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Debt maturity in family firms: Heterogeneity across countries

Isabel Feito-Ruiz [a], Susana Menéndez-Requejo [b]

[a] University of Leon, Spain. Faculty of Economics and Business. Campus de Vegazana s/n. E-24071 León (Spain)
[b] University of Oviedo, Spain. Faculty of Economics and Business. Avda. del Cristo s/n. E-33071 Oviedo (Spain)

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ABSTRACT

This study examines whether the heterogeneity of family firms and their legal and institutional contexts shape their debt maturity. We analyze a dataset of 121,238 listed and private firms worldwide (105 countries) and find significant differences in the determinants of family firms' debt maturity according to whether they are listed or private SMEs. Our findings show that listed family firms have shorter debt maturities when they have a family CEO, have more concentrated ownership, and are in weak contexts, while these same features facilitate private family SMEs' access to long-term debt. Generational transition favors longer-term debt in both listed and private family firms.

1. Introduction

Family-controlled businesses are the prevailing form of enterprise throughout the world, accounting for roughly three-quarters of all businesses globally, including some as prominent as Fiat, Marriott, Samsung, and Wal-Mart, among many others (e.g., La Porta, Lopez-de-Silanes, & Shleifer, 1999; Nicholson, 2008). Family firms, and especially small and medium enterprises (SMEs), are core drivers of economic growth and social-wellbeing with their contribution to creating jobs. A key factor for the survival and growth of these firms is access to financing and, particularly, long-term debt, which determines a firm's ability to develop valuable growth opportunities over time (Le Breton-Miller & Miller, 2018; Nordqvist & Melin, 2010; Orman & Köksal, 2017).

Although privately-held and SME family firms predominate around the world, most researchers draw their conclusions from listed family companies and focus on single countries (Michiels & Molly, 2017). Research comparing listed family and non-family firms in Europe shows that credit markets are more liable to provide long-term debt to family firms (Croci, Doukas, & Gonenc, 2011), exhibiting a positive relationship with the ownership of the main shareholder, which is stronger for young family firms (Keasey, Martinez, & Pindado, 2015). On the contrary, listed firms in Brazil and Chile, including family firms, show longer debt maturity with low levels of ownership concentration (Martins, Schiehll, & Terra, 2017). Listed firms in Malaysia with family-related directors tend to rely on longer debt maturity structures (Hussain, Abidin, & Kamarundi, 2018), and listed firms with multiple large shareholders have shorter debt maturity in France, for both non-family and family firms (Ben-Nasr, Boubaker, & Rouatbi, 2015). Private family firms also exhibit better access to long-term debt than non-family firms in Spain (Díaz-Díaz, García-Teruel, & Martínez-Solano, 2016), while those with an outside CEO have less long-term debt in Belgium (Lardon, Deloof, & Jorissen, 2017).

E-mail addresses: ifeir@unileon.es (I. Feito-Ruiz), srequejo@uniovi.es (S. Menéndez-Requejo).

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Our research is motivated by the discrepancies in research on family firms' debt maturity and the lack of a comprehensive analysis in terms of the types of family firms and their environments. We propose that the differences may be due to the heterogeneity of family businesses and differences in the legal and institutional environment of the countries. One the one hand, we consider that family firms are heterogeneous (Melin & Nordqvist, 2007; Cruz & Nordqvist, 2012; Chua, Chrisman, Steier, & Rau, 2012; Daspit, Chrisman, Ashton, & Evangelopoulos, 2021), especially in terms of family management, ownership involvement, and family complexity, increasing with their generation stage (García-Álvarez & López-Sintas, 2001; Westhead & Howorth, 2007; Sharma & Nordqvist, 2008; Chirico & Bau, 2014). This heterogeneity could in turn affect the way these firms get financing and their debt maturity by altering the intensity of agency conflicts arising around financing decisions. Short-term debt is a typical monitoring device to align borrowers' interests with lenders' interests. From an Agency Theory perspective, debt maturity could be a corporate governance device for mitigating agency conflicts, as it reduces debt overhang due to shorter maturity than the realization of investment returns (Myers, 1977). Short-term debt plays a notable role in reducing agency conflicts between creditors and shareholders (Barclays & Smith, 1995), but also between managers and shareholders (Datta, Iskandar-Datta, & Raman, 2005). Nevertheless, high dependence on short-term debt exposes firms to rollover risk and it may reduce the present value of their tax shields and their growth opportunities (Diamond, 1991). On the other hand, there may be some differences between countries in access to long-term debt. Law and finance literature indicates that firms in developing economies, especially SMEs, typically hold high levels of short-term debt (Demirgüç-Kunt & Maksimovic, 1999), while strong legal and institutional environments determine longer debt maturity for companies in general (Casino-Martínez, López-Gracia, Mestre-Barberá, & Peiró-Giménez, 2019; Fan, Titman, & Twite, 2012; Pour & Lasfer, 2019). This is consistent with the differences in the level of creditor protection and the development of equity and debt markets between countries, which can limit SMEs' access to financial markets. At the same time, differences in property rights, legal structures and economic development can have relevant effects on the prevalence, behavior, and performance of family firms around the world, as La Porta et al. (1999) and Gedajlovic, Carney, Chrisman and Kellermanns (2012) claim. In this regard, Daspit et al. (2021) make a call for studying the effect of the environment on the heterogeneity of family firms.

Our study focuses on exploring the differences in debt maturity between family firms in different countries, aiming to extend the current understanding of how heterogeneity in family firms determines these decisions. Our study seeks to answer the following main research questions: Does family firm heterogeneity -in terms of family CEO, ownership concentration, and generation- shape debt maturity? Does the legal and institutional environment influence family firms' debt maturity? We will also investigate potential differences between listed family firms and private family SMEs around the world, as agency conflicts and information asymmetry may depend on that.

We aim to answer these research questions drawing our hypotheses from agency theory and law and finance literature. We posit that agency conflicts may shape family firm debt maturity, depending on whether or not firms have a family CEO (principal-agent conflicts), the degree of family ownership concentration (principal-principal conflicts) and the generational stage (principal-"super-principal" conflicts, as labelled by Villalonga, Amit, Trujillo, & Guzmán, 2015). We expect differences among private SMEs and listed family firms. The main underlying reasoning is that conflicts between non-family minority shareholders and family owners in listed firms, especially those with a family CEO, favor shorter firm debt maturity and thus more lender monitoring. Nevertheless, family shareholders in SMEs may impose their preference for longer debt maturity, which facilitates firm growth and avoids continuous creditor control. We also adopt an institutional theory framework, examining the influence of the legal and institutional environment on the intensity of agency conflicts.

Unlike previous studies, we analyze a huge database of 121,238 SMEs and large firms (private and listed) from 105 countries worldwide, gathered from the Orbis database. Cross-sectional empirical models are estimated applying two-stage least-square (2SLS) methodology to control for the potential endogeneity between debt maturity and leverage. Our findings show significant differences in the determinants of family firms' debt maturity according to whether they are listed or private SMEs. Listed family firms have shorter debt maturities when they have a family CEO, have more concentrated ownership, and are in weak legal and institutional environments. These results are consistent with the pressure that non-family minority investors in the stock market and/or the lenders of listed firms exert to reduce potential agency conflicts arising from having a family CEO (entrenchment with the self-interests of family owners), concentrated ownership (tunneling of large family owners) and weak contexts (creditors and investors less protected). In contrast, privately held family SMEs exhibit longer debt maturities when they have a family CEO (more aligned with family owners), more concentrated family ownership (dominant family principals may impose their will), or are in weak legal and institutional environments (family firms' wealth preservation and long-term goals). These findings are consistent with fewer agency conflicts with creditors and better access to longer debt maturity when close relationships with lenders allow them to monitor families' commitment to the business. Generational transition in family firms encourages longer-term debt in both listed and private family firms. Long-term debt is a core driver for financing the growth of a family firm, which is essential for generating new opportunities for successive generations. We find a significant homogeneous effect of firms' fundamental variables, such as size and asset maturity across all the specifications, consistent with the agency theory perspective. We perform various robustness checks. The findings are not sensitive to alternative firm classifications or definitions of the proxy variables. We find similar results when we consider other methodologies, such as quantile regression and hierarchical linear modeling (HLM).

This study contributes to research on corporate governance and family businesses in several ways. First, it contributes to the discussion in corporate governance and corporate finance about how ownership influences capital structure decisions (Brailsford, Oliver, & Pua, 2002; Hansen & Block, 2021). We show that in addition to distinguishing between family and non-family businesses when studying their debt maturity, it is also necessary to differentiate between listed and private family businesses, given the specific controlling pressure that listed family firms face from non-family minority shareholders in the stock market. Second, our study also adds to the literature about family firm heterogeneity (Daspit et al., 2021). We find differences between listed and private family

firms in how family involvement in management and ownership influence their debt maturity. Close personal relationships with lenders provide valuable soft information for risk assessment in private family SMEs, allaying concerns of managerial entrenchment, family nepotism, and tunnelling actions associated with family control in listed firms. Third, we contribute to expanding the literature on agency theory by considering the least explored agency relationship between family owners vs family-at-large ("super-principal") (Villalonga et al., 2015). Our results improve our understanding of the influence of agency relationships on family firms' debt maturity by considering the potential influence of shareholders' kin across generations. The greater family complexity over successive generations requires taking financial decisions that allow transgenerational continuity. Finally, we also contribute to the literature on law and finance dealing with the influence of the legal and institutional environment on firms' debt maturity, distinguishing between listed and private family firms (Cho, Ghoul, Guedhami, & Suh, 2014; Godlewski, 2020; Mc Namara, Murro, & O'Donohoe, 2017). Our research highlights the importance of countries' institutional environments in family firms' debt maturity. In particular, in weak contexts, private family SMEs' internal governance and control mechanisms facilitate relationships with lenders in the absence of developed formal institutions.

The remainder of the paper is organized as follows. Section 2 develops the theoretical framework and hypotheses. Section 3 describes the database and the research methodology. In Section 4, the main empirical results are presented. The robustness tests are included in section 5, before the conclusions in Section 6.

2. Theoretical framework and hypotheses

Agency Theory offers a theoretical framework for analyzing the determinants of firms' debt maturity according to the influence and importance of different agency conflicts. While long-term debt allows managers and owners greater discretion, short-term debt increases outside monitoring by creditors and thus reduces managers' discretion over the firm's free cash flow (Jensen, 1986).

Information asymmetry and agency conflicts with debtholders about underinvestment and asset substitution will be lower with shorter debt maturity (Childs, Mauer, & Ott, 2005). Short-term debt requires frequent renegotiations and monitoring by lenders, which makes it less likely that managers and controlling shareholders will decide on asset risk shifting and debt overhang (Ben-Nasr et al., 2015; Diamond, 1991; Pour & Lasfer, 2019). Nevertheless, reliance on short-term debt requires frequent refinancing, which increases firms' rollover risk, renegotiation and transaction costs, and reduces potential growth and the present value of tax shields (Diamond, 1991; Childs et al., 2005; Pour & Lasfer, 2019).

Agency conflicts with creditors are usually smaller in family firms (Anderson & Reeb, 2003) because of the family owners' interest in maintaining control of the firm over generations, the firm's reputation, and longer-term relationships, which lower the likelihood of asset substitution (managers implementing higher-risk projects) and of overinvestment (managers accepting negative present value projects) (Hillier, Martínez, Patel, Pindado, & Requejo, 2018). Family firms' long-term commitment to the business mitigates the sensitivity of debt to fluctuations in cash flow (Pindado, Requejo, & de la Torre, 2015). Besides that, family businesses tend to be more risk-averse than their non-family counterparts, given the usual concentration of family owners' wealth in the firm, sharpened by family owners' undiversified portfolios (Anderson, Duru, & Reeb, 2012; Anderson & Reeb, 2003; Faccio, Marchica, & Mura, 2011; Morck & Yeung, 2003). In addition, family members are more willing to offer their personal wealth as collateral (Keasey et al., 2015). Family firms' typically greater risk aversion and long-term orientation facilitate alignment with lenders' interests, which allows family firms to have less demanding debt contracts (Chrisman, Chua, Le Breton-Miller, Miller, & Steier, 2018; Hillier et al., 2018; Yen, Lin, Chen, & Huang, 2015) and longer relationships with creditors. Accordingly, family firms usually have easier and cheaper access to debt (Anderson, Mansi, & Reeb, 2003), especially long-term debt (Croci et al., 2011; Díaz-Díaz et al., 2016).

Nevertheless, family firms are heterogenous. We posit that family firms' debt maturity may in turn depend on the degree of their agency conflicts, according to whether or not they have a family CEO (principal-agent conflicts), the degree of family ownership concentration (principal-principal conflicts), and the generational stage (principal-"superprincipal" conflicts). The legal and institutional environment may also be a relevant determinant of debt maturity, in addition to firm characteristics.

2.1. Principal-Agent Conflicts: Family CEO

Family firms are considered to have low principal-agent conflicts (Anderson & Reeb, 2003; Chrisman, Chua, & Litz, 2004), given their limited or even non-existent separation between ownership and management. Nevertheless, family firms are not a homogeneous group. Family firms with an outside CEO, compared to the most frequent case of family firms with a family CEO, will have higher agency costs of monitoring, as the interests and decisions of outside managers (agents) will be less aligned with those of family owners (principals). On the contrary, family managers are assumed to be more aligned with the long-term goals of the family (Martin, Gómez-Mejía, Berrone, & Makri, 2017). However, this manager-owner alignment may become an entrenchment. Having a family CEO boosts operational discretion to implement a noneconomic agenda, even against creating shareholder value (Gómez-Mejía, Núñez-Nickel, & Gutiérrez, 2001; Martin et al., 2017; Morck, Wolfenzon, & Yeung, 2005).

A family CEO in a listed firm might signal potential manager-owner entrenchment and prevent hiring the necessary human capital to successfully run the firm. In fact, when new managerial skills are required some family firms employ outside CEOs (Chua, Chrisman, & Bergiel, 2009; Gedajlovic, Lubatkin, & Schluze, 2004; Lardon et al., 2017). Family firms will often appoint an outside CEO when they have reached a stage in which the family owners have become more tolerant towards risk-taking (Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano , 2007; Schulze et al., 2003) and family owners not as "overinvested" in the firm. Moreover, when the family firm has an outside CEO, one might expect lower incentives to extract private benefits at the expense of the other shareholders and stakeholders. Banks and other lenders might consider a non-family CEO a hint that the family firm avoids

nepotism, which in turn may have a positive impact on the financing cost and debt maturity, and having a non-family CEO may therefore transmit a positive signal (Dekker, Lybaert, Steijvers, Depaire, & Mercken, 2013). We posit that creditors might be less willing to lend in the long-term in the case of listed family firms with a family CEO.

Conversely, we expect that interest in monitoring and a disciplinary role of short-term debt will be lower in SMEs with a family CEO. Family firms that appoint an outside CEO usually take more entrepreneurial risks (Croci et al., 2012; Huybrechts, Voordeckers, & Lybaert, 2013; Lardon et al., 2017), against the bank's preference for conservative firms (Chua, Chrisman, Kellermanns, & Wu, 2011). Consistent with this reasoning, Lardon et al. (2017) found that the presence of an outside CEO decreases long-term debt in small privately-held family-firms in Belgium. In contrast, fewer agency conflicts between managers and owners in family managed firms will be a positive sign of the family's commitment to the business, which is expected to facilitate their access to long-term debt. Moreover, private SMEs usually establish close relationships with bank lenders, which generates valuable informal and soft information for financial risk assessment. Consequently, we expect family firms with a family CEO to have less long-term debt if they are listed and more long-term debt if they are private SMEs. Hence our first hypotheses are:

Hypothesis 1a. *Listed family firms with a family CEO have less long-term debt than listed family firms with an outside CEO.*

Hypothesis 1b. *Private family SMEs with a family CEO have more long-term debt than private family SMEs with an outside CEO.*

2.2. Principal-Principal Conflicts: Family ownership concentration

The family ownership structure is a key dimension of family involvement (De Massis, Kotlar, Campopiano, & Cassia, 2013). Concentrated ownership, which is typical in family firms, facilitates monitoring and alleviates free-rider agency costs (Shleifer & Vishny, 1986), although agency conflicts among majority (controlling) shareholders and minority shareholders may arise (Burkart, Gromb, & Panunzi, 1997; La Porta, López-de-Silanes, Shleifer, & Vishny, 2002; Villalonga & Amit, 2006). Principals' interests may differ when it comes to risk preferences and goals (Kotlar & De Massis, 2013), encouraging controlling principals to expropriate value from other shareholders, even if they belong to the same family (Calabrò, Campopiano, & Basco, 2017; Johnson, La Porta, López-de-Silanes, & Shleifer, 2000; Shleifer & Vishny, 1997). Dominant family principals may impose their will on minority owners, extract private benefits of control, and pursue non-economic objectives (Martin et al., 2017; Shleifer & Vishny, 1997; Zellweger & Kammerlander, 2015). Family ownership concentration strengthens the socio-emotional aims of perpetuating the family dynasty and the risk aversion to loss of control (Bacci, Cirillo, Mussolino, & Terzani, 2018; Berrone, Cruz, & Gómez-Mejía, 2012).

Controlling owners will prefer longer debt maturity rather than shorter to avoid frequent monitoring by lenders for a longer period and to retain control of the firm (Ben-Nasr et al., 2015). Furthermore, as short-term debt increases so does the risk of liquidity default (Martins et al., 2017; Datta et al., 2005). Large shareholder ownership and short-term debt financing may also be considered substitute monitoring mechanisms of managers (agents), given that both decrease managerial discretion (Shyu & Lee, 2009).

Family owners' non-economic goals are often incompatible with non-family minority shareholders' goals of deriving the highest possible financial return from their investment (Martin et al., 2017; Schulze, Lubatkin, Dino, & Buchholtz, 2001). Controlling owners' preferences for avoiding being monitored may be curbed by the non-family minority shareholders in the case of listed family firms. Moreover, agency costs of debt with creditors may increase with those large shareholdings, both due to possible tunneling actions by dominant shareholders, and due to their strength negotiating in case of restructuring (Aslan & Kumar, 2012; Johnson et al., 2000). These arguments are consistent with the positive association between low ownership concentration and debt maturity found by Castro Martins et al. (2017) for listed firms in Brazil and Chile.

However, we expect a positive relationship between family ownership concentration and firms' long-term debt in privately held family SMEs. High family ownership concentration, together with their typically undiversified financial portfolios, engender a link between the controlling owners' wealth and that of the family, encouraging decisions that jointly maximize the interests of the family and the company (De Massis et al., 2013; Schulze et al., 2001). Moreover, large shareholders' high exposure to unsystematic risk boosts their efforts to monitor managers. In any case, the lack of scrutiny by the stock market gives large family shareholders in unquoted SMEs great discretion to impose their preference for longer debt maturities. Following the arguments above, our second hypotheses are as follows:

Hypothesis 2a. *Listed family firms with more concentrated ownership have less long-term debt than listed family firms with less concentrated ownership*.

Hypothesis 2b. *Private family SMEs with more concentrated ownership have more long-term debt than private family SMEs with less concentrated ownership*.

2.3. Principal-"Super-Principal" Conflicts: Family firm generational stage

The generational stage of a family firm also influences the potential degree of conflicts, which increase as new generations and extended family join the firm (Davis & Harveston, 2001). Family businesses may suffer unique agency conflicts among family shareholders and family outsiders (which can be thought of as a "super-principal") (Villalonga et al., 2015). The characteristic overlaps between family, ownership, and/or management in family firms (Tagiuri & Davis, 1996) and close family relationships of owners and managers with other relatives (non-shareholders, non-managers, and non-board members) allow the latter to influence the firm's decisions or interfere with family feuds. These intra-family conflicts between family owners and the remainder of the family at large will

be more pronounced in later generational stages (Eddleston, Kellermanns, Floyd, Crittenden, & Crittenden, 2013; Gersick, Davis, Hampton, & Lansberg, 1997; Lubatkin, Schulze, Ling, & Dino, 2005). Generational transitions incorporate new family members and family branches with different perspectives and interests, which causes conflicts (Chrisman, Chua, Pearson, & Barnett, 2012; Gersick et al., 1997).

Common family challenges, such as succession, conflicts between siblings or cousins, and entrenched family leadership sometimes drive the distribution of resources and responsibilities into new enterprises or encourage some family members to branch out into new ventures (Le Breton-Miller & Miller, 2018). Their aim of bequeathing the firm to future generations also fosters multi-business entrepreneurship in order to seize on diversification opportunities and cope with industry upheavals (Le Breton-Miller & Miller, 2018). A firm's growth and financial wealth becomes more important than socio-emotional wealth preservation in family firms in later generational stages (Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano, 2007; Sciascia, Mazzola, & Kellermanns, 2014). Family wealth and raising long-term funds is essential.

Family owners typically make decisions and foster the growth of the firm for the benefit of the next generation, not solely for the immediate benefit of the current owners (Zellweger, Nason, & Nordqvist, 2012). The success of family firms across generations relies on transgenerational entrepreneurship (Basco, Calabrò, & Campopiano, 2019) and requires managing conflicts that arise from the growing heterogeneity of their interests and motivations, developing formalized governance mechanisms, such as Family Councils or Family Protocols (Sciascia et al., 2014; Voordeckers, Van Gils, & Van den Heuvel, 2007). These governance mechanisms usually promote agreements about the firm's strategy and makes it easier to assume financial risk. It is essential for a firm to grow over time, especially for family businesses, to generate new opportunities for employment and income for members of later generations of the family (Calabrò et al., 2017; De Massis et al., 2013) in order to manage family conflicts. Financing the growth of the firm will require access to and taking on long-term debt.

We must bear in mind that multigenerational family firms are those that have achieved successful succession processes. Long-lasting family firms exhibit consolidated relationships with creditors and have the status of reliable debtors (Bacci et al., 2018; Molly, Laveren, & Deloof, 2010). In addition, subsequent generations will have more diversified portfolios and will be more willing to bear risk (Bacci et al., 2018; Schulze, Lubatkin & Dino, 2003). Generational transitions will promote the firm's growth and diversification, as well as bearing long-term financial risks and the required access to long-term debt.

In light of these arguments, we expect a positive relationship between a firm's generational stage and family firms' debt maturity, both for listed and private family SMEs. Hence, we propose the following hypotheses:

Hypothesis 3a. *Listed family firms in later generational stages have more long-term debt than listed family firms in earlier generational stages*.

Hypothesis 3b. *Private family SMEs in later generational stages have more long-term debt than private family SMEs in earlier generational stages*.

2.4. Legal and institutional environments

Law and Finance literature shows that the legal and institutional environment influences managerial and large shareholder discretion, as well as investor and creditor protection, shaping firms' financing choices (Demirgüç-Kunt & Maksimovic, 1999; La Porta, López-de-Silanes, Shleifer, & Vishny, 1997, 1998). Stronger creditor rights force repayment, attenuating borrowers' incentives to engage in excessive risk and asset substitution, which reduces risk and conflicts of moral hazard (Demirgüç-Kunt & Maksimovic, 1999; Fan et al., 2012). Low debt enforcement and weak creditor-rights protection diminish lenders' power in case of bankruptcy, and weak governance mechanisms facilitate dominant shareholders and managers' opportunism (Acharya, Amihud, & Litov, 2011; Diamond, 1991). Borrowers can expropriate lenders in the long term in contexts without effective creditor protection, as it is difficult for them to access firms' collateral when there are no explicit bankruptcy codes or enforcement regulations (Demirgüç-Kunt & Maksimovic, 1999; Fan, Titman, & Twite, 2012). Shorter debt maturity triggers effective monitoring of firms by creditors, which is especially useful in weak legal and institutional environments. Accordingly, listed firms in more corrupt countries and those with weaker laws tend to use more short-term debt, while an effective legal system, strong protection of investor and creditor rights, explicit bankruptcy codes and deposit insurance are all associated with longer debt maturities (Fan et al., 2012; González, 2015, 2017; Pour & Lasfer, 2019). Weak economic systems, low levels of creditor rights protection and weak legal enforcement also hinder access to long-term debt for unlisted firms (Demirgüç-Kunt, Martinez Peria, & Tressel, 2020; Casino-Martínez et al., 2019). In a recent worldwide study, Martins et al. (2020) claimed that ownership concentration has a negative impact on debt maturity in countries with weak shareholder and creditor protection.

Nevertheless, there are several reasons to expect family firms to interact differently with their institutional contexts than their non-family counterparts (Soleimanof, Rutherford, & Webb, 2018). Family firms are usually more interested than non-family firms in developing their social capital regarding family networks, ties with their communities, long-term reciprocal relationships with outside stakeholders, etc. (Carney, 2007; Soleimanof et al., 2018). These informal institutions are especially important in emerging economies with weak shareholder rights protection (Sauerwald & Peng, 2013). Typical characteristics of family firms, such as unified ownership and control, investment conservatism and family wealth preservation, are advantageous in underdeveloped contexts (Carney, 2005; Soleimanof et al., 2018).

Family capital is key to business growth in emerging economies, where capital markets are underdeveloped (Le Breton-Miller & Miller, 2018). In such contexts, family trust and reputation, as well as business families' relationships with banks and authorities, offset the limitations of the formal institutions and support their new ventures (Le Breton-Miller & Miller, 2018). Family firms' internal

governance and control mechanisms are especially useful in the absence of developed formal institutions, since they reduce agency conflicts (Soleimanof et al., 2018). Family firms' usual risk aversion, long-term investment horizons, and concerns about reputation and survival help to build a close relationship between the family and debt providers, which also reduces the incentives of family owners to expropriate creditors (Croci et al., 2011; Pindado et al., 2015; Schmid, 2013). The need for monitoring debt contracts is expected to be lower for family firms, given their wealth preservation, long-term and continuity aims. We therefore expect better access to long-term debt for family firms in less developed legal and institutional environments. In addition, we also expect greater willingness of family firms to hold long-term debts in weak legal and institutional environments, due to their bargaining power with creditors. Conversely, high creditor monitoring environments facilitate creditors' influence in business operations and eventual firm liquidation (Schmid, 2013), against the aims of family firm control in strong contexts. However, the pressure of the stock market in the case of listed family firms will limit large family shareholders' discretion. We expect non-family minority investors to prefer listed family firms with shorter debt maturity, especially in contexts with low investor protection. Short-term debt facilitates frequent lender monitoring and thus will reduce the chances of firms taking opportunistic decisions against the interests of non-family minority investors. Therefore, based on the arguments above, we propose the following hypotheses:

Hypothesis 4a. *Listed family firms in weak legal and institutional environments have less long-term debt than listed family firms in strong legal and institutional environments*.

Hypothesis 4b. *Private family SMEs in weak legal and institutional environments have more long-term debt than private family SMEs in strong legal and institutional environments*.

3. Methods

3.1. Sample & data collection

We test the proposed hypotheses starting from a dataset of both family and non-family firms of all sizes (SMEs and large) from 105 countries worldwide in 2017.[1] Although the focus of this research is family firms, before pursuing our goal we want to determine whether the case of family firms is special compared to non-family businesses.

Firm ownership structures and financial data are extracted from the Orbis database, provided by Bureau Van Dijk. As usual in previous studies, we exclude firms in the financial, insurance, utility, agricultural and public sectors, but we keep industrial firms with business in the financial and utility sectors (Duchin, 2010). The final sample includes 121,238 companies, after excluding firms without available information about ownership structure chain, financial data, or legal and institutional characteristics. Private firms make up 85.42 % of the sample and listed firms 14.58 %. To our knowledge, this is the broadest database analyzing the heterogeneity of family firms' debt maturity.

The classification of companies as family firms requires extensive in-depth analysis of ownership structures and the use of language programming in order to identify the controlling (ultimate) owner.[2] We classify a firm as a *family firm* (*FB*) when the ultimate largest shareholder is a family or an individual directly or indirectly holding more than 25 % of the shares (De Massis et al., 2013; Díaz-Díaz et al., 2016; Pindado, Requejo, & Rivera, 2017). In addition to considering the largest shareholders identified by the Orbis database as a family, we compare the surnames of the five largest shareholders in each company looking for matches in order to identify family ownership. For more than five shareholders the information is usually not complete and on average those other shareholders hold < 5 % of firm ownership. When the largest shareholder of the firm is a company, we examine the ownership chain behind each stake in detail (De Massis et al., 2013), which requires downloading the ownership data for those firms and scrutinizing the holdings of these affiliates. For some firms, it is necessary to go back five levels in the control chain in order to identify a family or individuals as the largest ultimate shareholder and their stake. We add indirect ownership when the largest shareholder is a company having family shareholders with a significant stake. Although, we use language programming for these actions, organizing and collecting all this information is time-consuming. As the robustness checks section indicates, the findings are not sensitive to alternative family business classifications.

Table 1 shows the distribution of the sample by country, with details for 45 of the 105 countries that contribute more than 100 companies to the final database. The countries with < 100 firms in the sample are grouped at the end of Table 1 under "others". The countries with most firms are Italy (14.15 %) and France (10.16 %). There are family businesses in almost all countries, representing on average 41.76 % of the sample. The greatest average presence of family firms is in Macedonia (82.97 %), Serbia (70.23 %) and Bulgaria (70.03 %). Note that the 121,238 companies analyzed are those for which it is possible to find complete information about

[1] Although difficulties in accessing long-term debt are more severe after the Global Financial Crisis (GFC), leading to a significant deterioration in the credit condition for SMEs (Demirgüç-Kunt, Martinez Peria, & Tressel, 2020), family firms seem to enjoy better access to credit as Crespí and Martín-Oliver (2015) and D'Auricio, Oliviero and Romano (2015) pointed out. After that, the first year in which global GDP increased over the expected level was 2017. In this year, stable inflation rates, lower interest rates, and more liquidity provide international financial markets with lower volatility and better financial conditions, which enhances firms' access to capital markets.

[2] We made several adjustments to decode equity stakes that were not in a numerical format in Orbis, following Kalemli-Ozcan, Sorensen, Villegas-Sanchez, Volosovych and Yesiltas (2015) and Ginglinger, Hebert and Renneboog (2018). We replaced a percentage preceded by "<", or ">" by the percentage after the symbol, plus or minus 0.1%; we eliminated possible signs that preceded percentages: "_","?", or "Â"; the "WO" codes (wholly owned) were replaced by 98.01%; "MO" (majority owned) by 50.01% (because according to the international accounting standards practice, majority ownership is at least 50% plus one share and the smallest stake reported by BvD is at two decimals, 0.01%); "CQP1" (50% plus 1 share) by 50.01%; "BR" (branch) by 50.01%; "JO" (jointly owned) by 50%; "NG" (negligible) by 0.01%; and "n.a" (not available) and "-" (not significant) by zero. Also, if the code was "FC" (foreign company) or "GP" (general partner) we replaced it with zero.

Table 1
Distribution of the Sample by Country (2017).

Country	All	Family Firms	Non-Family Firms	Family Firms	Family Ownership in Family Firms (average)
Austria	419	66	353	15.75 %	72.12 %
Belgium	3,600	217	3,383	6.03 %	59.61 %
Bosnia and Herzegovina	501	336	165	67.07 %	85.64 %
Brazil	160	18	142	11.25 %	52.91 %
Bulgaria	7,452	5,219	2,233	70.03 %	80.70 %
Canada	128	11	117	8.59 %	52.49 %
China	6,967	2,430	4,537	34.88 %	52.43 %
Croatia	1,520	816	704	53.68 %	92.90 %
Czech Republic	2,757	1,035	1,722	37.54 %	75.47 %
Denmark	872	178	694	20.41 %	75.85 %
Estonia	835	432	403	51.74 %	73.03 %
Finland	1,573	557	1,016	35.41 %	75.16 %
France	12,327	2,514	9,813	20.39 %	66.81 %
Germany	1,335	283	1,052	21.20 %	72.68 %
Greece	510	274	236	53.73 %	70.42 %
Hong Kong	116	6	110	5.17 %	42.17 %
Hungary	946	104	842	10.99 %	59.42 %
India	525	87	438	16.57 %	45.03 %
Indonesia	383	17	366	4.44 %	51.71 %
Israel	210	48	162	22.86 %	48.63 %
Italy	17,158	10,566	6,592	61.58 %	73.33 %
Japan	180	14	166	7.78 %	47.67 %
Korea. South	11,505	6,305	5,200	54.80 %	64.75 %
Luxembourg	202	22	180	10.89 %	66.24 %
Macedonia	1,527	1,267	260	82.97 %	88.36 %
Malaysia	149	12	137	8.05 %	44.49 %
Montenegro	206	98	108	47.57 %	93.90 %
Netherlands	317	21	296	6.62 %	61.43 %
Norway	4,741	1,852	2,889	39.06 %	72.79 %
Pakistan	258	83	175	32.17 %	49.09 %
Philippines	102	–	102	–	–
Poland	2,387	1,196	1,191	50.10 %	70.63 %
Portugal	5,937	3,229	2,708	54.39 %	76.14 %
Serbia	2,012	1,413	599	70.23 %	89.14 %
Slovakia	2,523	1,304	1,219	51.68 %	75.42 %
Slovenia	887	467	420	52.65 %	79.98 %
South Africa	132	10	122	7.58 %	46.64 %
Spain	7,503	2,655	4,848	35.39 %	73.85 %
Sweden	4,039	196	3,843	4.85 %	58.28 %
Switzerland	187	27	160	14.44 %	56.37 %
Turkey	212	53	159	25.00 %	49.91 %
Ukraine	8,814	3,903	4,911	44.28 %	70.51 %
United Kingdom	669	70	599	10.46 %	41.22 %
United States	2,383	269	2,114	11.29 %	49.14 %
Vietnam	2,596	698	1,898	26.89 %	68.29 %
Others*	1,476	249	1,227	16.87 %	47.38 %*
Total	121,238	50,627	70,611	41.76 %	72.35 %

Note. Number of firms with ownership and financial data available in the Orbis database by country.

* Others groups countries with < 100 firms: Algeria, Argentina, Australia, Bahamas, Bahrain, Bangladesh, Botswana, Chile, Colombia, Côte d'Ivoire, Cyprus, Egypt, Fiji, Gabon, Ghana, Iceland, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kuwait, Latvia, Liberia, Lithuania, Malawi, Malta, Mauritius, Mexico, Moldova, Morocco, Mozambique, Namibia, New Zealand, Nigeria, Oman, Panama, Papua New Guinea, Peru, Qatar, Romania, Rwanda, Saudi Arabia, Senegal, Singapore, Sri Lanka, Tanzania, Thailand, Trinidad and Tobago, Tunisia, Uganda, United Arab, Emirates, Uzbekistan, Venezuela, Zambia and Zimbabwe.

their ownership structure. The last column in Table 1 shows the average percentage of family ownership in family firms by country (72.35 % on average). Statistic descriptives are shown in Table A1.

3.2. Methodology and variables

We test the hypotheses about the significance of family firms' heterogeneity and the impact of the legal and institutional environment on firms' debt maturity by estimating a two-stage least-squares (2SLS) model in order to control for possible endogeneity between debt maturity and leverage (e.g., Barclays, Marx & Smith, 2003; Johnson, 2003; Datta et al., 2005; Dang, 2011). We selected non-debt tax shields as instrument for leverage, following Johnson (2003), Dang (2011), Diaz-Diaz et al. (2016), Pour & Lasfer (2019). We do not consider tangibility as instrument, given that the characteristics of the collateral, such as the asset salability, might have a positive impact on debt maturity (Benmelech, 2009). The equation model for the whole sample is a follows:

First stage:

$$Leverage_i = \alpha + \beta_1 FamilyBusiness_i + \beta_2 FamilyCEO + \beta_3 Ownership_i + \beta_4 Generation_i + \beta_5 WeakLegalEnvironment_i + \beta_6 FB*Ownership_i + \beta_7 FB*Generation_i + \beta_8 FB*WeakLegalEnvironment_i + \beta_9 Controls_i + \phi IndustryDummy + \varepsilon_i$$

Second stage:

$$LongTermDebt_i = \alpha + \beta_1 PredictedLeverage_i + \beta_2 FamilyBusiness_i + \beta_3 FamilyCEO_i + \beta_4 Ownership_i + \beta_5 Generation_i + \beta_6 WeakLegalEnvironment_i + \beta_7 FB*Ownership_i + \beta_8 FB*Generation_i + \beta_9 FB*WeakLegalEnvironment_i + \beta_{10} Controls_i + \phi IndustryDummy + \varepsilon_i$$

Where *i* represents the firm, and ε_i denotes the error term. The interaction terms are only included for the whole sample, which will indicate the differences between family and non-family firms and thus justify their separate analysis (Table 2). We test the hypotheses estimating the model for the subsamples of listed family firms (Table 3) and private family SMEs (Table 4) without the interaction terms and replacing the *Ownership* variable with the ownership concentration variable (*OwnershipConc*).

Dependent Variables:

As dependent variables, in the first stage we consider *Leverage* (total debt / total assets) as an endogenous variable (Casino-Martínez et al., 2019; Custódio, Ferreira & Laurano, 2013; Díaz-Díaz et al., 2016; Orman & Köksal, 2017). In the second stage, the dependent variable is debt maturity, defined as *LongTermDebt* (long-term debt / total debt) (Arslan & Karan, 2006; Casino-Martínez et al., 2019; Díaz-Díaz et al., 2016; among others). In the second stage, the predicted *Leverage* variable is included as an explanatory variable of *LongTermDebt*. We expect longer debt maturity in firms with higher leverage in order to avoid exposure to liquidity or bankruptcy risk (Barclays et al., 2003; Diamond, 1991; Johnson, 2003; Orman & Köksal, 2017).

Independent Variables:

According to the hypotheses, our main explanatory variables of interest are those related to family firms' heterogeneity, having a family CEO, ownership concentration, and generational stage, as well as the country's legal and institutional characteristics. These variables are described below.

Family Business (*FamilyBusiness*). We define a dummy variable with a value of 1 if the firm is a family firm and 0 otherwise, according to the classification detailed above (the ultimate largest shareholder is a family or an individual that directly or indirectly holds more than 25 % of the shares) (De Massis et al., 2013; Díaz-Díaz et al., 2016; Pindado et al., 2017).

Family CEO (*FamilyCEO*). We define a dummy variable for the family firms subsample with a value of 1 if the CEO is a member of the owning family and 0 otherwise (Villalonga & Amit, 2006).

Ownership concentration (OwnershipConc). We calculate the Herfindahl index for the family firms subsample as the sum of the squared ownership share (direct and indirect) of each family shareholder among the five top[3] family shareholders. A value of 1 indicates that ownership is highly concentrated among few family members (Santulli, Torchia, Callabrò, Galluzi, 2019). We also look at a possible curvilinear effect, including this variable squared. We consider the level of ownership (direct and indirect) of the largest ultimate shareholder at the end of the previous year (*Ownership*) when estimating the model for the whole database (including non-family firms) (Defrancq, Huyghebaert, & Luypaert, 2016).

Firm Generation (*Generation*). We define an ordinal measure with a value of 1 if the firm is in the first-generation, and 2, 3 or 4 if in second, third, or fourth and subsequent generations respectively (Sciascia et al., 2014). The age of the firm is the only available information in the database to proxy firm generation. We classify a firm in the first generation if the company was founded < 30 years ago, second-generation between 30 and 60 years, third-generation between 60 and 90 and fourth and beyond if the firm was founded more than 90 years ago (Ward, 1988).

Legal and institutional environment (WeakEFreedom). We use the economic freedom index[4] to proxy the firm's' legal and institutional environment and classify countries as weak or strong in terms of their context. We define weak economic freedom (*WeakEFreedom*) as a dummy variable equal to 1 if the economic freedom index was below the sample mean. Alternative proxies of the legal and institutional environment that were considered included the KKZ index (*WeakKKZ*), shareholder protection (*WeakSharehP*) (anti self-dealing in Djankov, La Porta, López-de-Silanes, & Shleifer, 2008), property rights (*WeakPropertyR*) (El Ghoul, Guedhami, Pittman, & Rizeanu, 2016), and creditor protection (*WeakCreditorP*) (Djankov, McLiesh, & Shleifer, 2007), which are discussed in the robustness section.

Control Variables. Drawing on prior literature we include the following variables to control for differences in firms' characteristics that could be related to debt maturity and leverage: listed firms (*Listed*), as a dummy variable with a value of 1 if the firm is listed on a stock exchange (Orman & Köksal, 2017); firm size (*Size*), as the logarithm of total assets (Barclays et al., 2003; Datta et al., 2005; Orman & Köksal, 2017); firm age (*LogAge*), as the logarithm of one plus the firm's age in years (Díaz-Díaz et al., 2016; Serrasqueiro, Nunes, & da Silva, 2016); growth opportunities (*Growth*), the growth rate in total sales during the previous year (Arslan & Karan, 2006); asset maturity (*AssetMaturity*), net fixed assets over total assets (González, 2017); profitability (*ROA*), EBITDA divided by total assets (Keasey et al., 2015; Schmid, 2013); tangible assets (*Tangibility*), tangible assets scaled by total assets (Croci et al., 2011); inflation rate (*Inflation*) provided by the Heritage Foundation and the World Bank (Pour & Lasfer, 2019); and non-debt tax shields (*Non-*

[3] For more than five shareholders the information was usually not complete and on average those other shareholders held < 5% of firm ownership.

[4] This index is calculated by The Heritage Foundation, in collaboration with The Wall Street Journal, and includes 10 items that are grouped into four broad categories designated as (i) rule of law, (ii) limited government, (iii) regulatory efficiency, and (iv) open markets. The higher the value of the index the stronger the legal and institutional environment in each country.

Table 2
Debt Maturity: Family Firms vs Non-Family Firms.

	All Firms		All Firms		Family Firms		Non-Family Firms	
		(1)		(2)		(3)		(4)
Variables	*Leverage*	*LT Debt*	*Leverage*	*LT Debt*	*Leverage*	*LT Debt t*	*Leverage*	*LT Debt*
FamilyBusiness	−0.0119***	0.0582***	−0.0100*	−0.1155***				
	(0.002)	(0.003)	(0.006)	(0.009)				
	[-0.015 - −0.009]	[0.053–0.063]	[-0.021–0.001]	[-0.134 - −0.097]				
FamilyCEO			0.0013	0.0070***	0.0014	0.0167***		
			(0.001)	(0.002)	(0.002)	(0.004)		
			[-0.001–0.003]	[0.004–0.010]	[-0.003–0.006]	[0.009–0.025]		
Ownership			0.0230***	−0.2421***	0.0238***	0.0024	0.0365***	−0.2073***
			(0.006)	(0.009)	(0.006)	(0.010)	(0.007)	(0.011)
			[0.012–0.034]	[-0.260 - −0.224]	[0.012–0.036]	[-0.017–0.022]	[0.023–0.050]	[-0.229 - −0.185]
*FB*Ownership*			0.0049	0.0991***				
			(0.003)	(0.005)				
			[-0.001–0.011]	[0.089–0.109]				
Generation	0.0911***	0.1266***	0.0994***	0.1177***	0.0974***	0.1197***	0.0738***	0.1293***
	(0.005)	(0.009)	(0.006)	(0.010)	(0.008)	(0.015)	(0.007)	(0.011)
	[0.081–0.101]	[0.109–0.144]	[0.088–0.110]	[0.099–0.137]	[0.081–0.114]	[0.091–0.149]	[0.061–0.087]	[0.107–0.151]
*FB*Generation*			−0.0142***	0.0082				
			(0.003)	(0.006)				
			[-0.021 - −0.008]	[-0.003–0.019]				
WeakEFreedom	0.0347***	−0.0252***	0.0268***	−0.0566***	0.0580***	0.0499***	0.0224***	−0.0621***
	(0.002)	(0.003)	(0.002)	(0.004)	(0.003)	(0.006)	(0.002)	(0.004)
	[0.031–0.038]	[-0.032 - −0.019]	[0.022–0.031]	[-0.064 - −0.049]	[0.052–0.064]	[0.038–0.062]	[0.018–0.027]	[-0.070 - −0.054]
FB WeakEFreedom*			0.0091***	0.0385***				
			(0.002)	(0.003)				
			[0.006–0.012]	[0.033–0.044]				
Listed	−0.0367***	−0.0150***	−0.0349***	−0.0335***	−0.0249***	−0.0325***	−0.0393***	−0.0304***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.003)
	[-0.038 - −0.035]	[-0.018 - −0.012]	[-0.037 - −0.033]	[-0.037 - −0.030]	[-0.027 - −0.023]	[-0.036 - −0.029]	[-0.043 - −0.036]	[-0.036 - −0.025]
Size	−0.0839***	0.9075***	−0.0816***	0.9162***	−0.0392**	0.6909***	−0.1220***	1.0465***
	(0.011)	(0.019)	(0.011)	(0.019)	(0.016)	(0.028)	(0.015)	(0.026)
	[-0.105 - −0.062]	[0.871–0.944]	[-0.103 - −0.060]	[0.880–0.953]	[-0.071 - −0.007]	[0.637–0.745]	[-0.152 - −0.092]	[0.997–1.097]
Age	−0.3103***	−0.1235***	−0.3057***	−0.1250***	−0.4260***	−0.0502	−0.2275***	−0.1894***
	(0.010)	(0.018)	(0.010)	(0.018)	(0.014)	(0.031)	(0.013)	(0.023)
	[-0.329 - −0.291]	[-0.159 - −0.088]	[-0.325 - −0.287]	[-0.160 - −0.089]	[-0.454 - −0.398]	[-0.111–0.010]	[-0.254 - −0.201]	[-0.234 - −0.144]
Growth	0.0047***	−0.0003	0.0047***	−0.0006	0.0064***	0.0008	0.0035***	−0.0012*
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
	[0.004–0.005]	[-0.001–0.001]	[0.004–0.005]	[-0.002–0.000]	[0.005–0.007]	[-0.001–0.003]	[0.003–0.004]	[-0.003–0.000]
AssetMaturity	−0.1033***	0.4766***	−0.1019***	0.4694***	−0.0807***	0.4222***	−0.1151***	0.4854***
	(0.004)	(0.008)	(0.004)	(0.008)	(0.007)	(0.013)	(0.006)	(0.010)
	[-0.112 - −0.095]	[0.462–0.492]	[-0.111 - −0.093]	[0.455–0.484]	[-0.095 - −0.066]	[0.398–0.447]	[-0.126 - −0.104]	[0.467–0.504]
ROA	−0.1626***	−0.0176***	−0.1629***	−0.0180***	−0.1821***	−0.0272***	−0.1514***	−0.0205***
	(0.001)	(0.005)	(0.001)	(0.005)	(0.002)	(0.008)	(0.002)	(0.005)
	[-0.165 - −0.160]	[-0.027 - −0.009]	[-0.165 - −0.160]	[-0.027 - −0.009]	[-0.186 - −0.178]	[-0.044 - −0.011]	[-0.155 - −0.148]	[-0.031 - −0.010]
Tangibility	−0.0104***	0.0442***	−0.0103***	0.0496***	0.0116*	0.0939***	−0.0263***	0.0313***
	(0.003)	(0.005)	(0.003)	(0.005)	(0.006)	(0.010)	(0.004)	(0.006)
	[-0.017 - −0.004]	[0.034–0.055]	[-0.017 - −0.004]	[0.039–0.060]	[-0.000–0.023]	[0.074–0.113]	[-0.034 - −0.018]	[0.019–0.044]
Inflation	0.0173***	−0.0374***	0.0176***	−0.0384***	0.0130***	−0.0399***	0.0222***	−0.0349***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
	[0.016–0.019]	[-0.040 - −0.034]	[0.016–0.019]	[-0.041 - −0.035]	[0.011–0.015]	[-0.044 - −0.036]	[0.020–0.025]	[-0.039 - −0.030]
NonDebtTaxShield	0.1134***		0.1125***		0.1005***		0.1240***	

(*continued on next page*)

Table 2 (*continued*)

	(0.002)		(0.002)		(0.003)		(0.003)	
	[0.110–0.117]		[0.109–0.116]		[0.095–0.106]		[0.119–0.129]	
PredictedLeverage		0.0993***		0.0988***		0.0595		0.0820**
		(0.028)		(0.028)		(0.048)		(0.035)
		[0.044–0.154]		[0.043–0.154]		[-0.034–0.153]		[0.014–0.150]
Observations	121,238	121,238	121,238	121,238	50,627	50,627	70,611	70,611
Sector Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.18	0.21	0.18	0.21	0.20	0.21	0.18	0.22

Note. Results of the first and second stage of the 2SLS estimations. The dependent variable in the second stage is *long-term debt*. The dependent variable in the first stage is *leverage,* which is included as an explanatory variable in all models. The main explanatory variables are *family business* (*FB*), *family CEO* (*FamilyCEO*), *ownership* (*Ownership*), *firm generation (Generation*), *weak context (weakEFreedom).* Control and industry variables are included. All continuous variables are winsorized. Standard errors in parentheses *** p < 0.01. ** p < 0.05. * p < 0.10 and confident intervals in brackets.

DebtTaxShield), as the depreciation over total assets (Pour & Lasfer, 2019). We also include dummy variables to control for the industry and year dummies in all regressions.

4. Results

Tables 2, 3 and 4 present the results of the two-stage least squares (2SLS) regressions, showing margin effects at means.[5] The dependent variable of interest in our study is debt maturity (*LongTermDebt*), estimated in the second stage of the 2SLS regression. Nonetheless, we also present the results of the estimated variable *Leverage* in the first stage of the 2SLS regressions, included in all models as predicted. Consistent with previous literature, we find that leverage is positively and significantly associated with long-term debt maturity, showing that the two financial decisions are determined jointly. Table 2 shows the general framework of the estimates, comparing family and non-family firms. Table 3 tests the hypotheses regarding listed family firms (*H#a*) and Table 4 those corresponding to family SMEs (*H#b*).

Table 2 shows that being a family firm influences debt maturity. Model (1) shows higher debt maturity for family firms (*FB*) in the baseline model (marginal effect 0.0582). Firm size is the most significant factor in economic terms (marginal effect 0.9075). Larger firms have longer debt maturity than SMEs, along with less severe creditor-shareholder conflicts, as predicted by agency theory. Higher asset maturity also has a positive impact on debt maturity (marginal effect 0.4766), consistent with difficulties generating sufficient cash flows to service short-term debt. The growth opportunities variable does not demonstrate a significant effect on debt maturity. This result indicates no support for either underinvestment or overinvestment agency hypotheses. These initial findings are addressed in more detail in Model (2), which includes interaction terms proxying the heterogeneity of family firms and their legal and institutional contexts. Although the family firms' dummy variable (*FB*) becomes negative, this is overtaken by the positive effect of the interaction terms on debt maturity. Family firms having a family CEO (*FamilyCEO*), a largest shareholder with higher levels of ownership concentration (*FB*Ownership*), later generational stages (*FB*Generation*), and operating in weak legal and institutional environments (*FB*WeakEFreedom*) have longer debt maturity (*LongTermDebt*). Starting from the significance of the interactive terms, Models (3) and (4) split the database into family and non-family firm subsamples in order to show a clearer effect of the influence of family firm heterogeneity. Again there are differences between family and non-family firms in the sign of their debt maturity determinants in the variables of interest. The variable *Generation* has the same positive effect in the family and non-family firm subsamples, but note the higher, negative estimated coefficient for the variable *Age* for non-family firms, which is not economically significant for family firms. This indicates a differential effect for generation, compared to firm age, in family firms. These findings, in addition to the prevalence of family firms around the world, support specific separate analysis. Following the proposed hypotheses, Tables 3 and 4 show the model for subsamples of family firms.

Table 3 shows the results of testing the proposed hypotheses (*H#a*) about the influence of family firms' heterogeneity and their legal and institutional environments on debt maturity in listed family firms. At this point we include the variable for family ownership concentration (*OwnershipConc*), the Herfindahl index, defined previously. Model (1) shows the estimations for the subsample of listed family firms. For comparison we also include the estimations for the subsample of private (unlisted) family firms (Model 2) and the whole sample of family firms, now including *OwnershipConc* (Model 3). Model (1) shows that listed family firms with a family CEO (*FamilyCEO*) have less long-term debt, which supports *Hypothesis 1a*, creditors' unwillingness to lend in the long-term to listed family firms with a family CEO, given potential nepotism and manager-owner entrenchment. The economic impact of this variable is −0.0613. The negative sign for family ownership concentration (*OwnershipConc*) (-0.0588) supports *Hypothesis 2a* and non-family minority shareholder pressure in the stock market to mitigate controlling owners' preferences for the lower levels of monitoring that longer debt maturity allows. Family firm generational stage (*Generation*) has the expected positive effect (0.1571) on debt maturity posited by *Hypothesis 3a.* Later generational stages exhibit better access to long term debt and the family also being willing to use it. We also find that listed family firms in countries with weak legal and institutional environments (*WeakEFreedom*) have shorter debt maturity (-0.4443), in line with *Hypothesis 4a* and non-family minority shareholder pressure for shorter debt matu-

[5] Testing for endogeneity requires choosing instruments that are correlated with the independent variable but not with the dependent variable. The Durbin-Wu-Hausman χ^2 test: 31.43 (p = 0.000) and Wu-Hausman F-test: 31.41 (p = 0.000) (Stata's *ivendog* command) indicate that endogeneity is a concern in our study. For instrument importance, we perform the weak-instruments test (Stata's *estat firststage*), which reports the Cragg and Donald minimum eigenvalue statistic, along with Stock and Yogo's critical values. The results show that there is no weak-instrument problem. The values of the variance inflation factor (VIF) test are clearly below any common threshold (4 or 10), indicating that multicollinearity is not a problem in our analysis.

Table 3
Debt Maturity: Listed Family Firms.

	Listed Family Firms		**Private Family Firms**		**All Family Firms**	
		(1)		(2)		(3)
Variables	*Leverage*	*LongTermDebt*	*Leverage*	*LongTermDebt*	*Leverage*	*LongTermDebt*
FamilyCEO	−0.0102	−0.0613***	0.0041	0.0187***	0.0022	0.0132***
	(0.011)	(0.017)	(0.003)	(0.004)	(0.002)	(0.004)
	[-0.032–0.012]	[-0.094 - −0.028]	[-0.001–0.009]	[0.010–0.027]	[-0.003–0.007]	[0.005–0.021]
OwnershipConc	0.0569***	−0.0588**	−0.0273***	0.0394***	−0.0214***	0.0436***
	(0.013)	(0.024)	(0.004)	(0.007)	(0.004)	(0.006)
	[0.031–0.083]	[-0.106 - −0.012]	[-0.035 - −0.020]	[0.026–0.052]	[-0.029 - −0.014]	[0.031–0.056]
Generation	0.0380	0.1571***	0.0621***	0.0766***	0.0930***	0.1229***
	(0.029)	(0.044)	(0.009)	(0.015)	(0.008)	(0.015)
	[-0.019–0.095]	[0.070–0.244]	[0.045–0.080]	[0.047–0.107]	[0.077–0.109]	[0.094–0.152]
WeakEFreedom	−0.0847***	−0.4430***	0.0660***	0.0806***	0.0573***	0.0488***
	(0.021)	(0.039)	(0.003)	(0.006)	(0.003)	(0.006)
	[-0.127 - −0.043]	[-0.520 - −0.366]	[0.060–0.072]	[0.068–0.093]	[0.051–0.063]	[0.037–0.060]
Listed					−0.0255***	−0.0315***
					(0.001)	(0.002)
					[-0.027 - −0.024]	[-0.035 - −0.028]
Size	0.0445	1.4176***	−0.1087***	0.6340***	−0.0734***	0.7442***
	(0.072)	(0.108)	(0.017)	(0.031)	(0.017)	(0.029)
	[-0.097–0.186]	[1.205–1.630]	[-0.143 - −0.075]	[0.573–0.695]	[-0.106 - −0.041]	[0.688–0.801]
Age	0.0903	0.1730*	−0.4559***	−0.0889***	−0.4327***	−0.0345
	(0.062)	(0.092)	(0.014)	(0.034)	(0.014)	(0.031)
	[-0.030–0.211]	[-0.008–0.354]	[-0.484 - −0.428]	[-0.155 - −0.023]	[-0.460 - −0.405]	[-0.096–0.027]
Growth	0.0005	0.0048	0.0067***	0.0010	0.0064***	0.0006
	(0.002)	(0.004)	(0.001)	(0.001)	(0.001)	(0.001)
	[-0.004–0.005]	[-0.002–0.012]	[0.006–0.008]	[-0.001–0.003]	[0.005–0.007]	[-0.001–0.002]
AssetMaturity	0.0117	0.6301***	−0.0905***	0.3874***	−0.0802***	0.4229***
	(0.029)	(0.045)	(0.008)	(0.013)	(0.007)	(0.013)
	[-0.045–0.069]	[0.543–0.718]	[-0.105 - −0.076]	[0.361–0.414]	[-0.095 - −0.066]	[0.398–0.448]
ROA	−0.1185***	0.0252	−0.1873***	−0.0414***	−0.1814***	−0.0242***
	(0.007)	(0.028)	(0.002)	(0.009)	(0.002)	(0.009)
	[-0.133 - −0.104]	[-0.029–0.079]	[-0.192 - −0.183]	[-0.060 - −0.023]	[-0.186 - −0.177]	[-0.041 - −0.007]
Tangibility	0.0539***	0.0271	0.0193***	0.1080***	0.0140**	0.0893***
	(0.020)	(0.033)	(0.006)	(0.011)	(0.006)	(0.010)
	[0.014–0.094]	[-0.037–0.092]	[0.007–0.032]	[0.087–0.129]	[0.002–0.026]	[0.070–0.109]
Inflation	0.0594***	0.0414*	0.0081***	−0.0419***	0.0124***	−0.0397***
	(0.012)	(0.022)	(0.001)	(0.002)	(0.001)	(0.002)
	[0.036–0.082]	[-0.001–0.084]	[0.006–0.010]	[-0.046 - −0.038]	[0.010–0.015]	[-0.044 - −0.036]
NonDebtTaxShield	0.0776***		0.0976***		0.0994***	
	(0.012)		(0.003)		(0.003)	
	[0.055–0.101]		[0.092–0.103]		[0.094–0.105]	
PredictedLeverage		0.3278		0.0026		0.0821*
		(0.224)		(0.051)		(0.048)
		[-0.111–0.766]		[-0.098–0.103]		[-0.012–0.177]
Observations	4,083	4,083	46,544	46,544	50,627	50,627
Sector Dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.15	0.40	0.20	0.19	0.20	0.20

Note. Results of the first and second stage of the 2SLS estimations. The dependent variable in the second stage is *long-term debt*. The dependent variable in the first stage is *leverage,* which is included as an explanatory variable in all models. The main explanatory variables are *family CEO* (*FamilyCEO*), *ownership concentration Herfindahl index* (*OwnershipConcentration*), *firm generation (Generation*), *weak context (weakEFreedom)*. Control and industry variables are included. All continuous variables are winsorized.
Standard errors in parentheses *** p < 0.01. ** p < 0.05. * p < 0.10 and confident intervals in brackets.

rity in weak contexts, reducing the chances of making opportunistic decisions. In the control variables, firm size continues to exhibit a positive impact on debt maturity and this is the most economically significant factor, which supports the agency theory perspective.

Model (1) in Table 4 reports the estimations for private family SMEs in order to test *Hypotheses #b* (findings for large private family firms are also reported in Model (2) for comparison). Firms are classified as Small-to-Medium Enterprises (SMEs) if they have <250 employees, an annual turnover of up to 50 million euros, or a balance sheet total of no more than 43 million euros (the latter two criteria where no employee data is available), following the European Commission Recommendation (6 May 2003). Private family SMEs with a family CEO (*FamilyCEO*) have longer debt maturity than those with a non-family CEO (0.0167). This finding supports *Hypothesis 1b*, and indicates that firms have better access to long-term debt when conflicts between managers and shareholders are minimized. The positive impact of family ownership concentration (*OwnershipConc*) (0.0365) is consistent with *Hypothesis 2b* and with controlling owners' preferences for longer debt maturities, thus avoiding monitoring by lenders for longer periods of time. Ac-

Table 4
Debt Maturity: Private Family SMEs.

	Private Family SMEs		**Private Large Family Firms**	
	(1)		(2)	
Variables	*Leverage*	*LongTermDebt*	*Leverage*	*LongTermDebt*
FamilyCEO	0.0059**	0.0167***	−0.0008	−0.0017
	(0.003)	(0.005)	(0.005)	(0.011)
	[0.000–0.011]	[0.008–0.026]	[-0.011–0.009]	[-0.023–0.019]
OwnershipConc	−0.0303***	0.0365***	−0.0171***	0.0543***
	(0.004)	(0.007)	(0.006)	(0.015)
	[-0.039 - −0.022]	[0.022–0.051]	[-0.030 - −0.004]	[0.026–0.083]
Generation	0.0570***	0.0502***	0.0470**	0.1849***
	(0.010)	(0.017)	(0.019)	(0.042)
	[0.037–0.077]	[0.018–0.083]	[0.010–0.084]	[0.103–0.267]
WeakEFreedom	0.0707***	0.0805***	0.0582***	−0.0041
	(0.003)	(0.007)	(0.007)	(0.022)
	[0.064–0.077]	[0.067–0.094]	[0.045–0.072]	[-0.047–0.039]
Size	−0.1880***	0.8006***	−0.0735	1.0905***
	(0.021)	(0.037)	(0.058)	(0.127)
	[-0.228 - −0.148]	[0.727–0.874]	[-0.188–0.041]	[0.841–1.340]
Age	−0.4648***	−0.0746**	−0.3067***	0.0080
	(0.015)	(0.035)	(0.037)	(0.108)
	[-0.495 - −0.434]	[-0.143 - −0.006]	[-0.380 - −0.234]	[-0.203–0.219]
Growth	0.0062***	0.0011	0.0085***	−0.0027
	(0.001)	(0.001)	(0.002)	(0.004)
	[0.005–0.007]	[-0.001–0.003]	[0.005–0.012]	[-0.011–0.006]
AssetMaturity	−0.0775***	0.3649***	−0.1389***	0.4896***
	(0.008)	(0.014)	(0.016)	(0.046)
	[-0.094 - −0.061]	[0.337–0.393]	[-0.170 - −0.108]	[0.399–0.580]
ROA	−0.1874***	−0.0351***	−0.1835***	0.0088
	(0.002)	(0.010)	(0.006)	(0.042)
	[-0.192 - −0.183]	[-0.054 - −0.016]	[-0.195 - −0.171]	[-0.074–0.091]
Tangibility	0.0128*	0.1171***	0.0608***	0.0479
	(0.007)	(0.012)	(0.013)	(0.032)
	[-0.001–0.027]	[0.095–0.140]	[0.036–0.086]	[-0.016–0.111]
Inflation	0.0056***	−0.0411***	0.0192***	−0.0093
	(0.001)	(0.002)	(0.003)	(0.008)
	[0.003–0.008]	[-0.045 - −0.037]	[0.012–0.026]	[-0.026–0.007]
NonDebtTaxShield	0.1012***		0.0559***	
	(0.003)		(0.006)	
	[0.095–0.108]		[0.043–0.069]	
PredictedLeverage		0.0325		0.3067
		(0.053)		(0.244)
		[-0.072–0.137]		[-0.171–0.784]
Observations	40,678	40,678	5,866	5,866
Sector Dummies	Yes	Yes	Yes	Yes
R-Squared	0.20	0.19	0.23	0.23

Note. Results of the first and second stage of the 2SLS estimations. The dependent variable in the second stage is *long-term debt*. The dependent variable in the first stage is *leverage,* which is included as an explanatory variable in all models. The main explanatory variables are *family CEO* (*FamilyCEO*), *ownership concentration Herfindahl index* (*OwnershipConcentration*), *firm generation (Generation*), *weak context (weakEFreedom)*. Control and industry variables are included. All continuous variables are winsorized.
Standard errors in parentheses *** $p < 0.01$. ** $p < 0.05$. * $p < 0.10$ and confident intervals in brackets.

cording to *Hypothesis 3b,* later generational stages (*Generation*) influence longer debt maturity (0.0502), in line with family pressure for growth and diversification, together with consolidated relationships with creditors. The higher long-term debt for private family SMEs in weak legal and institutional environments (*WeakEFreedom*) proposed by *Hypothesis 4b* is consistent with the usefulness of family firms' internal governance and control mechanisms in those contexts, which reduce their incentives to expropriate creditors (economic impact 0.0805). Again, firm size is the most economically significant factor.

Finally, we performed quantile regression to examine the impact of determinants across debt maturity distribution, in line with Koenker and Hallock (2011) and Margaritis and Psillaki (2010). Whereas OLS and GMM methods estimate the responses of the conditional mean, quantile regression provides the regressors for subgroups with similar debt maturity levels. Tables 5 and 6 show the estimations in the second stage of the quantile regression for the subsamples of family firms by different levels of debt maturity, applying smoothed instrumental variable quantile regression for the 25th, 50th and 75th quantiles (Kaplan, 2020).

All the determinants are consistent with previous estimations in terms of their expected sign. Moreover, the significance of all relevant determinants in quantile 75 (family firms with longer debt maturity) shows the robustness of the estimates and supports the proposed hypotheses. Table 5 shows the quantile regression estimates for the subsample of listed family firms (estimates for the private

Table 5
Debt Maturity Quantiles: Listed vs Private Family Firms (Second Stage 2SLS).

Listed Family Firms				**Private Family Firms**		
	(1)	(2)	(3)	(4)	(5)	(6)
	LongTermDebt	*LongTermDebt*	*LongTermDebt*	*LongTermDebt*	*LongTermDebt*	*LongTermDebt*
Variables	Q25	Q50	Q75	Q25	Q50	Q75
FamilyCEO	0.0066	−0.0030	−0.0386**	0.1120***	0.0497***	0.0164***
	(0.071)	(0.037)	(0.017)	(0.010)	(0.006)	(0.005)
	[-0.132–0.145]	[-0.075–0.069]	[-0.072 - −0.005]	[0.092–0.132]	[0.037–0.062]	[0.006–0.027]
OwnershipConc	−0.3831**	−0.1521***	−0.0425*	0.0072	0.0151*	0.0234***
	(0.173)	(0.055)	(0.022)	(0.014)	(0.009)	(0.007)
	[-0.722 - −0.044]	[-0.260 - −0.044]	[-0.086–0.001]	[-0.020–0.034]	[-0.002–0.032]	[0.010–0.037]
Generation	0.3919	0.0279	0.1339**	0.3263***	0.1221***	0.0745***
	(0.297)	(0.075)	(0.062)	(0.046)	(0.022)	(0.016)
	[-0.190–0.974]	[-0.120–0.175]	[0.013–0.255]	[0.236–0.416]	[0.080–0.164]	[0.043–0.106]
WeakEFreedom	−0.7398***	−0.3724***	−0.4577***	0.3699***	0.1942***	0.0765***
	(0.229)	(0.066)	(0.070)	(0.027)	(0.013)	(0.007)
	[-1.189 - −0.290]	[-0.501 - −0.244]	[-0.595 - −0.320]	[0.316–0.424]	[0.169–0.219]	[0.062–0.091]
Size	3.9333**	0.7029***	0.5715***	1.6282***	0.6497***	0.2538***
	(2.005)	(0.245)	(0.183)	(0.074)	(0.045)	(0.032)
	[0.004–7.863]	[0.223–1.182]	[0.213–0.930]	[1.484–1.773]	[0.562–0.737]	[0.191–0.317]
Age	0.6193	0.3602**	0.2831***	−0.1390*	−0.1334**	−0.0939***
	(0.549)	(0.159)	(0.087)	(0.080)	(0.055)	(0.029)
	[-0.457–1.696]	[0.048–0.672]	[0.112–0.454]	[-0.296–0.018]	[-0.241 - −0.026]	[-0.152 - −0.036]
Growth	0.0104	0.0018	0.0013	0.0036**	0.0027***	0.0007
	(0.019)	(0.006)	(0.003)	(0.001)	(0.001)	(0.001)
	[-0.028–0.048]	[-0.010–0.014]	[-0.005–0.008]	[0.001–0.007]	[0.001–0.004]	[-0.000–0.002]
AssetMaturity	1.6924***	0.6145***	0.7320***	0.4348***	0.5525***	0.5388***
	(0.626)	(0.049)	(0.088)	(0.037)	(0.026)	(0.026)
	[0.465–2.919]	[0.518–0.711]	[0.559–0.905]	[0.363–0.507]	[0.502–0.603]	[0.488–0.590]
ROA	0.6615	0.1323***	0.0103	−0.0490**	−0.0312*	−0.0211**
	(0.428)	(0.027)	(0.026)	(0.023)	(0.016)	(0.008)
	[-0.178–1.501]	[0.079–0.186]	[-0.040–0.060]	[-0.095 - −0.003]	[-0.063–0.000]	[-0.037 - −0.005]
Tangibility	−0.2073	−0.0491	−0.0529*	0.3349***	0.2000***	0.0611***
	(0.146)	(0.036)	(0.030)	(0.036)	(0.016)	(0.020)
	[-0.493–0.079]	[-0.120–0.022]	[-0.111–0.005]	[0.265–0.405]	[0.168–0.232]	[0.021–0.101]
Inflation	−0.1368	−0.0318	0.0607**	−0.0960***	−0.0568***	−0.0480***
	(0.164)	(0.025)	(0.029)	(0.005)	(0.002)	(0.002)
	[-0.458–0.185]	[-0.082–0.018]	[0.004–0.118]	[-0.106 - −0.086]	[-0.061 - −0.053]	[-0.051 - −0.045]
PredictedLeverage	4.7900	1.6355***	0.2189	−0.0258	−0.0385	0.0317
	(2.924)	(0.371)	(0.255)	(0.110)	(0.100)	(0.084)
	[-0.941–10.521]	[0.909–2.362]	[-0.281–0.718]	[-0.242–0.190]	[-0.234–0.157]	[-0.134–0.197]
Observations	4,083	4,083	4,083	46,544	46,544	46,544

Note. Results of the second stage of the 2SLS estimations. The dependent variable in the second stage is *long-term debt*. The dependent variable in the first stage is *leverage,* which is included as an explanatory variable in all models. The main explanatory variables are *family CEO* (*FamilyCEO*), *ownership concentration Herfindahl index* (*OwnershipConcentration*), *firm generation* (*Generation*), *weak context (weakEFreedom)*. Control and industry variables are included. All continuous variables are winsorized.
Standard errors in parentheses *** $p < 0.01$. ** $p < 0.05$. * $p < 0.10$ and confident intervals in brackets.

family firms subsample are also included for comparison). Family involvement in management (*FamilyCEO*) of listed family firms is only significant—with the expected negative sign—for higher levels of debt maturity (q75), which is consistent with creditors' unwillingness to lend in the long-term when these firms have longer debt maturity. Family ownership concentration (*OwnershipConc*) and a weak legal and institutional environment (*WeakEFreedom*) reduce long-term debt of listed family firms in all the quantiles, consistent with non-family minority shareholders' control in the stock market and the reluctance of creditors to lend with low levels of protection of their rights. The family firm generational stage (*Generation*) is only significant for the upper quantile of debt maturity (q75), with the expected positive sign, consistent with the necessary prevalence of the growth objective across family generations when listed family firms decide to go into long-term debt.

Table 6 shows the quantile regression estimates for the subsample of private family SMEs (estimates for the private large family firms subsample are also included for comparison). Again all the estimated coefficients have the sign predicted by the proposed hypotheses in all quantiles. Family involvement in management (*FamilyCEO*), later generational stage (*Generation*) and weak legal and institutional environments (*WeakEFreendom*) favor higher long-term debt in private family SMEs in all the debt maturity quantiles, consistent with the close relationships with lenders that family managers usually have in SMEs, the family pressure for growth as the family becomes more complex, and the advantage of family firms' internal governance and control mechanisms in weak contexts. Family ownership concentration (*OwnershipConc*) is only significant for the upper quantile of debt maturity (q75), with the ex-

Table 6
Debt Maturity Quantiles: private family SMEs vs Large (Second Stage 2SLS).

Private Family SME Firms				**Private Large Family Firms**		
	(1)	(2)	(3)	(4)	(5)	(6)
	LongTermDebt	*LongTermDebt*	*LongTermDebt*	*LongTermDebt*	*LongTermDebt*	*LongTermDebt*
Variables	Q25	Q50	Q75	Q25	Q50	Q75
FamilyCEO	0.1020***	0.0466***	0.0162***	0.0465**	0.0207*	−0.0058
	(0.013)	(0.008)	(0.005)	(0.020)	(0.011)	(0.011)
	[0.076–0.128]	[0.031–0.062]	[0.005–0.027]	[0.008–0.085]	[-0.002–0.043]	[-0.027–0.016]
OwnershipConc	0.0074	0.0133	0.0172***	0.0659*	0.0387***	0.0439***
	(0.012)	(0.011)	(0.006)	(0.036)	(0.012)	(0.010)
	[-0.016–0.031]	[-0.009–0.035]	[0.005–0.029]	[-0.004–0.136]	[0.016–0.062]	[0.025–0.063]
Generation	0.2997***	0.1028***	0.0545***	0.3718***	0.1933**	0.1982***
	(0.043)	(0.024)	(0.015)	(0.101)	(0.086)	(0.048)
	[0.215–0.385]	[0.055–0.150]	[0.026–0.083]	[0.174–0.570]	[0.025–0.361]	[0.104–0.293]
WeakEFreedom	0.3485***	0.1921***	0.0794***	0.2873***	0.0915*	0.0085
	(0.024)	(0.010)	(0.007)	(0.047)	(0.051)	(0.023)
	[0.301–0.396]	[0.172–0.212]	[0.066–0.093]	[0.195–0.379]	[-0.008–0.191]	[-0.036–0.053]
Size	2.0823***	0.8519***	0.3298***	1.6346***	0.8556***	0.6739***
	(0.052)	(0.049)	(0.058)	(0.164)	(0.149)	(0.123)
	[1.980–2.184]	[0.755–0.949]	[0.217–0.443]	[1.314–1.955]	[0.563–1.148]	[0.432–0.916]
Age	−0.0381	−0.1175**	−0.1056***	−0.2934***	−0.0406	−0.0151
	(0.065)	(0.051)	(0.040)	(0.113)	(0.229)	(0.063)
	[-0.165–0.088]	[-0.218 - −0.017]	[-0.184 - −0.027]	[-0.514 - −0.073]	[-0.489–0.408]	[-0.138–0.108]
Growth	0.0026	0.0024**	0.0009	0.0164***	−0.0011	−0.0052
	(0.002)	(0.001)	(0.001)	(0.006)	(0.008)	(0.004)
	[-0.001–0.006]	[0.000–0.005]	[-0.001–0.003]	[0.004–0.029]	[-0.016–0.014]	[-0.012–0.002]
AssetMaturity	0.4147***	0.5287***	0.5154***	0.4409***	0.7198***	0.6677***
	(0.057)	(0.030)	(0.022)	(0.136)	(0.067)	(0.124)
	[0.303–0.526]	[0.470–0.587]	[0.473–0.558]	[0.174–0.707]	[0.587–0.852]	[0.424–0.911]
ROA	−0.0063	−0.0234	−0.0246	−0.2077***	0.0107	0.0249
	(0.020)	(0.014)	(0.018)	(0.027)	(0.093)	(0.027)
	[-0.045–0.033]	[-0.051–0.005]	[-0.060–0.011]	[-0.261 - −0.155]	[-0.171–0.192]	[-0.029–0.079]
Tangibility	0.3165***	0.1955***	0.0664***	0.4185***	0.1301*	−0.0179
	(0.036)	(0.018)	(0.011)	(0.116)	(0.072)	(0.036)
	[0.246–0.387]	[0.161–0.230]	[0.045–0.088]	[0.191–0.646]	[-0.011–0.271]	[-0.088–0.052]
Inflation	−0.0876***	−0.0546***	−0.0472***	−0.1105***	−0.0475***	−0.0142
	(0.003)	(0.002)	(0.002)	(0.020)	(0.006)	(0.012)
	[-0.093 - −0.082]	[-0.059 - −0.051]	[-0.051 - −0.044]	[-0.150 - −0.071]	[-0.060 - −0.035]	[-0.038–0.009]
PredictedLeverage	0.2116	0.0026	0.0083	−0.8553***	0.2944	0.3111*
	(0.129)	(0.105)	(0.124)	(0.168)	(0.640)	(0.184)
	[-0.041–0.465]	[-0.204–0.209]	[-0.235–0.251]	[-1.185 - −0.526]	[-0.960–1.549]	[-0.050–0.672]
Observations	40,678	40,678	40,678	5,866	5,866	5,866

Note. Results of the second stage of the 2SLS estimations. The dependent variable in the second stage is *long-term debt*. The dependent variable in the first stage is *leverage,* which is included as an explanatory variable in all models. The main explanatory variables are *family CEO* (*FamilyCEO*), *ownership concentration Herfindahl index* (*OwnershipConcentration*), *firm generation (Generation*), *weak context (weakEFreedom).* Control and industry variables are included. All continuous variables are winsorized.
Standard errors in parentheses *** $p < 0.01$. ** $p < 0.05$. * $p < 0.10$ and confident intervals in brackets.

pected positive sign, consistent with the necessary preference of controlling owners for longer debt maturities when private family SMEs take on long-term debt.

5. Robustness checks

This is a brief summary of the findings from additional tests of robustness. Full regression results are available from the authors on request.

We tested alternative family firm definitions, given that our findings could be sensitive to that classification, especially considering the fact that our database includes both listed and private firms in different contexts. We used an alternative definition of a *family business* as one in which the largest ultimate shareholder is a family or an individual owning (directly or indirectly) more than 10 % of the shares (family controlled) (La Porta et al., 1999; Pindado et al., 2015). Alternatively, we also tested a definition in which there is no minimum threshold on the main shareholder (family owned) (Ben-Nasr et al., 2015; Castro Martins et al., 2017; Lardon et al., 2017). The findings presented in the previous section were unchanged when using alternative classifications of family firms.

The conclusions from the estimations did not change either, including the reverse Herfindahl index to proxy family ownership dispersion (one minus the Herfindahl concentration index) (Bacci et al., 2018; De Massis et al., 2013). The curvilinear relationship be-

Table A1
Summary Statistics.

	Family Firms			Non-Family Firms			
Variable	Obs	Mean/ Weight	Std. Dev.	Obs	Mean/ Weight	Std. Dev.	Diff. Mean (*t*-test. p-value)
Leverage	50,627	0.1448	0.1859	70,611	0.1409	0.1983	(p = 0.000)***
LongTermDebt	50,627	0.2207	0.2308	70,611	0.2196	0.2439	(p = 0.437)
FamilyCEO	50,627	0.4649	0.3956	–	–	–	–
Ownership	50,627	0.6401	0.2850	70,611	0.7518	0.3208	(p = 0.000)***
OwnershipConc	50,627	0.4717	0.3561	–	–	–	–
SumFamOwnership	50,627	0.7235	0.2588	–	–	–	–
FirstGeneration	50,627	0.8401	0.3665	70,611	0.7608	0.4266	(p = 0.000)***
SecondGeneration	50,627	0.1401	0.3471	70,611	0.1851	0.3883	(p = 0.000)***
ThirdGeneration	50,627	0.0149	0.1212	70,611	0.0376	0.1902	(p = 0.000)***
FourthGeneration	50,627	0.0049	0.070	70,611	0.0166	0.1277	(p = 0.000)***
WeakEFreedom	50,627	0.5354	0.4988	70,611	0.4931	0.499	(p = 0.000)***
Listed	50,627	0.0806	0.2722	70,611	0.1926	0.3943	(p = 0.000)***
Total Assets	50,627	26070.67	104581.5	70,611	117649.5	278125.2	(p = 0.000)***
SMEs	50,627	0.8402	0.3664	70,611	0.5881	0.4922	(p = 0.000)***
# Employees	47,696	167.08	437.40	65,563	495.17	1008.33	(p = 0.000)***
Age	50,627	20.07	19.95	70,611	24.20	24.06	(p = 0.000)***
Growth	50,627	0.0555	0.2791	70,611	0.0480	0.2631	(p = 0.000)***
AssetMaturity	50,627	0.3533	0.2573	70,611	0.3664	0.2573	(p = 0.000)***
ROA	50,627	0.1045	0.1377	70,611	0.0971	0.1460	(p = 0.000)***
Tangibility	50,627	0.2748	0.2332	70,611	0.2457	0.2365	(p = 0.000)***
NonDebtTaxShields	50,627	0.037	0.0380	70,611	0.0404	0.0396	(p = 0.000)***
Inflation	50,627	1.34	3.33	70,611	1.66	3.21	(p = 0.000)***

Note. Descriptive statistics of the dependent variable, firm-specific, and country-specific variables used in the analysis. *** p < 0.01.

tween ownership concentration (*OwnershipConc*^{2}) and debt maturity was only significant when the level of family shareholder ownership was higher than 91 % in private family SMEs.

We also considered the following alternative variables as proxies for the legal and institutional environment: the *KKZ index*, provided by the Governance Indicators Dataset, which contains six aggregate indicators of country-level governance quality (voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption); the *shareholder protection* index, measuring minority shareholder protection (anti self-dealing in Djankov et al., 2008); the *property rights* index, which measures the degree of property rights within a country (El Ghoul et al., 2016); and the *creditor protection* index, which identifies the level of creditor protection within a country (Djankov et al., 2007). The results were similar to those presented previously.

We also estimated a Tobit model, given that 17.60 % of firms in the database had zero-long-term debt (El Ghoul, Guedhami, Kwok, & Zheng, 2018). The results were in line with those previously shown.

Furthermore, since our data structure was multilevel, we re-estimated the results applying a hierarchical linear model (HLM) to account for country-level effects and industry-level effects.

6. Conclusion and future research

Our first general conclusion is that there are significant differences in the determinants of family firms' debt maturity according to whether they are listed firms or private SMEs. Unlike most research, which is usually focused on listed firms or privately held SMEs in a single country, we analyzed a large comprehensive dataset of 121,238 listed and private firms (large and SMEs) worldwide (105 countries), giving us interesting novel evidence on family firms' debt maturity choices.

We found that listed family firms have shorter debt maturities when they have a family CEO, have more concentrated ownership, and are in weak legal and institutional environments. These results are consistent with the pressure exerted by non-family minority investors in the stock market and/or the lenders of listed firms to reduce potential agency conflicts arising from having a family CEO (entrenchment with the self-interests of family owners), concentrated family ownership (tunneling of large family owners), and weak contexts (creditors and investors less protected). On the contrary, privately held family SMEs demonstrate longer debt maturities when they have a family CEO, more concentrated family ownership and are in weak legal and institutional environments. Unlike listed family firms, private family SMEs do not have a broad base of non-family minority shareholders. Besides that, managers and controlling owners prefer longer-term debt structures, given the greater discretion and lower external monitoring by lenders that allows. We find that privately held family SMEs have more long term debt when they have a family CEO (more aligned with family owners), more concentrated family ownership (dominant family principals may impose their will) and are in weak legal and institutional environments (family firms' wealth preservation and long-term goals). These findings are also consistent with fewer agency conflicts with creditors and better access to longer debt maturity with the family's greater commitment to the business. Creditors usually associate family-controlled firms with more conservative risk-taking decisions, long-term investment horizons and concern about their reputations (Anderson et al., 2003; Croci et al., 2011). The generational transition in family businesses is the only feature that favors long-term debt in both listed and unlisted firms. Long-term debt is a core driver for financing the growth of a family firm, which

is essential in generating new opportunities for successive generations. Multigenerational family businesses show higher levels of long-term debt, consistent with the expected implementation of family governance mechanisms in subsequent family firm generations, supporting the firm's growth. Despite the difficulties that family firms have to cope with over the generations, it is noteworthy that multigenerational family firms are those that have successfully made transgenerational transitions.

This research makes four main contributions. First, it contributes to the corporate finance and family business literature, providing a deeper analysis of ownership influence on capital structure decisions (Brailsford et al., 2002; Hansen & Block, 2021). Our findings show significant differences between family and non-family firms in terms of their debt maturity, as well as differences between private family SMEs and listed family firms. Research on listed family businesses must make it explicit that their reasoning and conclusions only refer to this type of firm; private family SMEs require specific research. Listed and private family firms generally have substantially different ownership structures, something that research fails to consider properly when it investigates listed family firms and draws conclusions as though they applied to all family firms. Listed family firms necessarily include non-family minority investors, while private family firms often do not have any other non-family minority shareholders (Hansen & Block, 2021), which influences financial decisions. The importance of the controlling pressure exerted by non-family minority shareholders in the stock market is consistent with the shorter debt maturity found for listed firms with family ownership concentration.

Second, this study contributes to the scholarly debate about the heterogeneity of family firms (Chua et al., 2012; Khanin, Rashit, Mahto, & McDowell, 2020). We note the different moderating roles of family involvement in management and ownership in shaping family firms' debt maturity, depending on their public or private status. Listed family businesses are a particular type of family business, usually top performers, who have decided to expand their family shareholder base by going public (Amit & Villalonga, 2014). Drawing conclusions about family businesses by examining databases that only consider listed companies may therefore be subject to survivor bias. Our findings show that family involvement in management and in ownership influence private family SMEs and listed family firms differently. Having a family CEO and ownership concentration encourages long-term debt in private family SMEs, while it entails less long-term debt in listed family firms. Family involvement in management and family ownership limit long-term debt in listed family firms, which is consistent with creditors and non-family minority shareholders preventing potential management entrenchment, family nepotism and tunnelling actions by large family shareholders. Nevertheless, private SMEs can usually establish close personal relationships with lenders, which facilitates monitoring and valuable soft information for risk assessment. Family involvement in management and family ownership are displayed as positive characteristics in private family SMEs for obtaining long-term financing, consistent with their long-term orientation and conservative risk-taking.

Third, this study also contributes to agency theory by considering the principal and family-at-large ("super-principal") agency relationship, specific to family firms (Villalonga et al., 2015). This research enhances our understanding of the potential influence of family owners' relatives as successive generations and family branches arise (Chrisman et al., 2012; Eddleston et al., 2013). Family members who are not shareholders, managers, or board members may influence firm decisions due to their close family relationships with family owners and managers. The prevalence of the growth objective in family businesses across family generations (Calabrò et al., 2017; De Massis et al., 2013), generating financial wealth for a more complex family, is consistent with our finding that successive generational transitions encourage longer-term debt in both listed and private family firms.

Finally, this research contributes to law and finance literature in terms of the importance of the legal and institutional environment on family firms' financing patterns (Daspit et al., 2021; Hansen & Block, 2021). Our research extends prior studies by being, to our knowledge, the first to jointly analyze listed and private family firms worldwide. We address this lack of empirical research by examining a large database of 121,238 listed and private companies from 105 countries all over the world. Our findings indicate that the legal and institutional environment has a different influence depending on whether family businesses are private SMEs or listed firms. Listed family firms behave as the law and finance literature predicts, having less long-term debt in weak legal and institutional environments than in strong ones, due to the problems caused by low levels of creditor rights protection and weak legal enforcement, together with non-family minority investors' control in the stock market. However, the absence of developed formal institutions in weak environments highlights the usefulness of family firms' internal governance and control mechanisms, which facilitate long-term debt to private family SMEs in weak contexts.

One of the limitations of this research is that the dataset is a cross-sectional sample. Future studies could test the influence of time-varying fluctuations in firm-level, market-level and macro-level conditions. Specially, future research could use panel data samples with dynamic information about having a family CEO, ownership concentration, and generational stage, also controlling for temporary variability that causes changes in corporate strategy and firm characteristics.

Our findings provide new avenues for future research, highlighting the need for specific research into family SMEs, considering their institutional context. The study of family firms could also be enriched by conducting structured interviews with executives and senior managers, as well as with family owners, in order to present more detailed insights into internal corporate governance mechanisms.

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Uncited references

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CRediT authorship contribution statement

Isabel Feito-Ruiz : Conceptualization, Methodology, Writing – review & editing. **Susana Menéndez-Requejo :** Conceptualization, Methodology, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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