(Continues)

TABLE 2 (Continued)

Panel A: Descriptive statistics by firm type					
Variable	***N***	**Mean**	***SD***	**p25**	**p75**
Control variable: $FORSUBS_i$					
Full sample	4,141	1.193	1.492	0.000	1.946
PRIVATE_FAMILY (I)	2,312	0.598	0.822	0.000	1.099
PRIVATE_NONFAMILY (II)	643	0.504	0.855	0.000	0.693
PUBLIC_FAMILY (III)	242	2.850	1.259	2.079	3.638
PUBLIC_NONFAMILY (IV)	944	2.692	1.753	1.386	3.932

Panel B: Descriptive statistics on private family firms					
Variable	**Mean**	**SD**	**Variable**	**Mean**	**SD**
NONFAM_OWNERS	0.063	0.161	*NONFAM_MANAGERS*	0.349	0.365
Only family owners	0.848	0.359	Only family managers	0.452	0.498
Only nonfamily owners	n/a	n/a	Only nonfamily managers	0.139	0.346

Note. In Panel A, we report descriptive statistics for the tax avoidance measure ($GAAPETR_{i,t}$) and the control variables used in this study. In the following, we test whether the differences between the mean values of the different firm types are significant:

$GAAPETR_{i,t}$	(I) − (II) = 0.000	(I) − (III) = 0.036***	(I) − (IV) = 0.046***	(II) − (III) = 0.036**	(II) − (IV) = 0.046***	(III) − (IV) = 0.010
$ROA_{i,t}$	(I) − (II) = 0.001	(I) − (III) = −0.009***	(I) − (IV) = 0.008***	(II) − (III) = −0.010**	(II) − (IV) = 0.007***	(III) − (IV) = 0.017***
$LEV_{i,t}$	(I) − (II) = −0.041***	(I) − (III) = −0.007	(I) − (IV) = −0.034	(II) − (III) = 0.034***	(II) − (IV) = 0.007	(III) − (IV) = −0.027**
$PPE_{i,t}$	(I) − (II) = 0.009	(I) − (III) = 0.137***	(I) − (IV) = 0.105***	(II) − (III) = 0.128***	(II) − (IV) = 0.096***	(III) − (IV) = −0.032**
$INTAN_{i,t}$	(I) − (II) = −0.043***	(I) − (III) = −0.215***	(I) − (IV) = −0.131***	(II) − (III) = −0.172***	(II) − (IV) = −0.088***	(III) − (IV) = 0.084***
$SIZE_{i,t}$	(I) − (II) = −0.201***	(I) − (III) = −2.004***	(I) − (IV) = −2.180***	(II) − (III) = −1.803***	(II) − (IV) = −1.979***	(III) − (IV) = −0.176
$R\&D_{i,t}$	(I) − (II) = −0.001	(I) − (III) = −0.022***	(I) − (IV) = −0.010***	(II) − (III) = −0.021***	(II) − (IV) = −0.009***	(III) − (IV) = 0.012***
$FORSUBS_i$	(I) − (II) = 0.095**	(I) − (III) = −2.252***	(I) − (IV) = −2.094***	(II) − (III) = −2.346***	(II) − (IV) = −2.188***	(III) − (IV) = 0.158

In Panel B, we provide descriptive statistics on the subsample of private family firms. All variables are defined in Appendix A.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

4.2 | Descriptive statistics

We show univariate statistics for our tax avoidance measure (*GAAPETR*) in Panel A of Table 2. We calculate the mean, standard deviation, 25th percentile, and 75th percentile for the complete sample and for each of the four firm types separately. In particular, the figures reveal that on average, *GAAPETR* is higher for private family firms (0.334) than for public family firms (0.298) and public nonfamily firms (0.288).

In Panel A of Table 2, we also present descriptive statistics for the seven control variables in our analyses. We display descriptive statistics for *ROA*, *LEV*, *PPE*, *INTAN*, *SIZE*, *R&D*, and *FORSUBS* for both the full sample and all four firm types. In general, the results confirm the findings of prior research, as illustrated by the two examples presented below.

First, Anderson and Reeb (2003) report that the operating performance of family firms is stronger than that of nonfamily firms. We can confirm this finding for public firms. On average, the operating performance (*ROA*) of public nonfamily firms (0.056) is less than the *ROA* of public family firms (0.073). Second, consistent with previous academic work (e.g., Chen et al., 2010), we find that the average level of leverage is smaller in private family firms (0.141) than in private nonfamily firms (0.182).

Referring to the heterogeneity of private family firms, in Table 2, Panel B, we show descriptive statistics regarding nonfamily involvement in ownership and management. Specifically, on average, 6.3% of the shareholders of private family firms are nonfamily members. In terms of nonfamily involvement in management, approximately 34.9% of the executives in private family firms do not belong to the family. Additionally, 84.8% of all private family firms are wholly owned by family members, whereas only 45.2% of private family firms are exclusively led by members of the family. Furthermore, 13.9% of all private family firms have a top management team that completely consists of nonfamily managers.

In Table 3, we provide Pearson correlations. As some variables are significant for the Pearson correlations, we test for collinearity by calculating variance inflation factors (VIFs) for the variables used (Kroll, Walters, & Wright, 2008). The mean VIF is 1.48, and the maximum VIF

TABLE 3 Correlations matrix

Variable		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	$GAAPETR_{i,t}$	1.000							
(2)	$ROA_{i,t}$	−0.366***	1.000						
(3)	$LEV_{i,t}$	0.047***	−0.239***	1.000					
(4)	$PPE_{i,t}$	0.006	−0.167***	0.337***	1.000				
(5)	$INTAN_{i,t}$	0.035**	−0.085***	0.121***	−0.286***	1.000			
(6)	$SIZE_{i,t}$	−0.117***	−0.108***	0.145***	−0.068***	0.362***	1.000		
(7)	$R\&D_{i,t}$	−0.038**	0.050***	−0.065***	−0.122***	0.242***	0.322***	1.000	
(8)	$FORSUBS_i$	−0.061***	−0.028*	0.011	−0.173***	0.418***	0.684***	0.374***	1.000

Note. This table presents pairwise Pearson correlation coefficients. All variables are defined in Appendix A.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

TABLE 4 Main regression results

Dependent variable: $GAAPETR_{i,t}$	(1) H1	(2) H2a	(3) H2b	(4) H2c
INTERCEPT	0.643*** (16.75)	0.633*** (9.48)	0.563*** (8.47)	0.603*** (9.07)
$PRIVATE\_NONFAMILY_i$	0.004 (0.67)			
$PUBLIC\_FAMILY_i$	−0.051*** (−4.84)			
$PUBLIC\_NONFAMILY_i$	−0.065*** (−8.56)			
$NONFAM\_OWNERS_i$		−0.078*** (−3.86)		
$NONFAM\_MANAGERS_i$			−0.043*** (−5.17)	
$FOWNERS\_NFMANAGERS_i$				−0.031*** (−4.66)
$NFOWNERS\_FMANAGERS_i$				−0.034** (−2.47)
$NFOWNERS\_NFMANAGERS_i$				−0.055*** (−4.85)
$ROA_{i,t}$	−1.205*** (−22.26)	−1.192*** (−14.66)	−1.204*** (−14.99)	−1.194*** (−14.75)
$LEV_{i,t}$	0.004 (0.21)	−0.028 (−0.92)	−0.022 (−0.74)	−0.024 (−0.80)
$PPE_{i,t}$	−0.042*** (−3.11)	0.006 (0.28)	−0.002 (−0.11)	−0.001 (−0.04)
$INTAN_{i,t}$	0.078*** (3.18)	0.230*** (3.06)	0.239*** (3.27)	0.232*** (3.12)
$SIZE_{i,t}$	−0.013*** (−6.31)	−0.014*** (−3.83)	−0.009** (−2.52)	−0.011*** (−3.09)
$R\&D_{i,t}$	0.392** (2.12)	0.046 (0.23)	−0.222 (−1.23)	0.132 (0.58)
$FORSUBS_i$	0.009*** (3.89)	0.012*** (3.26)	0.012*** (3.28)	0.013*** (3.43)
IndustryFE	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes
Observations	4,141	1,565	1,565	1,565
Adj. R^2	0.209	0.239	0.244	0.250

Note. In Model 1, we report the results of ordinary least squares regression Equation (1). Private family firms (*PRIVATE_FAMILY*) are the base group. In Model 2, we show the results of ordinary least squares Equation (2). In Model 3, we change the variable of interest: We replace *NONFAM_OWNERS* by *NONFAM_MANAGERS*. In Model 4, we present the results for regression Equation (3) with "pure" private family firms (*FOWNER_FMANAGER*) being the base group. In all models, we use robust standard errors. Next to the coefficient estimates, we report *t* statistics in parentheses. Year fixed effects and industry fixed effects are considered in all regressions but are not tabulated. All variables are defined in Appendix A.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

is 2.12, suggesting that multicollinearity is most likely not problematic because the commonly accepted VIF threshold is 10.

4.3 | Results

To identify in which of the four firm types tax avoidance is most prevalent (H1), we regress tax avoidance on all four firm types simultaneously. The results for regression Equation (1) are shown in Table 4. We use private family firms (I) as the base group that we compare with private nonfamily firms (II), public family firms (III), and public nonfamily firms (IV). The estimated coefficient on *PUBLIC_FAMILY* is significantly negative (Model 1: −0.051), indicating that public family firms engage more in tax avoidance than private family firms. Additionally, the coefficient on *PUBLIC_NONFAMILY* is negative and significant (Model 1: −0.065). Therefore, tax avoidance is more prevalent in public nonfamily firms than in private family firms. However, the coefficient on *PRIVATE_NONFAMILY* is not significant, suggesting that private family firms do not engage in less tax avoidance than private nonfamily firms.

Overall, the results are partially in line with H1: We indeed find that private family firms avoid taxes less than public family firms and public nonfamily firms. However, in contrast to our expectation, the insignificant coefficient on *PRIVATE_NONFAMILY* seems to suggest that private family firms (I) do not avoid taxes less than private nonfamily firms (II). Economically, the results demonstrate that private family firms have a GAAP ETR that is, on average, approximately 5.1% (6.5%) greater than the GAAP ETR of public family firms (public nonfamily firms).

Additional tests of significance strengthen the view that public nonfamily firms (IV) exhibit the strongest engagement in tax avoidance, followed by public family firms (III), whereas private nonfamily firms (II) and private family firms (I) exhibit the lowest tax avoidance among the firm types. Surprisingly, the latter two groups do not seem to exhibit a statistically significant difference between them. In contrast to previous studies (Badertscher et al., 2013; Steijvers & Niskanen, 2014), we are unable to determine whether private family firms (I) or private nonfamily firms (II) are associated with higher levels of tax avoidance. Therefore, we next consider family firm heterogeneity in private family firms to examine potential explanations of why tax avoidance does not seem to differ between these two organizational forms (i.e., private family firms and private nonfamily firms).

In this regard, Table 4 also reports our findings regarding nonfamily ownership and management involvement in private family firms. In Table 4, Model 2, we analyze nonfamily ownership involvement in private family firms (H2a). The coefficient on *NONFAM_OWNERS* is significantly negative (−0.078). Therefore, we indeed find that an increase in the proportion of nonfamily owners is related to more tax avoidance (i.e., a decrease in *GAAPETR*), which is consistent with H2a. Similarly, in Model 3, we are able to show that an increase in the ratio of nonfamily managers is associated with a decrease in *GAAPETR* as the coefficient on *NONFAM_MANAGERS* is significantly negative (−0.043). This finding is in line with H2b.

Table 4, Model 4, illustrates the findings of the simultaneous interaction of the two spheres (i.e., ownership and management). We use pure private family firms as the base group that we compare with three different combinations of nonfamily ownership and/or management involvement. The estimated coefficients on *FOWNERS_NFMANAGERS*, *NFOWNERS_FMANAGERS*, and *NFOWNERS_NFMANAGERS* are all significantly negative, suggesting that private family firms with nonfamily members in ownership and/or management avoid taxes more than pure private family firms (i.e., wholly owned and managed by family members). These findings are consistent with our expectation regarding H2c. Economically, our findings indicate that pure family firms have, on average, a *GAAPETR* that is 3.1% to 5.5% higher than the *GAAPETRs* of firms with nonfamily involvement.

4.4 | Robustness tests

To test the robustness of our results, we conduct several additional analyses. First, to rule out that our results are driven by financial accounting losses, we repeat our main analyses by restricting our dataset to firms that have positive pretax income in all periods between 2011 and 2016. This decreases the sample to 2,418 firm years (972 firm years) of 403 firms (162 firms) to test H1 (H2a–H2c). Our results remain statistically and economically unchanged when we use this balanced dataset (Table 5). Therefore, we suppose that the findings are most likely not driven by loss firms.

Second, we use a long-run GAAP ETR (*LONG_GAAPETR*), calculated as the sum of total income tax expense (*TAXA*) over 6 years scaled by the sum of pretax book income (*PLBT*) over 6 years. Using a long-run calculation is beneficial because this procedure minimizes distortions caused by year-to-year volatility (Hanlon & Heitzman, 2010). The results of revisiting our main analyses using *LONG_GAAPETR* are reported in Table 6. Although slightly weaker in terms of significance, the results are similar, verifying that both public family firms and public nonfamily firms do seem to engage more in tax avoidance than private family firms, whereas private nonfamily firms supposedly do not avoid taxes more than private family firms. Furthermore, regarding the results for nonfamily involvement in private family firms (i.e., H2a–H2c), using *LONG_GAAPETR* as a proxy for tax avoidance leads to weaker (and partly insignificant) results; however, the sign of the coefficients remains unchanged in the direction expected in all specifications.

Third, we use the cash ETR (*CASHETR*) as an additional measure of tax avoidance and calculate it by scaling cash taxes paid by pretax book income. According to Hanlon and Heitzman (2010), *CASHETR*, in contrast to *GAAPETR*, does reflect tax deferral strategies, but it is not influenced by variations in tax accounting accruals. Because cash taxes paid are not readily available for private firms in Germany, we hand-collect the respective data from private firms' annual reports. As not all firms disclose cash taxes paid, our initial sample decreases from 4,141 to 2,377 firm years (57%). The results of using *CASHETR* to investigate our hypotheses are reported in Table 7. Compared with the primary

TABLE 5 Sensitivity of main results to financial accounting losses

Dependent variable: $GAAPETR_{i,t}$	(1) H1	(2) H2a	(3) H2b	(4) H2c
INTERCEPT	0.539*** (13.41)	0.613*** (8.32)	0.558*** (7.76)	0.590*** (8.07)
$PRIVATE\_NONFAMILY_i$	0.001 (0.08)			
$PUBLIC\_FAMILY_i$	−0.018* (−1.71)			
$PUBLIC\_NONFAMILY_i$	−0.034*** (−4.65)			
$NONFAM\_OWNERS_i$		−0.064*** (−3.02)		
$NONFAM\_MANAGERS_i$			−0.042*** (−4.68)	
$FOWNERS\_NFMANAGERS_i$				−0.030*** (−4.14)
$NFOWNERS\_FMANAGERS_i$				−0.033** (−2.00)
$NFOWNERS\_NFMANAGERS_i$				−0.063*** (−4.80)
CONTROLS	Yes	Yes	Yes	Yes
IndustryFE	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes
Observations	2,418	972	972	972
Adj. R^2	0.201	0.293	0.300	0.308

Note. We rerun regression Equations (1) to (3) by restricting our sample to firms that report a positive pretax income in each year during the sample period. In all models, we use robust standard errors. Next to the coefficient estimates, we report *t* statistics in parentheses. Firm-specific control variables (see Table 4), year fixed effects, and industry fixed effects are considered in all regressions but are not tabulated. All variables are defined in Appendix A.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

TABLE 6 Regression results with *LONG_GAAPETR* as dependent variable

Dependent variable: $LONG\_GAAPETR_{i,t}$	(1) H1	(2) H2a	(3) H2b	(4) H2c
INTERCEPT	0.449*** (7.59)	0.502*** (3.69)	0.464*** (3.48)	0.472*** (3.46)
$PRIVATE\_NONFAMILY_i$	0.006 (0.53)			
$PUBLIC\_FAMILY_i$	−0.023* (−1.81)			
$PUBLIC\_NONFAMILY_i$	−0.025** (−2.50)			
$NONFAM\_OWNERS_i$		−0.050 (−1.33)		
$NONFAM\_MANAGERS_i$			−0.029** (−2.12)	
$FOWNERS\_NFMANAGERS_i$				−0.022** (−1.99)
$NFOWNERS\_FMANAGERS_i$				−0.038 (−1.58)
$NFOWNERS\_NFMANAGERS_i$				−0.041* (−1.84)
CONTROLS	Yes	Yes	Yes	Yes
IndustryFE	Yes	Yes	Yes	Yes
Observations	403	162	162	162
Adj. R^2	0.187	0.260	0.268	0.284

Note. We rerun regression Equations (1) to (3) by using *LONG_GAAPETR* as the dependent variable (instead of *GAAPETR*). In all models, we use robust standard errors. Next to the coefficient estimates, we report *t* statistics in parentheses. Firm-specific control variables (see Table 4) and industry fixed effects are considered in all regressions but are not tabulated. All variables are defined in Appendix A.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

analyses, the results regarding H1 and H2a remain similar or even become more significant. In terms of H2b and H2c, however, the significance generally decreases. Nevertheless, the sign of the coefficients remains unchanged in the direction predicted.

Fourth, we try to address the endogeneity concern that is typical in many areas of empirical tax research. According to prior research (e.g., Stamatopoulos, Hadjidema, & Eleftheriou, 2019), the results could be affected by bidirectional causality between the *GAAPETR*

TABLE 7 Regression results with *CASHETR* as the dependent variable

Dependent variable: $CASHETR_{i,t}$	(1) H1	(2) H2a	(3) H2b	(4) H2c
INTERCEPT	0.359*** (6.29)	0.354* (1.84)	0.252 (1.17)	0.371* (1.87)
$PRIVATE\_NONFAMILY_i$	0.020 (1.62)			
$PUBLIC\_FAMILY_i$	−0.043*** (−2.65)			
$PUBLIC\_NONFAMILY_i$	−0.078*** (−6.80)			
$NONFAM\_OWNERS_i$		−0.122*** (−2.97)		
$NONFAM\_MANAGERS_i$			−0.026 (−0.71)	
$FOWNERS\_NFMANAGERS_i$				−0.003 (−0.10)
$NFOWNERS\_FMANAGERS_i$				−0.050 (−1.50)
$NFOWNERS\_NFMANAGERS_i$				−0.075** (−2.41)
CONTROLS	Yes	Yes	Yes	Yes
IndustryFE	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes
Observations	2,377	685	685	685
Adj. R^2	0.097	0.096	0.092	0.098

Note. We rerun regression Equations (1) to (3) by using *CASHETR* as the dependent variable (instead of *GAAPETR*). In all models, we use robust standard errors. Next to the coefficient estimates, we report *t* statistics in parentheses. Firm-specific control variables (see Table 4), year fixed effects, and industry fixed effects are considered in all regressions but are not tabulated. All variables are defined in Appendix A.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

TABLE 8 Sensitivity of main results to endogeneity

Dependent variable: $GAAPETR_{i,t}$	(1) H1	(2) H2a	(3) H2b	(4) H2c
INTERCEPT	0.877*** (4.84)	0.502*** (3.69)	0.928*** (2.66)	0.940*** (2.69)
$PRIVATE\_NONFAMILY_i$	0.010 (0.87)			
$PUBLIC\_FAMILY_i$	−0.037* (−1.71)			
$PUBLIC\_NONFAMILY_i$	−0.065*** (−4.13)			
$NONFAM\_OWNERS_i$		−0.071** (−2.04)		
$NONFAM\_MANAGERS_i$			−0.032* (−1.76)	
$FOWNERS\_NFMANAGERS_i$				−0.023* (−1.69)
$NFOWNERS\_FMANAGERS_i$				−0.022 (−0.83)
$NFOWNERS\_NFMANAGERS_i$				−0.049*** (−2.63)
CONTROLS	Yes	Yes	Yes	Yes
IndustryFE	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes
Observations	4,141	1,565	1,565	1,565

Note. We rerun regression Equations (1) to (3) by using a Hausman–Taylor random effects model. In all models, we use robust standard errors. Next to the coefficient estimates, we report *t* statistics in parentheses. Firm-specific control variables (see Table 4), year fixed effects, and industry fixed effects are considered in all regressions but are not tabulated. All variables are defined in Appendix A.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

and some of the control variables. To address endogeneity concerns, we use a Hausman–Taylor random effects model (Hausman & Taylor, 1981). The findings of this test are reported in Table 8. In general, the results remain economically and statistically similar, although significance is weaker. Even though our main results still hold when we use the Hausman–Taylor random effects model, readers should, as with every association study, interpret the inferences of our study with caution.

TABLE 9 Results using Tobit regression model

Dependent variable: $GAAPETR_{i,t}$	(1) H1	(2) H2a	(3) H2b	(4) H2c
INTERCEPT	0.176*** (3.40)	0.446*** (4.43)	0.389*** (3.82)	0.420*** (4.15)
$PRIVATE\_NONFAMILY_i$	−0.012 (−1.24)			
$PUBLIC\_FAMILY_i$	−0.095*** (−5.51)			
$PUBLIC\_NONFAMILY_i$	−0.115*** (−10.19)			
$NONFAM\_OWNERS_i$		−0.099*** (−3.24)		
$NONFAM\_MANAGERS_i$			−0.030** (−2.14)	
$FOWNERS\_NFMANAGERS_i$				−0.024** (−2.18)
$NFOWNERS\_FMANAGERS_i$				−0.047** (−1.97)
$NFOWNERS\_NFMANAGERS_i$				−0.058*** (−3.41)
CONTROLS	Yes	Yes	Yes	Yes
IndustryFE	Yes	Yes	Yes	Yes
YearFE	Yes	Yes	Yes	Yes
Observations	5,065	1,787	1,787	1,787

Note. We rerun regression Equations (1) to (3) by using a Tobit regression model. In all models, we use robust standard errors. Next to the coefficient estimates, we report *t* statistics in parentheses. Firm-specific control variables (see Table 4), year fixed effects, and industry fixed effects are considered in all regressions but are not tabulated. All variables are defined in Appendix A.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

Fifth, in our main tests, we limit the dependent variable to the 0–1 range because otherwise, interpretation of the coefficients is difficult (Dyreng et al., 2008). Following Mafrolla and D'Amico (2016), we relax this restriction and use a Tobit regression model to censor observations out of the 0–1 range (Table 9). The findings corroborate the results we obtain when using ordinary least squares regression analysis; that is, the results remain economically and statistically similar to the results of our main tests across all specifications.

Sixth, in our main analyses, we use a 50% threshold to differentiate between private family and nonfamily firms, whereas we apply a 5% threshold to distinguish between public family and nonfamily firms. Table 10, Model 1, shows that the results remain statistically and

TABLE 10 Applying the same thresholds for public and private family firms

Dependent variable: $GAAPETR_{i,t}$	(1)	(2)	(3)
INTERCEPT	0.645*** (16.80)	0.644*** (16.80)	0.641*** (16.74)
$PRIVATE\_NONFAMILY_i$	0.004 (0.63)	0.005 (0.83)	0.005 (0.72)
$PUBLIC\_FAMILY_i$	−0.034*** (−2.74)	−0.031*** (−2.74)	−0.039*** (−3.51)
$PUBLIC\_NONFAMILY_i$	−0.065*** (−8.65)	−0.066*** (−8.71)	−0.066*** (−8.76)
CONTROLS	Yes	Yes	Yes
IndustryFE	Yes	Yes	Yes
YearFE	Yes	Yes	Yes
Observations	4,141	4,141	4,141
Adj. R^2	0.209	0.210	0.210

Note. We present the results of the ordinary least squares regression Equation (1). Private family firms (*PRIVATE_FAMILY*) are the base group. We use different thresholds to define both public and private family firms; that is, we require public and private family members to hold at least 50% (Model 1), 40% (Model 2), or 30% (Model 3) of the firm's equity. In all models, we use robust standard errors. Next to the coefficient estimates, we report *t* statistics in parentheses. Firm-specific control variables (see Table 4), year fixed effects, and industry fixed effects are considered in all regressions but are not tabulated. All variables are defined in Appendix A.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

TABLE 11 Regression results for different definitions of private family firms

Dependent variable: $GAAPETR_{i,t}$	(1)	(2)
INTERCEPT	0.643*** (16.75)	0.641*** (16.71)
$PRIVATE\_NONFAMILY_i$	0.004 (0.67)	−0.014*** (−2.91)
$PUBLIC\_FAMILY_i$	−0.051*** (−4.84)	−0.062*** (−5.64)
$PUBLIC\_NONFAMILY_i$	−0.065*** (−8.56)	−0.076*** (−9.19)
CONTROLS	Yes	Yes
IndustryFE	Yes	Yes
YearFE	Yes	Yes
Observations	4,141	4,141
Adj. R^2	0.209	0.210

Note. We present the results of the ordinary least squares regression Equation (1). Private family firms (*PRIVATE_FAMILY*) are the base group. In Model 1, private family members are required to own a minimum of 50% of the firm. In Model 2, private family firms are exclusively owned by family members and have a top management team consisting entirely of family members. In both models, we use robust standard errors. Next to the coefficient estimates, we report *t* statistics in parentheses. Firm-specific control variables (see Table 4), year fixed effects, and industry fixed effects are considered in all regressions but are not tabulated. All variables are defined in Appendix A.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

economically similar if we apply the same threshold (i.e., 50%) for both public and private family firms. Additionally, it is important to recognize that prior studies use varying definitions of family firms (e.g., Carney et al., 2015). Therefore, in Models 2 and 3 of Table 10, we report the results using different thresholds; that is, we require family members in both public and private family firms to own a minimum of 40% (30%) of the firm. From our results in Table 10, we conclude that it seems unlikely that our findings are driven by a specific threshold.

Finally, the findings regarding nonfamily ownership and management involvement (Table 4, Models 2 to 4) seem to suggest that the group of private family firms is heterogeneous—at least with respect to tax avoidance. Based on these insights (i.e., H2a–H2c), we rerun our primary analysis (H1) and define a firm as a private family firm if both nonfamily ownership and management involvement are zero. Following this approach, private family firms (a) are exclusively owned by family members and (b) have a top management team consisting entirely of family members. Table 11 compares the results of the initial private family firm definition (i.e., family members hold at least 50% of a firm's equity) with the new—much stricter—definition of private family firms. Recall that the difference between private family firms and private nonfamily firms was initially not significant (Table 11, Model 1). By using the new definition (Table 11, Model 2), we find that private family firms seem to engage significantly less in tax avoidance than all three other firm types. Importantly, in line with our initial expectation regarding H1, we observe that private nonfamily firms show significantly more tax avoidance than private family firms (−0.014). Furthermore, we find that the mean *GAAPETR* of the average public nonfamily firm (public family firm) is 7.6% (6.2%) lower than that of (pure) private family firms.

5 | CONCLUSION

This paper takes advantage of the opportunity to analyze the simultaneous interaction of the attribute family firm and capital market pressure in one sample, and our findings suggest that public nonfamily firms are associated with the highest levels of tax avoidance, followed by public family firms. Hence, tax avoidance seems to be more strongly associated with capital market pressure than with the family firm attribute. In contrast to our expectation, our results do not indicate that private family firms avoid taxes less than private nonfamily firms do.

Therefore, similar to previous academic work, we assume that treating private family firms as a homogenous group may be a useful way to distinguish them from other organizational forms but only at first glance; that is, private family firms seem to be more heterogeneous than initially expected. We claim that ownership and management structures are two important dimensions of heterogeneity, at least in terms of tax avoidance. We find that tax avoidance in private family firms increases as more nonfamily members acquire ownership or enter the top management team. Accordingly, our results offer further empirical support to the willingness and ability framework that predicts a particularistic behavior of (private) family firms (Chrisman et al., 2015; De Massis, Kotlar, Chua, & Chrisman, 2014). Effectively, the presence of nonfamily members as both shareholders and managers should be considered to determine a family firm's distinctive decision-making processes. Consequently, the inclusion of nonfamily owners and/or managers may not impair the family's willingness to prioritize the firm's reputation over the (temporary) advantages of tax avoidance practices; however, we assume that the ability to enforce the family's objectives and preferences is likely to decline (Chrisman, Chua, De Massis, Minola, & Vismara, 2016).

The limitations of this investigation could provide opportunities for further analyses. First, although we use several tax avoidance measures, these measures do not distinguish between legal and illegal tax avoidance but rather quantify the overall outcome of tax-planning schemes. Additionally, these measures do not capture whether a firm intentionally reduces taxes or whether decreases in ETRs are merely a by-product of other corporate decisions that do not necessarily relate to taxation (e.g., establishing a new subsidiary in a low-tax country for operational rather than tax-planning reasons). Hence, we employ broad tax avoidance proxies that do not enable us to determine which exact strategies firms use to reduce their tax payments. Accordingly, future research could investigate whether the use of tax havens differs among the four firm types mentioned above.

Second, because our analyses require a considerable amount of hand-collected information that is not available in some cases, our final sample represents only a fraction of the population. For example,

the smallest group of firms within our dataset comprises 50 German public family firms with 242 firm years of data. The Deutsche Börse Group provides an index with 84 public family firms. Accordingly, our subsample of public family firms covers 60% of the population of such firms. Therefore, we believe that this firm type is adequately represented in our dataset. Nevertheless, readers should keep this limitation in mind when interpreting our results.

Third, similar to previous academic work, we find that private family firms are not a homogeneous group; that is, more research is required regarding heterogeneity within private family firms. Specifically, in private (family) firms, the only source of public information is usually financial statements. Accordingly, further information about the top management team (e.g., tax-specific knowledge and prior work experience) is fairly limited. Stated differently, more detailed information on the functioning of the top management team would make it possible to develop insights into the question of why certain private firms engage less in tax avoidance than others do.

Fourth, information on how nonfamily members exert influence in (private) family firms is difficult to obtain. However, this information would help scholars better understand decision-making processes regarding tax avoidance in firms that are characterized by mixed (i.e., family and nonfamily) ownership and management structures. These perspectives would be interesting avenues by which future research could expand the overall understanding at the family firm-taxation interface.

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DATA SHARING AVAILABILITY STATEMENT

We use consolidated data of German firms from the Amadeus dataset compiled by Bureau van Dijk. The hand-collected data (e.g., cash taxes paid) that support the findings of this study are available from the corresponding author, Martin Thomsen, upon reasonable request.

ENDNOTES

[1]Note that Desai (2005) and McGuire et al. (2014) primarily refer to very aggressive/illegal tax planning strategies (e.g., investments in tax shelter activities). However, the underlying motivation of tax avoidance—to improve reported financial earnings—remains applicable to tax avoidance in general.

[2]The abovementioned Type I agency conflicts are less important in family firms because concentrated ownership, underdiversification, and exposure to idiosyncratic risk incentivize family owners to monitor managers closely (Cheng, 2014).

[3]This view is corresponds with prior literature (Naldi, Nordqvist, Sjöberg, & Wiklund, 2007; Short, Payne, Brigham, Lumpkin, & Broberg, 2009). More precisely, family firms take risks in the context of entrepreneurial activities but do so less forcefully than nonfamily firms.

[4]In addition to tax avoidance, prior studies find that family firms are likely to avoid other activities that may damage their corporate reputations. For instance, the findings by Block (2010) suggest that the likelihood of extensive job cuts is lower in family firms.

[5]Family ownership sometimes spans several families. Thus, if we are not able to verify the relation among families, we exclude the respective observations.

[6]We use the following procedure to identify the composition of the top management team. First, to detect its members, we check the legal notice on the company website where information on the composition of the top management team is disclosed for German firms. Second, to identify whether a manager is "family" to the firm's owners, we analyze the history of the respective firm, which is often presented on the company website as well. In many cases, this process reveals whether family members hold positions in the top management team. Finally, if an analysis of the company's history leaves some doubt, we consult additional public sources, for example, annual reports and newspaper articles. If we are not able to verify the composition of the top management team, we exclude the respective observations.

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APPENDIX A.
VARIABLE DEFINITIONS

Note that the abbreviations of Amadeus data items are written in bold and all caps.

$GAAPETR_{i,t}$	Ratio of total tax expense (**TAXA**) and pretax income (**PLBT**).
$LONG\_GAAPETR_{i,t}$	Sum of total income tax expense (**TAXA**) over 6 years scaled by the sum of pretax book income (**PLBT**) over 6 years.
$CASHETR_{i,t}$	Ratio of cash taxes paid and pretax income (**PLBT**). The Amadeus database does not provide any information about cash taxes paid. Therefore, we hand-collect this information from the respective annual reports.
$PRIVATE\_FAMILY_i$	Indicator variable that is equal to 1 for private family firms and 0 otherwise. We define firms as private family firms if the family members (including kinsmen/kinswomen and spouses) own a minimum of 50% of the firm.
$PRIVATE\_NONFAMILY_i$	Indicator variable that is equal to 1 for private nonfamily firms and 0 otherwise.
$PUBLIC\_FAMILY_i$	Indicator variable that is equal to 1 for public family firms and 0 otherwise. We define firms as public family firms if the family members (including kinsmen/kinswomen and spouses) own a minimum of 5% of the firm.
$PUBLIC\_NONFAMILY_i$	Indicator variable that is equal to 1 for public nonfamily firms and 0 otherwise.
$NONFAM\_OWNWERS_i$	Proportion of nonfamily owners, calculated as the number of nonfamily shareholders scaled by the total number of shareholders. A value of zero indicates that a private family firm is exclusively owned by family members.
$NONFAM\_MANAGERS_i$	Proportion of nonfamily managers calculated as the number of nonfamily members on the top management team scaled by the total number of

	members of the top management team. Values can vary between zero (i.e., the top management team exclusively consists of family members) and one (i.e., the top management team exclusively consists of "outside" managers).
$FOWNERS\_FMANAGERS_i$	Indicator variable that is equal to 1 if both spheres (i.e., ownership and management) purely consist of family members and 0 otherwise.
$FOWNERS\_NFMANAGERS_i$	Indicator variable that is equal to 1 if a private family firm is wholly owned by family members but the top management team consists of at least one nonfamily manager and 0 otherwise.
$NFOWNERS\_FMANAGERS_i$	Indicator variable that is equal to 1 if a private family firm has at least one nonfamily shareholder but is wholly managed by family members and 0 otherwise.
$NFOWNERS\_NFMANAGERS_i$	Indicator variable that is equal to 1 if both spheres (i.e., ownership and management) consist of (at least some) nonfamily members and 0 otherwise.
$ROA_{i,t}$	Return on assets, calculated as net income (**PLAT**) scaled by total assets (**TOAS**).
$LEV_{i,t}$	Leverage, sum of long-term debt and debt included in current liabilities (**CULI + NCLI**) divided by total assets (**TOAS**).
$PPE_{i,t}$	Current year net property, plant and equipment (**TFAS**) scaled by total assets (**TOAS**).
$INTAN_{i,t}$	The amount of intangible assets **(IFAS)** divided by the level of total assets (**TOAS**).
$SIZE_{i,t}$	Logarithm of total assets (**TOAS**).
$R\&D_{i,t}$	Research and development expenses (**XRD**) divided by total assets (**TOAS**). Missing values for research and development are coded as zero.
$FORSUBS_i$	Natural logarithm of 1 plus the number of foreign subsidiaries of firm *i*.