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Tax avoidance and debt maturity in SMEs

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Abstract

We investigate how tax avoidance affects the maturity structure of debt in firms where tax avoidance costs are presumably low, namely SMEs. Previous research has shown that creditors of listed tax-avoiding companies impose shorter maturities to more frequently reassess the tax avoidance risks in debt contracts. Using a sample of 110,690 firm-year observations of Spanish SMEs over the period 2007–2020, we examine the relationship between tax avoidance and debt maturity and the channels driving this relationship. We find that tax-avoiding SMEs show a longer debt maturity. This effect is stronger for SMEs with higher profitability, lower earnings management incentives, and higher reliability of financial reporting. We also find that tax avoidance reduces leverage and short-term debt, increases future cash flows, and decreases future cash flow volatility. Overall, these findings suggest that, unlike large firms, SMEs use cash tax savings to reduce leverage and short-term debt in their financial structure and that tax avoidance is positively valued by their lenders.

KEYWORDS
banks, debt maturity, SMEs, tax avoidance

1 | INTRODUCTION

In this study, we examine the effect of tax avoidance on the debt maturity structure of small and medium-sized enterprises (SMEs). Unlike prior research, which has mainly focused on large listed firms, we focus on SMEs, whose tax avoidance costs are likely to be lower than those of listed firms, potentially resulting in different outcomes. We also investigate the role of the borrower's choice in the debt maturity decision and whether the tax avoidance-debt maturity relationship is affected by the credibility of financial reporting and by firm incentives to engage in tax avoidance and earnings management.

Tax avoidance can be broadly defined as those decisions that reduce the firm's explicit taxes relative to pretax accounting income (Goh et al., 2016; Hanlon & Heitzman, 2010).[1] In terms of its economic consequences for a firm, tax avoidance can be viewed as a value-creating activity because it increases the firm after-tax cash flows (e.g., Blaylock, 2016; Goh et al., 2016; Guenter et al., 2017). However, tax avoidance activities may also exacerbate different types of risks: agency costs, which may lead to managerial rent extraction (Desai & Dharmapala, 2006); information risk, which implies lower transparency of financial information (Balakrishnan et al., 2019); and reputational or tax audit risk, which may result in litigation and penalty costs (Mills, 1998).

In recent decades, alongside the observed sharp decline in effective corporate tax rates (Dyreng et al., 2017), extensive literature has addressed the economic consequences of corporate tax avoidance by examining its impact on, among others: firm performance (Blaylock, 2016), firm risk (e.g., Guenther et al., 2017; Hutchens et al., 2023; Kim et al., 2011), capital structure (e.g., DeAngelo & Masulis, 1980; Graham & Tucker, 2006; Lin et al., 2014), debt contract terms (e.g., Hasan et al., 2014; Kubick & Lockhart, 2017; Platikanova, 2017; Shevlin et al., 2020), cost of equity (e.g., Cook et al., 2017; Goh et al., 2016), and firm value (e.g., Drake et al., 2019; Hanlon & Slemrod, 2009; Wilson, 2009). The empirical evidence is mixed for most of the outcomes studied, showing that the trade-off between the benefits and costs of tax avoidance depends on different firm characteristics (such as corporate governance quality, managerial incentives, and firm transparency) or on the risk and complexity of the tax avoidance activities employed.

In this paper, we focus on one of the most relevant nonprice debt features, namely debt maturity. Previous studies that have specifically analyzed the consequences of tax avoidance and tax aggressiveness on debt maturity have mainly found that tax avoidance reduces debt maturity because of the costs associated with tax avoidance (Beladi et al., 2018; Kubick & Lockhart, 2017; Platikanova, 2017). These findings, obtained from samples of listed firms, suggest that tax avoidance reduces the contracting value of the financial information used in covenant protection (Platikanova, 2017) and causes principal-agent problems (Beladi et al., 2018), while tax sheltering activities increase the firm risk (Kubick & Lockhart, 2017). Therefore, consistent with the information asymmetry theory that explains the determinants of debt maturity (e.g., Diamond, 1991; Flannery, 1986), creditors use shorter maturities to induce more frequent renegotiations and to better monitor firms with high information asymmetry and risk.

Platikanova's (2017) study is the most related to ours. Using a sample of listed US firms for the period 1989–2012, she finds shorter maturities for tax-avoiding firms. Her findings are consistent with the argument that tax avoidance impairs financial information, leading creditors to prefer shorter maturity over covenants to monitor borrowers. To rule out that shorter maturities are chosen by borrowers to signal high credit quality, she examines the effect

of tax avoidance on future cash flows. Since she also finds that tax avoidance has an adverse effect on both the level and the volatility of future cash flows, her conclusion is that debt maturity is chosen by the creditors and not by the borrowers.

Unlike Platikanova (2017), Beladi et al. (2018), and Kubick and Lockhart (2017), we address our research question in a setting, SMEs, where the tax avoidance risk associated with financial information is much lower. First, in SMEs, the financial information is important but not so relevant for establishing covenants as in large firms. Banks can obtain "soft" information through their lending relationships with SMEs (Berger & Udell, 1995; Boot, 2000) and thus reduce information asymmetries with their borrowers (e.g., Berger & Udell, 2002). Second, SMEs have fewer or no opportunities at all to engage in complex and aggressive tax avoidance practices, either outside or inside the law (e.g., Brooks et al., 2016; European Commission, 2015). This implies less information opacity of tax avoidance practices and a lower likelihood of tax audits and reputational damage compared to large firms.

In addition, other characteristics of SMEs are also likely to reduce the costs and increase the benefits of tax avoidance for these firms compared to large firms. SMEs are characterized by greater financial constraints, lack of access to public capital markets, greater dependency on bank lending, and greater relevance of short-term financing than large firms (e.g., Beck et al., 2008; Berger & Udell, 2002; European Central Bank, 2018; García-Teruel & Martínez Solano, 2007). On the benefit side, by saving cash holdings tax avoidance can constitute an additional internal financing fund (Edwards et al., 2016; Law & Mills, 2015). This is particularly significant for SMEs due to their more limited access to external financing channels. On the cost side, the lower degree of separation between management and ownership in SMEs than in large firms may lead to lower agency costs of tax avoidance (Desai & Dharmapala, 2006). This means that the risk of managers using cash flow savings for opportunistic behavior is lower in SMEs than in firms with more dispersed ownership.

Therefore, based on the above, the positive effects of tax avoidance may exceed its costs for SMEs. The implication is that debt maturity decisions may be determined not only by creditors—as in Kubick and Lockhart (2017), Platikanova (2017) and Beladi et al. (2018)—, but also by the borrowers' choice, since cash tax savings provide financial flexibility that managers may use to reduce short-term debt.

For our empirical tests, we use a panel of Spanish SMEs over the period 2007–2020. Spanish tax laws and the characteristics of Spanish SME financing make Spain a good setting for exploring how tax avoidance affects the maturity of SME debt. According to the European Commission (2015), Spain is the only European country that simultaneously offers tax base, tax rate, and tax credit incentives for small and microcorporations. Thus, the incentives to reduce the standard tax rate in Spain are the most generous among the European Union (EU) countries, with the highest impact on the firm effective tax burden. Moreover, Spain is a clear example of a bank-oriented financial system, where SMEs have very limited or no access at all to public debt. Hence, banks and suppliers constitute the main sources of external firm financing (e.g., Demirgüç-Kunt & Maksimovic, 2002; European Central Bank, 2018). In addition, the debt maturity structure of Spanish SMEs shows a high dependence on short-term financing (e.g., López-Gracia & Mestre-Barberá, 2011; Martínez-Sola et al., 2017), which makes it worthwhile to analyze which firm activities may alleviate this dependence. Finally, the relevance of SMEs to the Spanish economy is very high, since they represent 99.88% of firms and 65.9% of employment (Spanish Ministry of Industry, 2018).

We use two measures of tax avoidance: (a) the difference between the statutory tax rate and the effective tax rate (ETR), and (b) the ETR. We calculate them in two ways: (i) a contemporaneous measure, and (ii) a long-term measure as an average of 3 consecutive years. We employ two proxies for debt maturity: (i) the ratio of long-term debt to total debt, and (ii) the ratio of long-term debt to total assets. We use firm fixed effects estimations, which allow us to control for the unobservable heterogeneity and firm-specific omitted factors. To check the robustness of our results, we use a propensity score matching method and two-stage instrumental variable regressions to address the potential endogeneity between tax avoidance and debt maturity.

Our findings show that SMEs that engage in higher levels of tax avoidance have more long-term debt in their financial structure. We find that the positive relationship between tax avoidance and debt maturity is observed in more profitable SMEs, in firms without incentives to engage in earnings management, and in firms with higher reliability of financial reporting. We also find that tax avoidance reduces firm leverage and the use of short-term debt. Moreover, we document that tax avoidance is associated with higher levels and lower volatility of the SME's future cash flows. Overall, these results suggest that tax savings act as an alternative source to external borrowing in SMEs and that debt maturity is determined both by the borrowers' choice and by lenders, which do not view tax avoidance negatively in SMEs.

Overall, our study contributes to the tax avoidance literature by providing evidence that the cash flow savings from tax avoidance allow SMEs to access longer debt maturities. Our findings complement those of prior research focused on listed firms (e.g., Beladi et al., 2018; Kubick & Lockhart, 2017; Platikanova, 2017), whose evidence is opposite to that of our paper. Since the benefits of tax avoidance are similar for large listed firms and SMEs, our findings suggest that the lenders' assessment of the outcome of tax avoidance is positive in contexts where the costs—agency, tax audit and penalties, information risk—are lower. At the same time, our findings are consistent with the argument that debt maturity is also chosen by the borrowers. Therefore, we provide new evidence consistent with prior studies showing that the positive effect of tax avoidance on firm outcomes depends on the context considered (e.g., Drake et al., 2019; Goh et al., 2016; Kovermann, 2018; Lim, 2011; Wilson, 2009).

Our research is mainly related to the strand of research addressing the impact of tax avoidance on debt contracts, which has mainly examined the cost of debt (Beladi et al., 2018; Hasan et al., 2014; Lim, 2011; Lin et al., 2014; Shevlin et al., 2020). Our study also contributes to the literature on the determinants of debt maturity in SMEs (e.g., García-Teruel & Martínez Solano, 2007; López-Gracia & Mestre-Barberá, 2011; Magri, 2010; Scherr & Hulburt, 2001) by providing novel evidence on the tax avoidance effect. Our research is also related to the literature that analyses the relationship between financial reporting and tax avoidance (e.g., Frank et al., 2009; Sánchez-Ballesta & Yagüe, 2021; Wilson, 2009). In terms of implications, since SME tax avoidance practices are likely to be based on those allowed by the law, our results provide evidence consistent with one of the regulators' main arguments in favor of tax preferences for SMEs, namely to improve SME financing (Organisation for Economic Co-operation and Development [OECD], 2015). Our findings also have implications for managers because, by taking advantage of the legal incentives for SMEs, such as innovation or investment tax credits, firms can save cash flows that could be used to reduce reliance on short-term debt.

The rest of the study proceeds as follows. Section 2 discusses the literature and develops the hypothesis, Section 3 describes the research design, Section 4 reports the empirical results, and Section 5 concludes the study.

2 | LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 | Tax avoidance and the trade-off between benefits and risks

The literature on the economic consequences of tax avoidance focuses on its risk–reward trade-off. On the one hand, the benefits of tax avoidance practices are associated with greater cash flow generation, which reduces the incentives to resort to debt—the debt-substitution effect predicted by DeAngelo and Masulis (1980). This hypothesis is supported by studies such as Graham and Tucker (2006) and Richardson et al. (2014). In this way, tax avoidance can improve the financial slack and enhance credit quality, with the consequence of reducing the cost of debt and equity and increasing firm value (e.g., Desai & Dharmapala, 2009; Drake et al., 2019; Edwards et al., 2016; Goh et al., 2016). On the cost or risk side of tax planning, while less aggressive tax strategies, such as tax-favored investment (i.e., nondebt tax shields) are unlikely to affect business risk, more aggressive strategies, such as shifting income to tax havens (i.e., tax shelters) can significantly increase the firm risk and the variance of the firm's cash flows (Goh et al., 2016). Other important risks associated with tax-aggressive activities include managerial rent extraction risk, as managers may use the cash flow savings from complex and opaque activities to divert resources for their private benefit (Desai & Dharmapala, 2006; Desai et al., 2007); information risk due to the opacity of tax avoidance activities (Balakrishnan et al., 2019); and a higher likelihood of being audited, fined, or penalized by tax authorities (Hanlon et al., 2017; Mills, 1998), which may have reputational costs for the firm (Graham et al., 2014).

Empirical studies on the relationship between tax avoidance and various firm outcomes provide mixed findings. Firm characteristics and the risk of tax avoidance strategies determine the stakeholders' assessment of the trade-off between the benefits and costs of tax avoidance (e.g., Goh et al., 2016; Guenther et al., 2017).

With regard to the perceptions of equity investors, the empirical evidence is clearly mixed. Some studies provide evidence consistent with the view that tax avoidance is a value-enhancing activity in certain contexts. They show that tax avoidance increases the firm value and that the strength of this relationship depends on corporate governance quality (Desai & Dharmapala, 2009; Wilson, 2009) or the risk of tax avoidance strategies (Drake et al., 2019). Other studies find that tax avoidance increases future firm performance (Blaylock, 2016) or reduces the cost of equity (Goh et al., 2016; Lee et al., 2023), with a stronger effect for firms with better external monitoring and higher information quality (Goh et al., 2016). In contrast, there is also previous research that supports the negative perception of tax avoidance by equity investors: corporate tax avoidance increases the cost of equity capital—especially when the level of tax avoidance deviates from investors' expectations—(Cook et al., 2017), and increase the stock price crash risk (Kim et al., 2011). Similarly, Hanlon and Slemrod (2009) show negative market reactions to news about tax shelter involvement.

Regarding the effect of tax avoidance on debtholders' perceptions, prior empirical evidence is also mixed, depending on the samples and contexts considered. The evidence is mainly consistent with a negative assessment of tax avoidance by lenders, leading to tighter credit conditions for tax-avoiding firms, in particular, the cost of debt (e.g., Beladi et al., 2018; Hasan et al., 2014; Isin, 2018; Lee et al., 2023; Shevlin et al., 2020). Hasan et al. (2014) show that firms with greater tax avoidance face higher yield spreads in public bond issues and incur higher costs, and stricter collateral and covenant requirements in their bank loan contracts. Thus, they

find a stronger association between tax avoidance and bank loan costs for firms with higher information, agency, and IRS audit risks. Shevlin et al. (2020) find that tax avoidance increases the cost of bond financing but not of bank loans, suggesting that banks have a greater ability to monitor borrowers and mitigate information asymmetry than public debtholders. In this line, Beladi et al. (2018) also find that the negative effect of tax avoidance on bank debt contracts (i.e., higher loan costs and higher collateral requirements) decreases when firm information transparency is higher.

In contrast, a few studies provide evidence consistent with a positive assessment of tax avoidance by firm creditors. Lim (2011) finds a negative relationship between tax avoidance and the cost of debt in Korean firms, moderated by the level of institutional ownership, whose monitoring role reduces agency costs. Kovermann (2018), for a sample of German listed firms, and Sánchez-Ballesta and Yagüe (2023), for a sample of Spanish SMEs, also find a negative effect of tax avoidance on the cost of debt, suggesting that creditors in bank-dominated economies assess tax avoidance positively.

2.2 | Debt maturity theoretical framework

There are three main nonmutually exclusive theories to explain the debt maturity structure of firms: contracting costs, tax minimization, and information asymmetry (Antoniou et al., 2006). The first one focuses on the use of short-term debt to mitigate the underinvestment and asset-substitution problems associated with corporate debt because of the differences between the preferences for the risk of firm activities and the payoff functions of debtholders and shareholders (Barnea et al., 1980; Myers, 1977). The second theory focuses on tax minimization. Based on the tax deductibility of interests, Brick and Ravid (1985, 1991) suggest that firms can increase their value by using more long-term debt, given that the expected value of tax benefits increases with the anticipation of higher tax deductions. The third focuses on the importance of firm risk and asymmetric information in the debt maturity decision. According to the models of Flannery (1986) and Diamond (1991), from the borrower's perspective high-quality firms will prefer to choose shorter maturities because of their low refinancing risk. In contrast, from the lender's perspective, creditors will impose shorter maturities on low-quality firms due to the higher liquidity risk of the firm.[2] Thus, this shorter maturity acts as a nonprice contract term that allows better monitoring of the firm, obtaining more frequent information about the borrower's credit quality in successive renegotiations (e.g., Ortiz-Molina & Penas, 2008).

2.3 | Tax avoidance and debt maturity in SMEs

As seen above, previous literature has extensively examined the effect of tax avoidance on debt contracts, focusing on the cost of debt or certain nonprice terms (e.g. covenants, collateral). However, only a few studies have focused on the effect of tax avoidance and tax aggressiveness on debt maturity: Kubick and Lockhart (2017) and Platikanova (2017), for US-listed firms, and Beladi et al. (2018), for Chinese listed firms. These three studies clearly show that tax avoidance is associated with shorter debt maturity. This suggests that lenders perceive tax avoidance as an activity that increases firm risk and reduces corporate transparency. As a result, lenders demand greater monitoring and control over more tax-aggressive firms by offering shorter maturities, which is consistent with the information asymmetry theory of debt maturity.

Platikanova's (2017) argument is based on the low contracting value of financial information in tax-avoiding firms. As long as tax avoidance impairs financial information, the effectiveness of this information for covenant protection is reduced. By examining the properties of future cash flows, she discards the idea that the shorter maturities were chosen by tax-avoiding borrowers and confirms the use of short-term debt as a monitoring mechanism imposed by creditors. In particular, she finds that more tax-aggressive firms have higher volatility and lower levels of future cash flows. She also shows that tax-avoiding firms with a subsidiary in tax havens have shorter debt maturity than those firms without a tax-haven subsidiary. Therefore, the need for control is greater for riskier tax avoidance strategies as they increase the complexity and opacity of the firm. Similarly, consistent with the argument that higher information asymmetry leads to shorter maturities as a supervisory mechanism, Beladi et al. (2018) find that the negative relationship between tax avoidance and loan maturity is stronger for smaller listed corporations, which are characterized by less corporate transparency.

Our focus is on the effect of tax avoidance on the SME debt maturity structure. SMEs have particular features that lead academics to acknowledge that "small businesses are not just larger firms scaled down" (Scherr & Hulburt, 2001, p. 85). There are clear differences between large- and small- or medium-sized firms regarding the value of financial information, ownership, financial constraints, and the availability of tax avoidance practices. Consequently, the costs and benefits associated with tax avoidance in SMEs might not be similar to those in larger firms. Thus, the impact of tax avoidance on SME debt contracting will depend on how firms use the cash tax savings and on creditors' perceptions of how tax avoidance activities affect agency problems and information risk in SMEs.

First, SMEs tend to be characterized by high ownership concentration and low separation between managers and owners. As a result, there is little divergence between the interests of shareholders and managers, leading to little or no free cash flow problems (Jensen, 1986). This would lead to less relevant incentives for managerial rent extraction derived from tax avoidance practices.

Second, the effects of tax avoidance on information asymmetries between borrowers and lenders may depend on the relationship between SMEs and their creditors, which may be different from that in large firms. In contrast to large firms, SMEs do not have access to public capital markets and are highly dependent on financial institutions with which they establish strong lending relationships (e.g., Berger & Udell, 1995; Boot, 2000). This "relationship lending" with banks (especially domestic private banks) is based on "soft" information, gathered by the loan officer through continuous, personalized, and direct contacts with the firm's owners and managers and other stakeholders close to the firm (i.e., customers, suppliers, competitors, or neighboring business) (e.g., Beck et al., 2011; Berger & Udell, 2002). This fact may reduce the relevance of the information risk associated with the opacity of tax avoidance practices in SMEs.

Third, the impact of tax avoidance on debt contract terms may be conditioned by the types of tax-advantaged activities undertaken and their consequences, such as the likelihood of tax audits, penalties, and reputational damage. Tax avoidance strategies with lower uncertainty and that are unlikely to be challenged by tax authorities, such as investment tax credits, net operating loss (NOL) carryforwards, or accelerated depreciation, should reduce the firm's idiosyncratic risk, whereas tax avoidance strategies with higher uncertainty should increase it (Hutchens et al., 2023). In this regard, prior studies state that smaller firms have fewer opportunities than larger firms to implement sophisticated and aggressive tax avoidance strategies, such as intragroup financing transactions and transfer pricing (Belz et al., 2019; Brooks et al., 2016; European Commission, 2015; Martin et al., 2021; Rego, 2003).

Tax-avoiding activities implemented by SMEs are unlikely to fall into the "grey area of tax avoidance," because the most common ones are special depreciation schemes, investment allowances, tax credits, and NOLs (Bergner et al., 2017), which can be considered as low uncertainty strategies. Therefore, these practices have a relatively low probability of being overturned by the tax authorities, so SMEs face less risk of facing fines, penalties, or repayments of the tax savings. The probability of being audited by the tax authorities and the intensity of the audit are also higher for larger firms (Bachas et al., 2019; Martin et al., 2021), as is the risk of reputational damage from tax avoidance in the framework of political costs (Graham et al., 2014). Therefore, when considering the cost–benefit trade-off for the firm, while tax avoidance offers benefits to any firm in terms of greater tax savings and increased financial slack, the tax avoidance-induced risks may affect SMEs to a lesser extent than large firms.

Therefore, cash tax savings from tax avoidance may enhance the financial flexibility of SMEs and, thus, be used by their managers to improve the debt maturity structure, reducing the proportion of short-term debt. In addition, if banks perceive that tax avoidance practices do not have a negative impact on the induced risks in SMEs, the consequence will be a reduced need for shorter maturities to monitor firm loans, which may result in an increase in debt maturity. Based on the above, we formulate the following alternative hypotheses[3]:

H1: Tax avoidance increases debt maturity in SMEs.

3 | RESEARCH DESIGN

3.1 | Tax avoidance measures

Previous research has used the ETR and the cash effective tax rate (Cash ETR) to measure corporate tax avoidance. ETR is calculated as tax expense over pretax income, and Cash ETR as cash tax paid over pretax income. The difference between the two measures is that ETR is not affected by temporary differences, such as accelerated depreciation, whereas these can affect Cash ETR. Since we are analyzing small firms and cash tax paid is not available for these firms, we rely on measures of tax avoidance based on the meaning of the ETR, that is, differences between accounting and tax rules that are permanent, caused by earnings and expenses that are different in the two set of rules or by tax deductions due to investment, research and development (R&D), and so forth. Platikanova (2017) also states that ETRs are easily observable by debtholders and are relevant to them. We take positive values of pretax income and truncate the observations of ETR outside the interval [0,1] to avoid confusing interpretations of ETR (Badertscher et al., 2013; Chen et al., 2010; Dyreng et al., 2008; Koester et al., 2017).

We use several measures of tax avoidance. Our first and main measure, *TAXDIF*, is the difference between the statutory tax rate that corresponds to a firm-year observation and its ETR. We also use a long-run measure of tax avoidance, *TAXDIF3y*, as the average of 3 consecutive years of *TAXDIF* (Badertscher et al., 2013; Dyreng et al., 2008; Khan et al., 2017; Koester et al., 2017). Although ETR is an appropriate measure of a firm's tax aggressiveness (e.g., Lin et al., 2014), we focus mainly on *TAXDIF* for two reasons: (a) the Spanish tax system is characterized by the application of different statutory tax rates depending on firm size, and (b) the statutory tax rates have changed over the sample period. For robustness, we also calculate the *ETR* and the long-term ETR (*ETR3y*). To calculate the *ETR3y*, which captures the long-term tendency of a firm to avoid taxes and smooths out the annual variations in the *ETR*,

we require that the sum of pretax income in 3 consecutive years be positive (Dyreng et al., 2008). Higher values of *TAXDIF* and *TAXDIF3y*, and lower values of *ETR* and *ETR3y* indicate more tax avoidance.

3.2 | Model specification

To examine the relationship between tax avoidance and debt composition, we estimate firm fixed effects regressions of proxies for debt maturity as a function of tax avoidance and control variables.

$$DebtMaturity = \beta_0 + \beta_1 TAXAV + \sum_j \beta_j Controls + \mu + \eta + \varepsilon, \quad (1)$$

where the dependent variable *Debt Maturity* represents the two proxies that we use for debt maturity: *DM1*, the ratio of long-term debt to total debt, and *DM2*, the ratio of long-term debt to total assets. *TAXAV* represents the different tax avoidance measures, and *Controls* the control variables included in the models. μ are industry–year-fixed effects, which control for time-varying heterogeneity across industries. η are firm fixed effects, which control for firm unobservable characteristics that vary across firms but are assumed to be time invariant for each firm, and whose inclusion reduces endogeneity concerns arising from time-invariant omitted variables. ε is the error term. The estimated t statistics are based on standard errors clustered at the firm level, which are robust to both heteroskedasticity and within-firm serial correlation (Petersen, 2009). Finally, since the relationship between tax avoidance and debt maturity may also be subject to endogeneity issues arising from the potential reverse causality, we assess the robustness of our results to a propensity score matching method and two-stage instrumental variable regressions (i.e., two-stage least squares [2SLS]).

Following previous literature, we include several controls in our models: leverage, size, profitability, asset maturity, growth options, collateral, solvency, capital expenditures and cash flow volatility (e.g., Hall et al., 2004; Magri, 2010; Michaelas et al., 1999; Petersen & Rajan, 1997; Platikanova, 2017): *LEV* is the leverage ratio calculated as total debt divided by total assets; *SIZE* is the natural logarithm of sales; *LAM* is the natural logarithm of asset maturity; *GROW* is net sales divided by lagged net sales; *TANG* is the ratio of property, plant and equipment to total assets; *INVEST* is the change in tangible and intangible assets deflated by lagged total assets; *CFVLT* is the standard deviation of cash flow to total assets from $t-2$ to t.[4]

3.3 | Sample

The sample selection is based on the criteria of the European Commission (2003, 2014), which defines SMEs as firms that " employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million." We exclude microenterprises from our sample (those employing fewer than 10 persons and with an annual turnover and/or an annual balance sheet total not exceeding EUR 2 and EUR 1 million, respectively).

Table 1 reports the sample selection procedure. We first obtain 620,268 firm-years (70,683 firms) for the period 2004–2020 from SABI (Bureau van Dijk). We then delete 20,084 firm-years

TABLE 1 Sample selection.

	Firm-years	Firms
The initial sample of SMEs for the 2004–2020 period	620,268	70,863
Exclusions		
Incorrect data	(20,084)	(870)
Negative pretax income	(123,048)	(3470)
Nonavailable required data for empirical analyses	(340,647)	(33,542)
Extreme values (at the top and bottom 1%)	(25,799)	(3908)
The final sample of SMEs for the 2007–2020 period	110,690	29,073

Note: This table reports the sample selection process.

Abbreviation: SME, small and medium-sized enterprise.

(870 firms) with errors (e.g., negative assets and liabilities, positive expenses, nonavailable data on personnel expenses). To calculate proxies for tax avoidance, positive values of pretax income are required, so we delete 123,048 firm-years (3470 firms) with negative pretax income. We retain those firm-year observations with available data for each variable included in our baseline model, which eliminates 340,647 firm-years (33,542 firms). Note that since the calculation of some variables requires lagged values and values in $t-1$ and $t-2$ our final sample covers the period 2007–2020. Finally, we remove outliers by winsorizing key variables (e.g., debt maturity, tax avoidance, size, leverage, asset maturity, tangible assets, investment, growth, and cash flow volatility) at 1% and 99%. As a result, the final sample consists of 110,690 firm-years (29,073 firms) and 95,915 firm-years (26,284 firms) depending on the use of the 1- and 3-year tax avoidance measures, respectively.

3.4 | Descriptive statistics

Table 2 reports the descriptive statistics. As can be seen, on average SMEs engage in tax avoidance, as the cross-sectional averages of *TAXDIF* and *TAXIDIF3y* are positive, which means that the values of *ETR* and *ETR3y* are lower than the statutory tax rates in the period. The dispersion of these variables indicates that our sample includes aggressive and nonaggressive tax avoidance firms. As regards debt maturity, long-term debt on average represents 26.03% of total debt and 14.40% of total assets. This low level of long-term debt is consistent with previous studies using samples of Spanish SMEs (e.g., García-Teruel & Martínez Solano, 2007; García-Teruel et al., 2010; Hall et al., 2004) and shows that there is room for management action to improve the debt composition. Regarding control variables, the average leverage ratio is 54.13% of total assets, tangible assets (property, plant, and equipment) average 27.68% of total assets, and the standard deviation of operating cash flow to total assets is around 11.40%.

Table 3 shows the Pearson correlation matrix between the variables used in our empirical analyses. From this preliminary analysis, we observe a positive and significant relationship (at the 1% level) between tax avoidance and debt maturity in SMEs. The tax avoidance variables are closely correlated, as are the debt maturity measures. In general, our regressions do not seem to suffer from high correlations between independent variables, which is confirmed by

TABLE 2 Descriptive statistics.

	# Observation	Mean	Standard deviation	Percentile 10	First quartile	Median	Third quartile	Percentile 90
Tax avoidance measures								
TAXDIF	110,690	0.0158	0.0927	−0.0502	−0.0066	0.0000	0.0300	0.1308
TAXDIF3y	95,915	0.0116	0.0698	−0.0514	−0.0129	0.0021	0.0310	0.0984
ETR	110,690	0.2394	0.0935	0.1252	0.2242	0.2500	0.2703	0.3067
ETR3y	95,915	0.2389	0.0756	0.1453	0.2239	0.2500	0.2720	0.3068
Debt maturity measures								
DM1	110,690	0.2603	0.2033	0.0217	0.0860	0.2216	0.4002	0.5617
DM2	110,690	0.1440	0.1306	0.0090	0.0386	0.1080	0.2159	0.3362
Control variables								
LEV	110,690	0.5413	0.2050	0.2509	0.3845	0.5534	0.7042	0.8090
SIZE	110,690	8.7104	0.8472	7.6014	8.0665	8.6718	9.3483	9.8916
ROA	110,690	0.0654	0.0552	0.0152	0.0267	0.0478	0.0868	0.1413
LAM	110,690	1.2094	0.9197	0.0220	0.5520	1.1769	1.8170	2.4307
GROW	110,690	0.0461	0.1688	−0.1458	−0.0476	0.0350	0.1241	0.2428
TANG	110,690	0.2768	0.2005	0.0441	0.1099	0.2399	0.4066	0.5679
INVEST	110,690	0.0090	0.0567	−0.0374	−0.0174	−0.0033	0.0190	0.0707
CFVLT	110,690	0.1140	0.0854	0.0299	0.0521	0.0914	0.1515	0.2287

Note: This table reports descriptive statistics of the variables used. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its ETR. *ETR* is the total effective tax rate, defined as tax expense over pretax income. *TAXDIF3y* and *ETR3y* are long-run *TAXDIF* and *ETR*, respectively, considering an average of 3 consecutive years. *DM1* is the ratio of long-term debt over total debt. *DM2* is the ratio of long-term debt over total assets. *LEV* is the total debt over total assets. *SIZE* is the natural logarithm of net sales. *ROA* is operating income divided by total assets. *LAM* is the natural logarithm of asset maturity. *GROW* is net sales divided by lagged net sales. *TANG* is the ratio of property, plant, and equipment to total assets. *INVEST* is the change in tangible and intangible assets deflated by lagged total assets. *CFVLT* is the standard deviation of operating cash flow to total assets from $t-2$ to t.

TABLE 3 Pearson correlation matrix.

	DM1	*DM2*	*TAXDIF*	*TAXDIF3y*	*ETR*	*ETR3y*	*LEV*	*SIZE*	*ROA*	*LAM*	*GROW*	*TANG*	*INVEST*
DM2	0.8731***												
TAXDIF	0.0547***	0.0145***											
TAXDIF3y	0.0733***	0.0157***	0.6848***										
ETR	−0.0827***	−0.0387***	−0.9639***	−0.6492***									
ETR3y	−0.1306***	−0.0821***	−0.5829***	−0.8189***	0.6443***								
LEV	0.0746***	0.4409***	−0.0627***	−0.0943***	0.0675***	0.0605***							
SIZE	−0.2439***	−0.1793***	0.0921***	0.1381***	0.0233***	0.0662***	0.1109***						
ROA	−0.0558***	−0.1221***	0.0350***	0.0383***	−0.0141***	0.0275***	−0.2272***	0.1319***					
LAM	0.4335***	0.3501***	0.0132***	0.0185***	−0.0361***	−0.0611***	−0.0847***	−0.2737***	−0.0620***				
GROW	−0.0425***	−0.0074**	0.0285***	0.0105***	−0.0307***	−0.0356***	0.0902***	0.1022***	0.1659***	−0.0345***			
TANG	0.5200***	0.4464***	0.0173***	0.0261***	−0.0314***	−0.0556***	−0.0272***	−0.1754***	−0.0301***	0.6955***	−0.0048		
INVEST	0.1064***	0.1268***	0.0399***	0.0425***	−0.0433***	−0.0432***	0.0818***	0.0473***	0.0600***	0.1628***	0.1137***	0.1183***	
CFVLT	−0.1275***	−0.1031***	−0.0102***	−0.0244***	0.0160***	0.0397***	0.0096***	0.0215***	0.1641***	−0.1579***	−0.0089***	−0.1911***	0.0187***

Note: This table reports Pearman correlation coefficients between variables included in models that examine the effect of tax avoidance on debt maturity in this study. *DM1* is the ratio of long-term debt over total debt. *DM2* is the ratio of long-term debt over total assets. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its ETR. *ETR* is the total effective tax rate, defined as tax expense over pretax income. *TAXDIF3y* and *ETR3y* are long-run *TAXDIF* and *ETR*, respectively, considering an average of 3 consecutive years. *LEV* is the total debt over total assets. *SIZE* is the natural logarithm of net sales. *ROA* is operating income divided by total assets. *LAM* is the natural logarithm of asset maturity. *GROW* is net sales divided by lagged net sales. *TANG* is the ratio of property, plant, and equipment to total assets. *INVEST* is the change in tangible and intangible assets deflated by lagged total assets. *CFVLT* is the standard deviation of operating cash flow to total assets from $t-2$ to t.

*** and ** denote significance levels at two-tail tests of 1% and 5%, respectively.

the variance inflation factors between these independent variables (i.e., the maximum value is 2.09). This suggests that multicollinearity is not a problem in our multivariate analyses.[5]

4 | EMPIRICAL RESULTS

4.1 | Tax avoidance effect on debt maturity

Table 4 provides the estimates of the model (1) for each of the four tax avoidance measures considered to examine the effect of tax avoidance on debt maturity. The results of the regressions for the four tax avoidance measures are reported in columns (1)–(4) for *DM1* and in columns (5)–(8) for *DM2*. The significant and positive coefficients on *TAXDIF* and *TAXDIF3y* and the significant and negative coefficients on *ETR* and *ETR3y* suggest that firms with higher tax avoidance have a higher proportion of long-term debt in total debt and total assets. In terms of their economic significance, a one-standard deviation increase in *TAXDIF* and *TAXDIF3y* is associated with an increase in long-term debt to total debt for our sample firms of 0.79% and 1.26%, and an increase in long-term debt to total assets of 0.60% and 0.90%, respectively. Similarly, a one-standard deviation decrease in *ETR* (*ETR3y*) is associated for our sample firms with an increase in long-term debt to total debt of 0.97% (1.98%), and an increase in long-term debt to total assets of 0.78% (1.89%), respectively.[6]

Our findings are contrary to prior evidence for listed firms, which finds a negative relationship between tax avoidance and debt maturity (Beladi et al., 2018; Kubick & Lockhart, 2017; Platikanova, 2017). However, Platikanova (2017) also finds longer maturities for firms without a subsidiary in a tax-haven country, suggesting that the risk associated with complex tax avoidance practices influences the relationship between tax avoidance and debt maturity. Regarding the set of control variables, as in Platikanova (2017) and Kubick and Lockhart (2017), we find that firms with higher leverage, higher asset maturity, higher investment levels, and more collateral have longer debt maturities (positive coefficients, significant at 1% across models), while firms with higher growth and larger size present shorter maturities. The finding that larger firms use shorter debt maturities is also found in previous studies (e.g., García-Teruel et al., 2010; Scherr & Hulburt, 2001).

4.2 | Robustness checks: Endogeneity

Previous research has recognized that tax avoidance is endogenous to financing decisions (e.g., Graham et al., 1998). The endogeneity problem may cause bias in assessing the relationship between debt maturity and tax avoidance (e.g., Platikanova, 2017). By using fixed effects regressions, we control for the endogeneity that arises from time-varying unobservable variables that may simultaneously affect both debt maturity and tax avoidance. However, the potential problem of reverse causality from debt maturity to tax avoidance may remain in the estimations. Hence, the longer debt maturity observed for SMEs with higher levels of tax avoidance might not necessarily imply a causal link between tax avoidance and debt maturity structure. For instance, firms with more long-term debt finance may have more opportunities to engage in R&D expenses or other tax-favored investments that reduce the ETR of the firm.

We estimate a propensity score matching method to address these concerns about endogeneity and sample selection (Rosenbaum & Rubin, 1983; Smith & Todd, 2005). The idea

TABLE 4 Effect of tax avoidance on debt maturity.

	DM1				***DM2***			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
TAXDIF	0.019***				0.007**			
	(3.90)				(2.32)			
TAXDIF3y		0.040***				0.014**		
		(3.77)				(2.26)		
ETR			−0.023***				−0.009***	
			(−4.75)				(−3.22)	
ETR3y				−0.058***				−0.027***
				(−6.02)				(−4.55)
LEV	0.340***	0.346***	0.340***	0.345***	0.409***	0.404***	0.409***	0.404***
	(36.81)	(34.50)	(36.83)	(34.54)	(71.18)	(65.47)	(71.20)	(65.53)
SIZE	−0.057***	−0.056***	−0.057***	−0.055***	−0.035***	−0.033***	−0.035***	−0.033***
	(−17.77)	(−15.77)	(−17.72)	(−15.53)	(−17.66)	(−15.45)	(−17.63)	(−15.28)
LAM	0.013***	0.013***	0.013***	0.013***	0.008***	0.008***	0.008***	0.008***
	(6.68)	(6.21)	(6.69)	(6.23)	(6.97)	(6.65)	(6.98)	(6.67)
GROW	−0.033***	−0.034***	−0.033***	−0.035***	−0.017***	−0.019***	−0.017***	−0.019***
	(−12.67)	(−12.00)	(−12.71)	(−12.24)	(−11.00)	(−10.87)	(−11.03)	(−11.04)
TANG	0.327***	0.327***	0.327***	0.327***	0.185***	0.184***	0.185***	0.183***
	(27.21)	(25.24)	(27.21)	(25.21)	(26.89)	(24.81)	(26.88)	(24.79)
INVEST	0.113***	0.112***	0.113***	0.113***	0.071***	0.073***	0.071***	0.073***
	(13.58)	(12.64)	(13.55)	(12.66)	(14.64)	(14.32)	(14.62)	(14.33)

TABLE 4 (Continued)

	DM1				*DM2*			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
CFVLT	0.042***	0.045***	0.042***	0.045***	0.029***	0.029***	0.029***	0.029***
	(5.92)	(5.89)	(5.93)	(5.93)	(6.88)	(6.61)	(6.88)	(6.64)
Intercept	0.427***	0.410***	0.432***	0.420***	0.140***	0.127***	0.142***	0.132***
	(11.36)	(10.17)	(11.50)	(10.43)	(6.16)	(5.32)	(6.25)	(5.54)
Industry–year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2 *within*	0.2091	0.2144	0.2092	0.2149	0.3364	0.3376	0.3365	0.3379
F Fisher	65.50***	58.60***	65.51***	58.81***	94.63***	83.22***	94.65***	83.43***
# Observation	110,690	95,915	110,690	95,915	110,690	95,915	110,690	95,915

Note: This table reports the results from firm fixed effects estimation models with *t* statistics clustered at the firm level that examine the effect of tax avoidance on debt maturity. *DM1* is the ratio of long-term debt over total debt. *DM2* is the ratio of long-term debt over total assets. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its ETR. *ETR* is the total effective tax rate, defined as tax expense over pretax income. *TAXDIF3y* and *ETR3y* are long-run *TAXDIF* and *ETR*, respectively, considering an average of 3 consecutive years. *LEV* is the total debt over total assets. *SIZE* is the natural logarithm of net sales. *LAM* is the natural logarithm of asset maturity. *GROW* is net sales divided by lagged net sales. *TANG* is the ratio of property, plant and equipment to total assets. *INVEST* is the change in tangible and intangible assets deflated by lagged total assets. *CFVLT* is the standard deviation of operating cash flow to total assets from $t-2$ to t.

*** and ** denote significance levels at two-tail tests of 1% and 5%, respectively.

is to control for the differences between firms that engage in tax avoidance and firms that do not. First, we divide the sample into tax-aggressive and nontax-aggressive firm years. We identify as tax-aggressive firms (engaging in tax avoidance) those firm-year observations with positive values of *TAXDIF* or *TAXDIF3y*, while we consider as nontax-aggressive firms (not engaging in tax avoidance) those firm-year observations with values of *TAXDIF* or *TAXDIF3y* equal to or less than zero. We then use a logit model to estimate the probability of being tax-aggressive/nontax-aggressive. The explanatory variables are firm-level characteristics that may affect tax aggressiveness (Brühne & Jacob, 2021): leverage, firm size, profitability, growth, and tangibility. The model also includes year–industry dummies.

Leverage (*LEV*) increases the deductibility of the cost of debt, which reduces the firm's taxable income and thus the incentives to engage in tax avoidance. Therefore, *LEV* is expected to be negatively associated with tax aggressiveness (e.g., DeAngelo & Masulis, 1980). Firm size (*SIZE*) can affect tax avoidance in both directions. On the one hand, larger firms have more power to negotiate favorable tax treatment through lobbies, thereby reducing the cost of tax avoidance. On the other hand, they also face higher political costs, resulting in greater public and government scrutiny. In contrast to leverage, higher profitability (*ROA*) increases the corporate tax base and, consequently, the benefits of tax avoidance. Nevertheless, higher profitability may also expose firms to greater scrutiny, thereby increasing the costs of tax avoidance. Growth opportunities may have a positive effect on tax avoidance because they are expected to increase future profitability and the corporate tax base. In this sense, firm incentives to engage in tax avoidance should increase with growth opportunities. However, the empirical literature is ambiguous on the relationship between growth opportunities (*GROW*) and tax avoidance. Tangible assets (*TANG*) may affect tax avoidance because the deductibility of financing costs used to finance them may be limited.[7] Moreover, the tax depreciation may not fully capture the economic depreciation, resulting in higher tax bases and increased incentives for tax avoidance.

We match each tax-aggressive firm year with the closest nontax-aggressive firm year based on the score of the propensity score, which is similar to randomly assigning firms to the treatment and control groups. In Table 5, we verify that the matching procedure generates a balanced sample of aggressive and nonaggressive firms. The mean values are very close and statistically nonsignificant between the two groups, in contrast to the original sample. We also report the standardized bias, that is, the difference between the means of aggressive and nonaggressive firms divided by the average standard deviation of the variable for the two groups (Boubaker et al., 2016; Rosenbaum & Rubin, 1983). A lower bias means that the two groups are more balanced with respect to the variable under consideration. Table 5 shows that for *TAXDIF*, the absolute values are below 0.8% and that for *TAXDIF3y*, they are below 1.1%, which confirms that the matches are balanced. Moreover, the reduction in bias relative to the original ranges from 68% to 98% for *TAXDIF* and from 94% to 100% for *TAXDIF3y*.

Table 6A presents the results of the logit models for tax aggressiveness based on *TAXDIF* and *TAXDIF3y*, respectively, which confirm that larger and more profitable firms, as well as those with more tangible assets, are more likely to engage in tax avoidance. On the other hand, firms with higher leverage are less likely to engage in tax avoidance. *GROW* is significantly negative only in the *TAXDIF3y* model. Table 6B displays the results of the average debt maturity in the treatment (tax-aggressive firms) and control (nontax-aggressive firms) samples and the difference between the two, which is significant at the 1% level, regardless of which proxy for debt maturity is used (*DM1* or *DM2*). These results confirm that tax-avoiding SMEs engage in longer maturities than nontax-avoiding SMEs.

TABLE 5 Comparison of variables that determine tax aggressiveness.

	Original sample				Propensity score matched sample				
	Aggressive firms	**Nonaggressive firms**	**Difference in means (*t* statistics)**	**Standardized bias (%)**	**Aggressive firms**	**Nonaggressive firms**	**Difference in means (*t* statistics)**	**Standardized bias (%)**	**Reduction in bias (%)**
Considering *TAXDIF* as a proxy for tax aggressiveness									
LEV	0.523	0.563	−0.040***	−19.31	0.523	0.522	0.001	0.70	96.38
			(−32.18)				(1.14)		
SIZE	8.820	8.583	0.237***	27.96	8.820	8.826	−0.006	−0.70	97.50
			(46.83)				(−1.28)		
ROA	0.070	0.060	0.010***	18.53	0.070	0.071	0.000	−0.70	96.22
			(30.87)				(−1.09)		
GROW	0.050	0.042	0.008***	4.52	0.050	0.050	0.000	−0.10	97.79
			(7.49)				(−0.24)		
TANG	0.279	0.274	0.005***	2.50	0.279	0.277	0.002	0.80	67.95
			(4.14)				(1.47)		
Considering *TAXDIF3*y as a proxy for tax aggressiveness									
LEV	0.516	0.563	−0.047***	−22.95	0.516	0.517	−0.001	−0.40	98.26
			(−35.56)				(−0.71)		
SIZE	8.857	8.583	0.274***	32.54	8.858	8.861	−0.004	−0.46	98.59
			(50.77)				(−0.68)		
ROA	0.072	0.062	0.010***	17.44	0.072	0.073	−0.001	−1.10	93.69
			(26.95)				(−1.64)		

(Continues)

TABLE 5 (Continued)

	Original sample				Propensity score matched sample				
	Aggressive firms	Nonaggressive firms	Difference in means (*t* statistics)	Standardized bias (%)	Aggressive firms	Nonaggressive firms	Difference in means (*t* statistics)	Standardized bias (%)	Reduction in bias (%)
GROW	0.042	0.040	0.002	1.01	0.042	0.042	0.000	0.00	100.00
			(1.56)				(0.02)		
TANG	0.277	0.269	0.009***	4.34	0.277	0.277	0.000	0.00	100.00
			(6.68)				(0.01)		

Note: This table compares the main values of the variables considered to determine tax-aggressive and nontax-aggressive firms. We define tax-aggressive firms those firm-years observations with positive values of *TAXDIF* or *TAXDIF3y*, while those with negative or zero values of *TAXDIF* or *TAXDIF3y* are considered nontax-aggressive firms. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its effective tax rate. *TAXDIF3y* is long-run *TAXDIF* considering an average of 3 consecutive years. *LEV* is the total debt over total assets. *SIZE* is the natural logarithm of net sales. *ROA* is operating income divided by total assets. *GROW* is net sales divided by lagged net sales. *TANG* is the ratio of property, plant and equipment to total assets. The *t* statistics are in parentheses beneath each difference in means.

*** denotes significance level at two-tail tests of 1%.

TABLE 6 Effect of tax avoidance on debt maturity—Propensity score matching.

Panel A. Logit regression to tax-aggressive firms vs. nontax-aggressive firms		
	TAXDIF	***TAXDIF3y***
LEV	−1.059***	−1.311***
	(−32.92)	(−36.81)
SIZE	0.369***	0.488***
	(45.71)	(54.45)
ROA	1.346***	0.753***
	(10.91)	(5.66)
GROW	−0.002	−0.143***
	(−0.05)	(−3.26)
TANG	0.330***	0.442***
	(10.07)	(12.27)
Intercept	−2.235***	−4.015***
	(−6.79)	(−11.88)
Industrial–year-fixed effect	Yes	Yes
Pseudo R^2	0.0434	0.0593
LR χ^2	6,625.80***	7,821.11
Log-likelihood	−73,089.93	−62,026.17
# Observation	110,690	95,915

Panel B. Propensity score matching				
	DM1		***DM2***	
	TAXDIF	***TAXDIF3y***	***TAXDIF***	***TAXDIF3y***
Tax aggressiveness	0.26661	0.26604	0.14226	0.13999
Nontax aggressiveness	0.24058	0.23876	0.12947	0.12743
Difference	0.02602	0.02728	0.01279	0.01256
t statistics	15.33***	14.62***	11.74***	10.58***

Note: This table reports the results from propensity matching score estimation models that examine the effect of tax avoidance on debt maturity.

Panel A reports the estimation of the propensity score using a logit regression model with the tax aggressiveness/nontax aggressiveness as the dependent variable. We define tax-aggressive firms those firm-years observations with positive values of *TAXDIF* or *TAXDIF3y*, while those with negative or zero values of *TAXDIF* or *TAXDIF3y* are considered nontax-aggressive firms. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its effective tax rate. *TAXDIF3y* is long-run *TAXDIF* considering an average of 3 consecutive years. *LEV* is the total debt over total assets. *SIZE* is the natural logarithm of net sales. *ROA* is operating income divided by total assets. *GROW* is net sales divided by lagged net sales. *TANG* is the ratio of property, plant and equipment to total assets.

Panel B reports the results of the average debt maturity for the treatment (tax aggressiveness) and control sample (nontax aggressiveness).

Abbreviation: LR, likelihood ratio.

*** denotes significance level at two-tail tests of 1%.

Alternatively, we also use two-stage instrumental variable regressions (i.e., 2SLS) to control for potential endogeneity due to reverse causality. In the first stage of regression, we predict tax avoidance with an ordinary least squares (OLS) regression that includes two instruments and all the control variables from the baseline model. For each model, we run different first-stage regressions for each tax avoidance measure. In the second stage, we estimate the different OLS versions of the model (1), where *TAXAV* is now the corresponding fitted tax avoidance measure from the first-stage regression, using the generalized method of moments, as in Platikanova (2017).

A valid instrument should be correlated with tax avoidance but uncorrelated with each debt ratio analyzed. We test the relevance of the instruments in the first stage using the Shea partial R^2, the F test of excluded instruments, and the Kleibergen–Paap rank Lagrange multiplier (LM) statistic. We also use the Hansen J test for the validity of overidentifying restrictions in the second stage. We consider two instrumental variables. Similar to previous studies (e.g., Beladi et al., 2018; Hasan et al., 2014; Platikanova, 2017), we use the year–industry median of tax avoidance, measured at the one-digit Clasificación Nacional de Actividades Económicas (Spanish Standard Industrial Classification) code level as the first instrumental variable, arguing that a firm's involvement in tax avoidance is partially determined by the tax avoidance practices of its industry peers. As a second instrument, we use the median of the year-region tax avoidance or the median of tax avoidance by year in each Spanish tax regime. On the one hand, a firm's tax avoidance practices are likely to be influenced by the social capital of the region where the firms are headquartered. By analyzing the case of Spain, Alm and Gomez (2008) find that social capital is a significant determinant of tax morale. Barrutia and Echebarria (2010) also find that social capital affects various firm decisions, such as R&D investment, in Spanish regions. On the other hand, different legal systems are expected to have different effects on tax avoidance. Dyreng et al. (2013) find that the differences in state tax laws play a significant role in the tax avoidance strategies of US firms. In Spain, there are two main tax systems: *foral* (Basque Country and Navarre) and *general* (other regions). Differences between these systems in the determination of income tax are expected to affect tax avoidance behavior.

Table 7A shows the first-stage results of the regression models, confirming that the instruments used are positively and significantly related to *TAXDIF* and *TAXDIF3y*. Moreover, the tests confirm that the instruments are not weak. In both regressions the F tests of the excluded instruments are significant and higher than 10; the Kleibergen–Paap rank LM statistics testing the null hypothesis of under-identification are also significant; and the Shea partial R^2 values are similar to those of Shams et al. (2022). In Table 7B, we tabulate the second-stage results reporting only the coefficients on both tax avoidance measures in each model. Table 7 confirms the results from the firm fixed effects estimations regarding the effects of tax avoidance on debt maturity structure. The nonsignificant Hansen J tests in the regressions give us confidence that our instruments are appropriate.

4.3 | Tax avoidance and firm incentives

4.3.1 | Profitability

In this section, we examine whether the relationship between tax avoidance and debt maturity is affected by firm profitability, as profitability is one of the main determinants of tax avoidance (Brühne & Jacob, 2021). We use ROA as a proxy for profitability and split our sample into

low-profit (ROA below the median) and high-profit (ROA above the median) firms. As a preliminary analysis, we examine the extent to which SMEs engage in tax avoidance depending on their profitability by testing for the mean difference in the level of tax avoidance between the two groups. We find that the more profitable the firm is, the higher the level of tax avoidance is, with the differences being significant at 1% (not tabulated).

TABLE 7 Effect of tax avoidance on debt maturity—2SLS estimations.

Panel A. First-stage results		
	TAXDIF	***TAXDIF3y***
IND TAXAV	0.295*	0.812***
	(1.78)	(5.23)
REG TAXAV		0.897***
		(41.94)
FIS TAXAV	0.973***	
	(1.78)	
Controls	Yes	Yes
Industry dummy	Yes	Yes
Year dummy	Yes	Yes
Centered R^2	0.0517	0.1365
F Fisher	89.97***	143.19***
Shea partial R^2	0.0203	0.0808
F test of excluded instruments	369.08***	893.71***
Kleibergen–Paap rank LM statistic	526.44***	918.55***
# Observation	110,690	95,915

Panel B. Second-stage results				
	DM1		***DM2***	
TAXDIF	0.503***		0.295***	
	(7.46)		(7.50)	
TAXDIF3y		0.415***		0.153***
		(8.06)		(5.82)
Controls	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes
Hansen J statistic	2.477	0.009	2.100	0.001
p value	0.115	0.923	0.147	0.977
Centered R^2	0.3231	0.3557	0.4348	0.4659

(Continues)

TABLE 7 (Continued)

Panel B. Second-stage results				
	DM1		***DM2***	
F Fisher	706.73***	653.61***	968.18***	889.53***
# Observation	110,690	95,915	110,690	95,915

Note: This table reports the results from 2SLS estimation models that examine the effect of tax avoidance on debt maturity. Panel A reports the first OLS stage regressions with *t* statistics clustered at the firm level. *TAXDIF* and *TAXDIF3y* are the dependent variables. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its effective tax rate. *TAXDIF3y* is long-run *TAXDIF* considering an average of 3 consecutive years. *IND TAXAV* is the industry–year median of tax avoidance. *REG TAXAV* is the region-year median of tax avoidance. *FISC TAXAV* is the median of tax avoidance for *foral* and *nonforal* regions by year. The control variables are those included in the model (1).

Panel B reports the two-stage (generalized method of moment-IV) regression results, using the predicted level of tax avoidance to explain the variance in levels of two proxies for debt maturity. *DM1* is the ratio of long-term debt over total debt. *DM2* is the ratio of long-term debt over total assets. The control variables are those included in the model (1).

The *t* statistics (Panel A) and *z* statistics (Panel B) reported in parentheses are based on standard errors clustered at the firm level.

Abbreviations: LM, Lagrange multiplier; 2SLS, two-stage least square.

*** and * denote significance levels at two-tail tests of 1% and 10%, respectively.

The results from the estimations of the regression models of debt maturity on tax avoidance for low- and high-profitable SMEs are shown in Table 8. As can be seen, the significant and positive relationship between tax avoidance and debt maturity is found in the high ROA group (at 1% in three regressions and at 10% in one regression). However, for low ROA firms, we do not find significant relationships, with the sole exception of a weak association at 10% when *DM1* is regressed on *TAXDIF3y*. Thus, our findings show that the positive effect of tax avoidance effect on debt maturity is driven by the most profitable SMEs. These firms are the ones that have a strong incentive to reduce the taxes paid due to their high profits, and that are able to use their cash tax savings to improve their financial structure.

4.3.2 | Earnings management

Previous literature has shown that earnings management incentives and tax avoidance are related (e.g., Frank et al., 2009; Sánchez-Ballesta & Yagüe, 2021; Wilson, 2009). In this section, we examine whether the observed relationship between tax avoidance and debt maturity is influenced by the incentive to engage in income-increasing earnings management to meet zero earnings targets. Sánchez-Ballesta and Yagüe (2021) show that, under incentives to increase earnings, SMEs engage in upward earnings management and are less tax-aggressive. However, in settings with less aggressive financial reporting incentives, SMEs simultaneously engage in downward earnings management and tax avoidance strategies to minimize their tax burden. Thus, we estimate model (1) for a sample of firms suspected of engaging in upward earnings management and for a sample of nonsuspect firms.

Following prior studies (e.g., Dechow et al., 2003; Graham et al., 2014; Sánchez-Ballesta & Yagüe, 2021), we define a dummy variable that takes the value 1 if the firm-year observation has a value between 0 and 0.01 for net income divided by total assets (small profit firms) and 0 otherwise (nonsmall-profit firms). In nontabulated analyses, consistent with the evidence reported by Sánchez-Ballesta and Yagüe (2021), we confirm that SMEs are less tax-aggressive

TABLE 8 Effect of tax avoidance on debt maturity by firm profitability.

	Low ROA				*High ROA*			
	DM1		***DM2***		***DM1***		***DM2***	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
TAXDIF	0.005		0.172e−3		0.049***		0.020***	
	(0.96)		(0.05)		(4.61)		(3.28)	
TAXDIF3y		0.026*		0.009		0.064***		0.018*
		(1.87)		(1.12)		(3.46)		(1.75)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry–year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2 *within*	0.2297	0.2383	0.3206	0.3214	0.1915	0.1958	0.3587	0.3592
F Fisher	71.88***	61.03***	113.75***	92.37***	26.51***	24.40***	46.40***	42.75***
# Observation	55,345	45,942	55,345	45,942	55,345	49,973	55,345	49,973

Note: This table reports the results from firm fixed effects estimation models with *t* statistics clustered at the firm level that examine the effect of tax avoidance on debt maturity for low and high *ROA*, firms below and above the sample median of *ROA*. *DM1* is the ratio of long-term debt over total debt. *DM2* is the ratio of long-term debt over total assets. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its effective tax rate. *TAXDIF3y* is a long-run *TAXDIF*, considering an average of 3 consecutive years. *ROA* is operating income divided by total assets. The control variables are those included in the model (1).

*** and * denote significance levels at two-tail tests of 1% and 10%, respectively.

when they have financial reporting incentives to report higher earnings to reach the zero earnings target.

Table 9 reports the results of the regressions of debt maturity on tax avoidance for small-profit firms and nonsmall-profit firms. We find that the negative relationship between debt maturity and tax avoidance is only observed for nonsmall-profit firms, that is, SMEs without incentives to report higher earnings.

4.4 | Reliability of financial reporting

Previous research has shown that information asymmetry is important in determining the economic consequences of tax avoidance (Cen et al., 2017). The main lenders of SMEs—bank—, usually have access to hard and soft information about their debtors to assess their tax avoidance practices (e.g., Kovermann, 2018). One of the most relevant sources of information is the firm financial report, whose reliability plays a key role in the bank's assessment of the risk of SMEs (e.g., Hirsch et al., 2018).

The audit report and the opinion issued by the auditor are crucial tools for assessing the reliability of this financial information They can help to reduce information asymmetries with the users of the financial statements (Butler et al., 2004; Minnis, 2011). A number of papers on privately held firms have shown that the audit per se and the auditor's opinion affect private debt contracting and debt contract features, such as debt maturity and debt cost. For example, Minnis (2011), Kim et al. (2011), and Huguet and Gandía (2014) find lower debt costs in audited private firms compared to nonaudited firms in the United States, Korea, and Spain,

TABLE 9 Effect of tax avoidance on debt maturity by earnings management.

	Small profits				*Nonsmall profits*			
	DM1		***DM2***		***DM1***		***DM2***	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
TAXDIF	0.001		0.003		0.051***		0.021***	
	(0.09)		(0.53)		(5.24)		(3.83)	
TAXDIF3y		0.028		0.010		0.078***		0.032***
		(1.12)		(0.62)		(4.71)		(3.42)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industrial–year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2 *within*	0.2428	0.2457	0.2952	0.2979	0.2089	0.2114	0.3462	0.3461
F Fisher	18.64***	17.32***	24.34***	22.57***	35.46***	33.87***	54.29***	51.85***
# Observation	15,156	13,762	15,156	13,762	57,741	54,649	57,741	54,649

Note: This table reports the results from firm fixed effects estimation models with t statistics clustered at the firm level that examine the effect of tax avoidance on debt maturity for small profits firms (upward-earnings management suspect firms), which are those firm-year observations with a value between 0 and 0.01 for net income divided by total assets, and nonsmall profits firms, the rest of the sample. *DM1* is the ratio of long-term debt over total debt. *DM2* is the ratio of long-term debt over total assets. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its effective tax rate. *TAXDIF3y* is a long-run *TAXDIF*, considering an average of 3 consecutive years. The control variables are those included in the model (1).

*** denotes significance level at two-tail tests of 1%.

respectively. Other studies find that both public and private firms with qualified audit opinions have lower levels of long-term debt and higher debt costs (Cano-Rodríguez et al., 2016; Chen et al., 2016; Liu et al., 2020).

To examine whether the effect of tax avoidance on debt maturity depends on the reliability of financial information, we first repeat our previous analyses for SMEs with audited and nonaudited financial statements in $t-1$. Then, looking at the subsample of audited SMEs, we classify them into modified opinions and clean opinions according to the content of the audit report in $t-1$.[8] Since a clean or unqualified audit report means that the accounting standards have been properly followed, it is associated with greater reliability of the firm's financial information. On the other hand, a modified or qualified opinion indicates that the auditor has concerns about the application of the accounting standards in the preparation of the firm financial statements, or that the auditor lacks sufficient information in the audit process. Thus, a modified audit opinion may reduce lenders' confidence in financial reporting, increasing the information asymmetry.

Table 10 presents the regressions of debt maturity on tax avoidance for audited SMEs and nonaudited SMEs (Table 10A) and for SMEs with a clean audit opinion and with a modified audit opinion (Table 10B). As can be seen in both panels, a significant and positive relationship between tax avoidance and debt maturity is found for audited SMEs (at 1% in two regressions and at 5% in the other two regressions) and for those with a clean audit opinion (at 1% in three regressions and at 10% in one regression). For nonaudited SMEs and for firms with a modified audit opinion, the association between tax avoidance and debt maturity is not significant at the

TABLE 10 Effect of tax avoidance on debt maturity by reliability of financial information.

Panel A. Audited (higher reliability) vs. nonaudited (lower reliability) firms								
	Audited firms				***Nonaudited firms***			
	DM1		***DM2***		***DM1***		***DM2***	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
TAXDIF	0.024***		0.010**		0.011		0.001	
	(2.98)		(2.02)		(1.08)		(0.22)	
TAXDIF3y		0.060***		0.024**		0.040*		0.014
		(3.55)		(2.49)		(1.87)		(1.09)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industrial–year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2 *within*	0.2087	0.2106	0.3370	0.3372	0.2375	0.2417	0.3471	0.3484
F Fisher	24.40***	23.18***	34.66***	32.66***	50.61***	48.18***	86.37***	80.81***
# Observation	37,800	35,615	37,800	35,615	35,097	32,796	35,097	32,796
Panel B. Clean (higher reliability) vs. modified (lower reliability) audit opinion								
	Clean audit report				***Modified audit report***			
	DM1		***DM2***		***DM1***		***DM2***	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
TAXDIF	0.029***		0.010*		0.016		0.016	
	(3.12)		(1.82)		(0.97)		(1.60)	
TAXDIF3y		0.075***		0.029***		−0.001		−0.002
		(3.90)		(2.59)		(−0.02)		(−0.07)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industrial––year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2 *within*	0.2115	0.2117	0.3386	0.3379	0.2324	0.2422	0.3557	0.3622
F Fisher	19.78***	18.39***	27.94***	25.97***	8.63***	8.37***	15.75***	14.86***
# Observation	30,376	28,713	30,376	28,713	7424	6902	7424	6902

Note: This table reports the results from firm fixed effects estimation models with t statistics clustered at the firm level that examine the effect of tax avoidance on debt maturity for audited and nonaudited firms in $t-1$ (Panel A) and by audit opinion in $t-1$: clean versus modified (Panel B). *DM1* is the ratio of long-term debt over total debt. *DM2* is the ratio of long-term debt over total assets. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its effective tax rate. *TAXDIF3y* is a long-run *TAXDIF*, considering an average of 3 consecutive years. The control variables are those included in the model (1).

***, **, and * denote significance levels at two-tail tests of 1%, 5%, and 10%, respectively.

conventional levels, except for the model of *DM1* on *TAXDIF3y*, where the coefficient on this proxy for tax avoidance is only significant at the 10% level. These findings suggest that the positive relationship between tax avoidance and debt maturity prevails in those SMEs with higher credibility of financial reporting.

4.5 | Tax avoidance effect on leverage and short-term debt

In the following analysis, we try to disentangle how the cash flow savings from tax avoidance affect the financial structure of SMEs. We examine whether: (a) the cash tax savings are employed to reduce the short-term debt, reducing the firm's leverage; or (b) these internally generated funds are perceived by lenders as enhancers of the financial slack, allowing SMEs to take on more long-term debt, increasing their leverage; or (c) SMEs use them to substitute long-term debt for short-term debt, leaving their overall leverage unchanged.

In Table 11, we estimate the effect of tax avoidance on leverage and short-term debt to total assets (*SHTDEBT*).[9] Consistent with the debt substitution hypothesis of DeAngelo and Masulis (1980), we find a highly significant negative relationship between tax avoidance and financial leverage. Similarly, we find that the proxies for tax avoidance are significant and negatively associated with the short-term debt proxy.[10] Overall, these findings suggest that cash tax savings can substitute debt mainly by reducing the use of short-term debt.

4.6 | Tax avoidance and the properties of future cash flows

Platikanova (2017) examines the relationship between tax avoidance and future cash flows, and, just like Shevlin et al. (2020), she finds that tax avoidance reduces the level and increases the volatility of future cash flows. This future bad news does not benefit borrowers with short-term debt contracts, as debt renegotiation will take place under less favorable conditions. Consequently, her results suggest that the short-term debt associated with tax avoidance is based on creditors' preferences due to the information asymmetry and risks of tax avoidance activities.

However, our previous results suggest that tax avoidance practices among SMEs improve their debt structure, that is, they reduce leverage and lengthen debt maturity. Our results are different from those of previous literature for large companies. From the lenders' perspective, this may be due to differences in the effect of tax avoidance on future cash flows for SMEs. Next, following Platikanova (2017), we examine the impact of tax avoidance on the characteristics of future cash flows. We calculate the level of future cash flows, *FCFLVL*, as the average operating cash flows scaled by total assets for the period $t + 1$ to $t + 3$. The volatility of future cash flows, *FCFVLT*, is calculated as the standard deviation of operating cash flows scaled by total assets over the next 3 years.

Table 12 reports the results from OLS estimation of the regression models of the properties of future cash flows on tax avoidance measures and control variables, with robust standard errors clustered by firm.[11] The effect of tax avoidance on *FCLVL* is reported in columns (1)–(4) and the effect on *FCFVLT* in columns (5)–(8). In contrast to Platikanova (2017) and Shevlin et al. (2020), our results show that tax avoidance is positively associated with the level of future cash flows and negatively associated with their volatility, with all coefficients significant at 1% (six regressions) and at 5% (two regressions). This is consistent with a positive perception of SME tax avoidance activities by creditors. Moreover, since the relationship between banks and SMEs is based on "soft" and financial information rather than on signaling internal information to the market, this result, together with the financial constraints of SMEs, supports the findings of the previous section on the use of cash tax savings to reduce short-term debt.

TABLE 11 Effect of tax avoidance on leverage and short-term debt.

	LEV				***SHTDBT***			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
TAXDIF	−0.023***				−0.007**			
	(−6.18)				(−2.32)			
TAXDIF3y		−0.063***				−0.014**		
		(−7.67)				(−2.26)		
ETR			0.026***				0.009***	
			(6.85)				(3.22)	
ETR3y				0.033***				0.027***
				(4.48)				(4.55)
ROA	−0.467***	−0.482***	−0.467***	−0.482***				
	(−38.33)	(−37.38)	(−38.38)	(−37.37)				
LEV					0.591***	0.596***	0.591***	0.596***
					(102.99)	(96.45)	(102.98)	(96.56)
SIZE	0.076***	0.085***	0.076***	0.084***	0.035***	0.033***	0.035***	0.033***
	(25.12)	(25.87)	(25.05)	(25.59)	(17.66)	(15.45)	(17.63)	(15.28)
LAM	0.016***	0.016***	0.016***	0.015***	−0.008***	−0.008***	−0.008***	−0.008***
	(9.46)	(9.02)	(9.45)	(8.96)	(−6.97)	(−6.65)	(−6.98)	(−6.67)
GROW	0.048***	0.047***	0.048***	0.047***	0.017***	0.019***	0.017***	0.019***
	(22.68)	(20.05)	(22.74)	(20.33)	(11.00)	(10.87)	(11.03)	(11.04)
TANG	−0.028***	−0.026**	−0.028***	−0.026**	−0.185***	−0.184***	−0.185***	−0.183***
	(−2.65)	(−2.33)	(−2.64)	(−2.28)	(−26.89)	(−24.81)	(−26.88)	(−24.79)

(Continues)

TABLE 11 (Continued)

	LEV				***SHTDBT***			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
INVEST	0.109***	0.116***	0.109***	0.116***	−0.071***	−0.073***	−0.071***	−0.073***
	(17.81)	(18.14)	(17.84)	(18.07)	(−14.64)	(−14.32)	(−14.62)	(−14.33)
CFVLT	−0.012*	−0.014**	−0.012*	−0.014**	−0.029***	−0.029***	−0.029***	−0.029***
	(−1.95)	(−2.24)	(−1.95)	(−2.26)	(−6.88)	(−6.61)	(−6.88)	(−6.64)
Intercept	−0.020	−0.074**	−0.026	−0.075**	−0.140***	−0.127***	−0.142***	−0.132***
	(−0.61)	(−2.07)	(−0.79)	(−2.10)	(−6.16)	(−5.32)	(−6.25)	(−5.54)
Industry–year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2 *within*	0.1879	0.2175	0.1880	0.2164	0.4981	0.5093	0.4981	0.5095
F Fisher	44.40***	44.83***	44.35***	44.31***	180.78***	162.84***	180.85***	163.02***
# Observation	110,690	95,915	110,690	95,915	110,690	95,915	110,690	95,915

Note: This table reports the results from firm fixed effects estimation models with *t* statistics clustered at the firm level that examine the effect of tax avoidance on leverage and short-term debt. *LEV* is the ratio of total debt to total assets. *SHTDBT* is the ratio of short-term debt over total assets. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its ETR. *ETR* is the total effective tax rate, defined as tax expense over pretax income. *TAXDIF3y* and *ETR3y* are long-run *TAXDIF* and *ETR*, respectively, considering an average of 3 consecutive years. *ROA* is operating income divided by total assets. *LEV* is the total debt over total assets. *SIZE* is the natural logarithm of net sales. *LAM* is the natural logarithm of asset maturity. *GROW* is net sales divided by lagged net sales. *TANG* is the ratio of property, plant, and equipment to total assets. *INVEST* is the change in tangible and intangible assets deflated by lagged total assets. *CFVLT* is the standard deviation of operating cash flow to total assets from $t-2$ to t.

***, **, and * denote significance levels at two-tail tests of 1%, 5%, and 10%, respectively.

5 | CONCLUSIONS

In this study, we have examined the effect of tax avoidance on debt maturity in SMEs. We find that longer debt maturities are more prevalent in SMEs that engage in tax avoidance activities. This finding is robust to controlling for potential endogeneity. We also find that the effect of tax avoidance on debt maturity is concentrated in those SMEs that are more

TABLE 12 Effect of tax avoidance on future cash flow levels and volatility.

	FCFLVL				***FCFVLT***			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
TAXDIF	0.009**				−0.021***			
	(2.13)				(−4.50)			
TAXDIF3y		0.029***				−0.033***		
		(4.27)				(−4.70)		
ETR			−0.009**				0.019***	
			(−2.13)				(4.22)	
ETR3y				−0.026***				0.023***
				(−4.18)				(3.56)
LEV	0.000	−0.001	0.000	0.000	−0.002***	−0.002**	−0.002***	−0.003***
	(0.06)	(−0.85)	(0.29)	(0.05)	(−2.96)	(−2.47)	(−3.46)	(−3.43)
SIZE	−0.003	−0.001	−0.003	−0.002	0.021***	0.021***	0.022***	0.022***
	(−1.06)	(−0.44)	(−1.08)	(−0.63)	(7.36)	(6.66)	(7.41)	(6.94)
LAM	0.704***	0.714***	0.704***	0.715***	0.159***	0.161***	0.159***	0.160***
	(55.64)	(53.06)	(55.65)	(53.10)	(14.11)	(13.35)	(14.08)	(13.25)
GROW	0.005*	0.006*	0.004*	0.005*	0.012***	0.010***	0.012***	0.010***
	(1.70)	(1.92)	(1.68)	(1.70)	(4.16)	(2.89)	(4.19)	(3.06)
TANG	0.065***	0.068***	0.065***	0.068***	−0.062***	−0.063***	−0.062***	−0.063***
	(23.00)	(21.86)	(23.00)	(21.88)	(−21.89)	(−20.02)	(−21.92)	(−20.07)
INVEST	−0.030***	−0.036***	−0.030***	−0.035***	−0.047***	−0.050***	−0.047***	−0.050***
	(−4.07)	(−4.62)	(−4.08)	(−4.58)	(−6.25)	(−6.42)	(−6.24)	(−6.50)
CFVLT	−0.014**	−0.013*	−0.014**	−0.013*	0.262***	0.260***	0.262***	0.261***
	(−2.10)	(−1.91)	(−2.10)	(−1.90)	(33.13)	(31.03)	(33.14)	(31.05)
Intercept	0.034***	0.037***	0.036***	0.039***	0.104***	0.103***	0.101***	0.101***
	(4.74)	(4.63)	(4.89)	(4.88)	(13.65)	(12.22)	(13.15)	(11.96)
Industry-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(Continues)

TABLE 12 (Continued)

	FCFLVL				*FCFVLT*			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
R^2	0.2013	0.2144	0.2013	0.2144	0.1054	0.1079	0.1053	0.1077
F Fisher	187.23***	176.42***	187.30***	176.28***	114.49***	101.66***	114.13***	101.26***
# Observation	52,585	44,617	52,585	44,617	52,585	44,617	52,585	44,617

Note: This table reports the results from ordinary least squares estimation models with *t* statistics clustered at the firm level that examine the effect of tax avoidance on future cash flow levels and volatility. *FCFLVL* is the average cash flow from operations overt total assets for the period $t + 1$ to $t + 3$. *FCFVLT* is the standard deviation cash flow from operations overt total assets for the period $t + 1$ to $t + 3$. *TAXDIF* is the difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its ETR. *ETR* is the total effective tax rate, defined as tax expense over pretax income. *TAXDIF3y* and *ETR3y* are long-run *TAXDIF* and *ETR*, respectively, considering an average of 3 consecutive years. *LEV* is the total debt over total assets. *SIZE* is the natural logarithm of net sales. *LAM* is the natural logarithm of asset maturity. *GROW* is net sales divided by lagged net sales. *TANG* is the ratio of property, plant, and equipment to total assets. *INVEST* is the change in tangible and intangible assets deflated by lagged total assets. *CFVLT* is the standard deviation of operating cash flow to total assets from $t - 2$ to t. Both industry- and year-fixed effects are included.

***, **, and * denote significance levels at two-tail tests of 1%, 5%, and 10%, respectively.

profitable, have lower earnings management incentives, and have higher reliability of financial information. Our evidence for SMEs therefore contradicts prior research showing that tax-avoiding listed firms use shorter debt maturity (e.g., Beladi et al., 2018; Kubick & Lockhart, 2017; Platikanova, 2017). However, our findings are consistent with several prior studies that show that tax avoidance has a positive effect on the cost of debt in economies where firms have close relationships with their banks (e.g., Lim, 2011; Kovermann, 2018; Sánchez-Ballesta & Yagüe, 2023).

In addition, our findings from the analyses of the effects of tax avoidance on leverage and short-term debt ratios are consistent with the debt-substitution hypothesis of DeAngelo and Masulis (1980). We observe that tax-avoiding SMEs show lower levels of leverage and short-term debt in their financial structure. We also document higher levels and lower volatility of future operating cash flows for SMEs that engage in tax avoidance.

Overall, our results suggest that SMEs may use cash tax savings to reduce short-term debt financing and that SMEs' lenders, mainly banks, do not negatively assess tax avoidance in these types of firms. Due to their close relationship with banks, SMEs may not need short-term debt to signal high credit quality. Therefore, our results suggest that the effect of tax avoidance on debt maturity is determined both by borrower and creditor choice.

Our findings may be useful for SME managers, as they suggest that by engaging in tax avoidance firms may raise funds that allow them to improve the financial structure of their firms. These results may also be useful for regulators since they show that special tax rules for small firms, such as additional tax deductions, may contribute to a better debt composition of these firms. Although these findings correspond to the Spanish setting, we think that they could shed light on those OECD and EU countries whose tax systems include tax preferences for SMEs, such as innovation or investment tax credits that reduce their ETR (European Commission, 2015; OECD, 2015). In particular, our results could be useful for understanding the regulatory and incentive mechanisms in those European countries where short-term debt is the most popular financing source for SMEs (European Central Bank, 2018).

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the authors upon reasonable request.

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ENDNOTES

[1] Tax avoidance activities do not necessarily imply illegal practices, as firms may legitimately use opportunities or methods provided by the tax code to reduce their tax burden (i.e., nondebt tax shields). Therefore, tax avoidance covers a continuum from simple legal practices (e.g., investment deductions, tax credits, accelerated depreciation schemes) to complex tax-minimization strategies with inherent risk because they may be either illegal or fall in a legal "grey area" (e.g., tax shelters, use of tax havens).

[2] The theories based on agency costs and information asymmetry also suggest that firms match the debt maturities to their asset maturities (Hart & Moore, 1994).

[3] Nevertheless, the level of professionalization of SME managers is lower than that of large firms, since SME managers tend to have less experience, knowledge, and skills (Gorman & Sahlman, 1989). This, together with the favorable tax incentives in the law for SMEs may lead them to use the cash tax savings in alternative and less efficient activities than improving financial slack and debt maturity, such as rent extraction, undertaking value-destroying projects, or maintaining high levels of precautionary cash holdings (e.g., Desai & Dharmapala, 2009; Hanlon et al., 2017).

[4] Although we have included the main control variables used in studies of corporate debt maturity, our study may still have omitted firm-level factors, such as those related to corporate governance or firm–lender relationships. However, since these variables are quite stable in SMEs we think that the use of firm fixed effects regressions mitigates the concern that omitted firm-level variables were driving our results.

[5] We also run sequential regressions, including our independent variables sequentially, and obtain significant and similar results to those reported from our baseline model.

[6] These values correspond to the coefficients on *TAXDIF* and *TAXDIF3y* multiplied by their standard deviations and divided by the median of *DM1* and *DM2*, respectively.

[7] In Spain, the 2014 Income Tax Act limits the deductibility of the net financial expenses (the excess of financial expenses over financial income derived from the transfer of equity to third parties) to 30% of operating income.

[8] Similar results are obtained when considering the audit opinion in *t*.

[9] Following Magri (2010), we include ROA, the proxy for profitability, as a control variable in the leverage model because profitable firms are expected to use less debt, according to the pecking order theory. However,

return on assets is not included in the debt maturity model because no theoretical debt maturity study considers profitability as an explanatory factor (Johnson, 2003).

[10] We obtain similar results when the short-term debt over total debt is used as a dependent variable.

[11] As in Platikanova (2017), we have tabulated the results of the OLS regressions. We have also estimated the regression models with firm fixed effects. The nontabulated results are similar to those reported in Table 12.

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APPENDIX

See Table A1.

TABLE A1 Variables definition.

Variable	Definition
Debt maturity variables	
DM1	The ratio of long-term debt over total debt.
DM2	The ratio of long-term debt over total assets.
SHTDBT	The ratio of short-term debt over total assets.
Tax avoidance variables	
TAXDIF	The difference between the statutory tax rate that corresponds to a firm-year observation according to the tax legislation and its total effective tax rate (ETR), defined as tax expense over pretax income.
TAXDIF3y	Long-run *TAXDIF* considering an average of 3 consecutive years.
ETR	The total ETR, defined as tax expense over pretax income.
ETR3y	Long-run *ETR* considering an average of 3 consecutive years.
Tax aggressive firms/nontax aggressive	Dummy variable that equals 1 for positive values of *TAXDIF* or *TAXDIF3y*, and 0 otherwise.
Control variables	
LEV	Ratio of total debt to total assets.
SIZE	The natural logarithm of net sales.
ROA	Ratio of operating income to total assets
LAM	The natural logarithm of asset maturity.
GROW	Firm growth, calculated as net sales in t divided by net sales in $t-1$.
TANG	Ratio of property, plant and equipment to total assets.
INVEST	Capital expenditure in t divided by total assets in $t-1$.
CFVLT	The standard deviation of operating cash flow to total assets from $t-2$ to t.
Additional analyses	
FCFLVL	The average operating cash flow to total assets from $t+1$ to $t+3$.
FCFVLT	The standard deviation of operating cash flow to total assets from $t+1$ to $t+3$.
Small profits/nonsmall profits	Dummy variable that equals 1 if net income divided by total assets is between 0 and 0.01, and 0 otherwise.
Audited/nonaudited	Dummy variable that equals 1 if the financial statements are audited in $t-1$, and 0 otherwise.
Clean audit report/Modified audit report	Dummy variable that equals 1 if the opinion of the audit report in $t-1$ is modified, and 0 if the opinion is unmodified.

Note: This table presents the variables used in the study and their definitions. All variables are calculated using the information from SABI (Bureau van Dijk).