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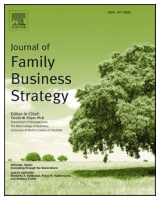

Resolution of financial distress in SMEs: How do family ownership and involvement affect second chance?

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ABSTRACT

The aim of this study is to understand if the idiosyncrasies of family firms affect the likelihood of successfully recovering from financial distress through a debt restructuring proceeding. Relying on the mixed-gamble logic of the behavioral agency model, we hypothesize that family small and medium-sized enterprises (SMEs) have greater chances of resolving financial distress than non-family SMEs, as the former are driven by the preservation of long-term socioemotional wealth. Our findings suggest that family ownership and control, as well as family involvement, are positively associated with the likelihood of successful debt restructuring. This study highlights that the unique emotional attachment family executives have to their business enhances their motivation and capabilities, making them more effective than their non-family counterparts at resolving financial distress through debt restructuring.

1. Introduction

Pre-bankruptcy proceedings enable troubled companies to renegotiate with the creditors the terms and conditions of the debt repayment (Altman & Hotchkiss, 2019). Several companies that have undergone debt restructuring proceedings have since become profitable and financially stable. In fact, empirical studies indicate that a notable percentage of European SMEs can achieve long-term viability after a restructuring procedure (Collett et al., 2014; Eurofound, 2013; France Stratégie, 2020). However, when companies lacking economic viability initiate a proceeding, courts expend time and resources less efficiently, directing fewer efforts to other companies that could truly benefit from such proceedings. Thus, the inefficiency of debt restructuring proceedings directly affects the entire economic system (Melcarne & Ramello, 2020). Given the significance of the topic, several scholars have explored the determinants of successful debt restructuring, endeavoring to offer practical guidance for enhancing the efficiency of such proceedings (Denis & Rodgers, 2007; Fisher et al., 2019; Olsen & Tamm, 2017). Building on existing literature, this study examines whether the emotional attachment of family members to the business - referred to as "socioemotional wealth" (SEW) (Berrone et al., 2012) - facilitates more effective behaviors in family businesses during debt restructuring, compared to non-family firms.

To develop our hypothesis, we draw on the mixed-gamble logic of the behavioral agency model (Gomez–Mejia et al., 2014; Martin et al., 2013), which posits that individual behaviors result from the assessment of the mixed gamble of potential gains and losses anticipated in the future. We argue that the net gains from successful debt restructuring are greater in family firms than in non-family firms. This hypothesis builds on the proposition of Gómez-Mejia et al. (2023), that family firms achieve higher payoffs when resolving financial distress compared to non-family firms, and applies it specifically to the context of debt restructuring. Indeed, the unique mixed gamble faced by family firms in the context of financial distress arises from the fact that family executives are primarily driven by their SEW, which leads them to prioritize preserving control of the business for future generations (Berrone et al., 2012). First, we hypothesize that, due to the potential for higher payoffs associated with successful debt restructuring, family members are more motivated than executives in non-family firms to take effective action. Second, we propose that family executives are more effective in resolving distress by leveraging SEW-related resources, such as strengthened social ties.

By employing multiple analyses on a dataset comprising private Italian SMEs that initiated in-court debt restructuring proceeding, the so-called "preventive agreement", in 2017 and 2018, our findings suggest that family ownership and control, as well as family involvement,

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represent determinants of successful debt restructuring. We conduct our analysis on small and medium enterprises (SMEs) because they are particularly vulnerable to financial weaknesses (OECD, 2021) and debt restructuring stands out as their most effective recovery strategy (Rico et al., 2021). Moreover, they represent the large majority of businesses worldwide (European Commission, 2023; World Bank, 2023). We focus on the Italian context due to the recent reform of the Italian insolvency framework and the notable duration and costs associated with insolvency proceedings, which have prompted Italian regulators and practitioners to focus on the issue of debt restructuring (European Commission, 2016; Palumbo et al., 2013).

This study contributes to existing literature in several ways. First, by showing that family firms are more likely to resolve financial distress through debt restructuring than non-family firms, we build on research highlighting the responsiveness of family firms in vulnerable contexts, such as external crises (Miroshnychenko et al., 2023), performance decline (Chrisman & Patel, 2012), and financial distress (Gómez-Mejia et al., 2023). Second, we contribute to existing studies on the heterogeneity of family firms (Daspit et al., 2021) by finding that the payoffs from resolving financial distress are higher in later-generation family firms and those where a family member serves as the chair of the board of directors, due to the greater SEW of family members. Third, we advance the literature on the determinants of successful debt restructuring (Collett et al., 2014; Fisher et al., 2019) by showing that the success of negotiations and the effective implementation of the recovery plan depend on individual behaviors of corporate executives, which are driven by their motivations and resources. Lastly, we validate the application of mixed-gamble logic of the behavioral agency model to the context of debt restructuring.

The study is organized as follows. The next section describes the literature review and provides the formulation of hypotheses. Section 3 explains the research methods adopted. Section 4 presents the results, and Section 5 discusses the main findings and concludes the paper.

2. Literature review and hypotheses development

2.1. Successful debt restructuring

Several studies have explored the determinants of successful debt restructuring, aiming to support creditors and courts in distinguishing among financial distressed companies those that are also economically viable. Starting with the financial characteristics of successful companies, findings suggest that larger firms, which benefit from economies of scale, and those with a higher proportion of non-collateralized assets are more likely to achieve favorable restructuring outcomes (Kim & Kim, 1999; Denis & Rodgers, 2007). Positive equity is another determinant of success (Routledge & Gadenne, 2000), as equity owners are more incentivized to make the proceeding successful when their equity stake remains positive. In addition, corporate profitability (Campbell, 1996) and short-term liquidity (Routledge & Gadenne, 2000) are both positively correlated with successful debt restructuring, as they increase creditors' confidence in the likelihood of repayment.

Other studies have shown that the likelihood of success in debt restructuring proceedings is positively influenced by the quality of financial disclosure (Camacho-Miñano & Campa, 2014; Fisher et al., 2019), the presence of a control body in companies that are not required to be audited (Paletta & Alimehmeti, 2022), creditworthiness (Altman et al., 2024), and the degree of audit quality (Magri & Marchini, 2024). These findings highlight the importance of reducing information asymmetries between creditors and the filing company to increase the likelihood of approval of the restructuring plan, and to enhance creditors' trust in the company. Moreover, management turnover during the proceeding is reported to positively affect creditors' assessments (Barniv et al., 2002; Hotchkiss, 1995), while a reduction in the number of directors is not (Olsen & Tamm, 2017).

Previous studies also emphasize the importance of building long-term relationships with stakeholders to secure approval of the restructuring plan, as older companies are more likely to succeed than younger ones (Kim & Kim, 1999). Building robust, trustworthy relationships with the community is paramount particularly for SMEs (Cooke, 2007). However, corporate executives do not all have the same incentives to leverage their social connections. As highlighted by Arora (2018), financially-linked independent directors demonstrate more effective efforts in achieving successful debt restructuring, as they have more to lose in the case of a bankruptcy outcome. Moreover, small business failure depends on the entrepreneurial traits, capabilities, and behavior of executives (Dieperink et al., 2024). Accordingly, Wilson et al. (2013) suggested investigating whether the unique motivations of executives in family businesses, shaped by their SEW, lead to more effective behaviors in addressing financial distress.

2.2. Socioemotional wealth and financial distress

Family firms are focused on the maximization of their SEW (Berrone et al., 2012). Berrone et al. (2012) delineate five dimensions of SEW, among which the preservation of control over the business (Gómez-Mejía et al., 2007), the maintenance of the relations with long-standing stakeholders (Arregle et al., 2007), and the succession of the family dynasty (Berrone et al., 2012).

The preservation of SEW may or may not align with the pursuit of financial wealth. The establishment of close ties with strategic stakeholders (Arregle et al., 2007), the transfer of business knowledge across generations (Berrone et al., 2012; Mitter et al., 2022), the pursuit of dynastic succession (Berrone et al., 2012), and the promotion a family-centric firm image (Craig et al., 2008; Zellweger et al., 2012) might contribute to acquiring a competitive advantage. However, excessively strong social ties might lead to reduced flexibility (Gargiulo & Benassi, 1999). Moreover, the appointment of family members lacking the adequate competences to run the business might result in strategic inefficiencies (Bennedsen et al., 2007). SEW is also deemed to negatively impact the choice of the exit strategy, as there is evidence of family firms preferring to exit via merger, although it would mean achieving lower financial returns (Chirico et al., 2020).

However, when the risk of failure jeopardizes control over the business, the preservation of SEW aligns with that of financial wealth. Hence, due to their focus on succession and control retention (Berrone et al., 2012), family firms are more proactive in responding to internal and external crises than non-family firms, as the former are willing to take any necessary measures to protect both SEW and financial wealth. When threatened by the risk of failure family businesses invest more (Chrisman & Patel, 2012) and they are more effective in their retrenchment strategies (Belling et al., 2022; Casillas et al., 2019), compared to their non-family counterparts. Furthermore, SEW drives the outperformance of family firms during external crises (Minichilli et al., 2016; Miroshnychenko et al., 2023), and their more effective risk-taking behavior in context of financial distress (Gómez-Mejia et al., 2023). The unique motivations of family members to prevent failure make family firms less likely to fail than non-family firms (Wilson et al., 2013).

2.3. Hypotheses development

To investigate whether family and non-family firms have different chances to resolve financial distress through debt restructuring, we draw on the mixed-gamble logic of the behavioral agency model (Gomez-Mejia et al., 2018; Gómez-Mejia et al., 2023).

According to the mixed-gamble approach, individuals make decisions by carefully weighing the potential gains and losses of their actions (Bromiley, 2009). At the firm level, when faced with a payoff that includes both potential gains and potential losses, constituting a mixed-gamble, firm executives are expected to choose how to behave and take risks with the aim to maximize prospective wealth (Martin

et al., 2013). This theoretical framework is particularly well-suited for analyzing family firms because it acknowledges that their payoffs also encompass potential gains and losses associated with the preservation of SEW. When business continuity is threatened, the prospect of survival for family firms is associated with increased net gains compared to non-family firms, as it would protect both SEW and financial wealth. This incentivizes more effective behaviors in managing the risk of failure compared to non-family firms.

Companies in financial distress evaluate the initiation of a debt restructuring proceeding by assessing its costs, including negative publicity and legal expenses, as well as the likelihood of achieving a favorable outcome. Based on this assessment, they forecast different payoffs and make varied decisions regarding whether to initiate the proceeding, how much effort to invest, and which resources to leverage. These payoffs differ for family and non-family businesses in financial distress, as the former also take their SEW into account.

Family firms are primarily oriented towards the preservation of the family dynasty and maintaining the control of the business (Berrone et al., 2012), whereas non-family firms focus solely on their financial wealth in their decision-making process. This means that in non-family firms the potential gains associated with resolving financial distress through debt restructuring are assessed without perceiving the possibility of bankruptcy in the same negative manner as family members do. In addition, non-family executives might feel a greater uncertainty regarding the outcome of the proceeding, especially in relation to the positive assessment by the court and creditors, as they do not usually have the same SEW-related resources as family firms. Therefore, the mixed gamble of successful debt restructuring for family firms includes the gains associated with SEW preservation. This means that family members associate higher payoffs with the resolution of financial distress compared to executives of non-family firms (Gómez-Mejia et al., 2023), and we argue that this holds true also in the context of debt restructuring. Thus, based on the mixed-gamble logics (Gomez–Mejia et al., 2014) and existing evidence (Gomez-Mejia et al., 2018; Gómez-Mejia et al., 2023) we posit that the payoffs of engaging in debt restructuring are higher for family firms than for non-family firms.

Since the risk of business failure is also a risk of family failure (Casillas et al., 2019), the preservation of SEW motivates family members to take more effective actions to address financial distress and ensure the long-term survival of family business. Family executives can exploit their close ties with stakeholders (Arregle et al., 2007) and their connections with local institutions (Baù et al., 2019) to effectively renegotiate the debt terms, and they can use their personal resources, equity or free labor (Sirmon & Hitt, 2003), to improve the financial strength of the business. Therefore, we hypothesize that the SEW driving family executives makes them more motivated, given their higher payoff, and more effective, due to their increased resources, compared to executives of non-family firms, in obtaining approval for the restructuring plan and executing it to ensure the continuation of the business. As a result, we formulate the following hypothesis:

H1: Among small and medium firms, family firms are more likely to achieve successful debt restructuring than non-family firms.

Additional insights into the link between the unique characteristics of family firms and successful debt restructuring can be gained by exploring the heterogeneity of family firms. The distinctive features that define family businesses can vary significantly (Daspit et al., 2021; Westhead & Howorth, 2006), suggesting that these differences might play a crucial role in shaping debt restructuring outcome. In line with existing literature (Dawson et al., 2020), we recognize controlling ownership as the pre-condition that allows family members to pursue their SEW-protection intentions. Moreover, we identify family generational involvement and family board leadership as key determinants of increased ability and willingness to protect their SEW. We argue that, among family firms, the payoffs associated to successful debt restructuring increase alongside the increase in family involvement, as motivations to protect SEW and SEW-related resources are higher.

Drawing on the mixed-gamble theory (Gomez–Mejia et al., 2014; Martin et al., 2013), we hypothesize the mixed gamble of later-generation family firms to be characterized by higher potential gains compared to founder-run family firms. First, later-generation family firms, due to their longer establishment, are more deeply integrated into the community. As a result, they have more to lose in terms of public image, and they can leverage long-standing social ties. Secondly, later generations are more effective at tackling new challenges and adapting to complex situations compared to founder-led family firms (Kellermanns et al., 2008). Additionally, they are less founder-centric, making them more adaptable to changes in the external environment (Kelly et al., 2000). Moreover, the level of entrepreneurship (Cruz & Nordqvist, 2012; Kellermanns et al., 2008; Salvato, 2004), innovation (Zahra, 2005), and international expansion (Mitter et al., 2014) increase at later generational stages.

Therefore, executives from later-generation family businesses, with their stronger SEW, are more motivated to avoid the costs associated with bankruptcy, and they can leverage their enhanced resources—such as education, experience, knowledge, and adaptability—to effectively execute the debt restructuring plan. Thus, we hypothesize later-generation family firms to be more effective in their debt restructuring attempt, by formulating our second hypothesis as follows:

H2: Among small and medium family firms, those that have experienced at least one generational transition are more likely to succeed in debt restructuring proceedings.

Consistent with prior research (Chu, 2011; Miller et al., 2007), family board leadership is used as an additional proxy for family involvement. The chair of the board is responsible for scheduling the meetings, setting the agenda, and representing the board externally. The board of directors sets the long-term goals and has the last words on the strategic decisions. Thus, when the chair of the board is a family member the family actively controls the board and the management decisions. Previous literature provides evidence of a positive association between family board leadership and firm value (Villalonga & Amit, 2006), firm profitability (Chu, 2011; Maury, 2006), and entrepreneurial orientation (Lee & Chu, 2017). Moreover, family board leadership increases the likelihood of corporate actions being taken in the interest of SEW (Jiang et al., 2020).

We hypothesize the mixed gamble of family firms with family members as board chair to be characterized by higher potential gains compared to family firms where non-family members lead the board. This stems from the idea that if a family member chairs the board, the family will feel a stronger connection with the business, thus becoming more exposed to reputational damage. In addition, family members serving as chairs of the board are more incentivized and capable of guiding the entire board towards resolving financial distress than non-family members, as they can contribute to exploit family resources more effectively, such as social connections and business knowledge, and guide the other directors towards actions and decisions aimed at preserving SEW. On the contrary, if the chair of the board is not a family member, the family will perceive that they have fewer chances to obtain a favorable outcome of the proceeding. Thus, we formulate the following hypothesis:

H3: Among small and medium family firms, those in which the chair of the board is a family member are more likely to succeed in debt restructuring proceedings.

3. Research methods

3.1. Sample

Italian insolvency law provides distressed companies with two primary restructuring options: an out-of-court agreement called the "*accordo di ristrutturazione del debito*" and an in-court procedure known as the "*concordato preventivo*" (Baker McKenzie, 2022), which will be referred to here as the "preventive agreement". For companies already

declared bankrupt, the law offers two additional routes: liquidation or an in-bankruptcy arrangement known as the "*concordato fallimentare*" (Baker McKenzie, 2022). Preventive agreements involve significant court oversight. The court first verifies the debtor's eligibility and appoints a judicial trustee to oversee the process and assist creditors in evaluating the proposed plan. Once creditors approve the plan, the court homologates it, ensuring it meets all formal requirements. On average, the process from the court's admission to the proceeding to the final homologation takes 10–14 months (Danovi et al., 2018). After the homologation, the debtor company has to comply with the provisions of the restructuring plan. Only once all debt is repaid in the time and manner renegotiated, indicating the effective execution of the plan, the proceeding is finished.

We used the Aida Bureau Van Dijk database to find out the Italian companies that started a preventive agreement in 2017 and 2018. We included in our sample only proceedings starting after 2016, because a major reform to the Italian bankruptcy law was enacted in 2015,[1] followed by minor reforms in 2016.[2] These reforms led to a significant reduction in the number of restructuring proceedings in Italy (Danovi et al., 2018), likely attributable to the new more stringent requirements. Thus, studying proceedings that were governed by different regulations might have introduced potential biases in the outcomes of our analysis. Given that the average time to obtain homologation is one year (Danovi et al., 2018), we adopted a four-year time horizon (1 year + 3 years) to study the outcome of the proceedings three years after approval, consistent with previous literature (Casey et al., 1986; Denis & Rodgers, 2007). While building our dataset, we had access to financial statements up to 2022, which allowed us to include proceedings initiated as late as 2018, presumed to have received homologation in 2019. This enabled us to examine their financial performance three years after confirmation.

We excluded firms in the financial industry from the dataset, as they are subject to distinct regulations that set them apart from non-financial firms (Schweiger et al., 2024). For instance, banks and certain financial institutions are required to follow a specific proceeding known "*liquidazione coatta amministrativa*" (Melcarne & Ramello, 2020). Moreover, following previous literature (Collett et al., 2014; Ravid & Sundgren, 1998) we excluded firms not presenting their financial statements in the year of the proceeding – a common practice among small firms and those facing severe financial difficulties. Thus, our study explores whether there are differences between family and non-family SMEs in the likelihood of resolving financial distress through debt restructuring, focusing specifically on those companies that, among the distressed, were "financially stable enough" to submit their financial statements. In order to identify small and medium-sized companies, we followed the European definition of SMEs (European Commission, 2003). Accordingly, we selected only those companies with fewer than 250 employees and either a turnover below 50 million or a balance sheet total under 43 million, thereby excluding large companies. This step led to the exclusion of only 23 companies, which were classified as large, consistent with the limited presence of large firms in Italy (OECD, 2022).

Table 1
Screening procedure.

	2017	2018
Companies initiating a "composition with creditors" in Italy	482	429
Companies belonging to the financial industry	−6	−3
Companies with missing data	−279	−289
Large companies	−12	−11
Final sample	185	126

[1] Italian Legislative Decree 83/2015.
[2] Italian Legislative Decree 59/2016.

Thus, as shown in Table 1, we obtained a sample of 311 companies, among which 185 companies initiated the proceeding in 2017, and the remaining 126 companies filed the petition the following year.

We believe that the Italian context is appropriate for different reasons. First of all, the length of first instance civil disputes trials is above the OECD average (Palumbo et al., 2013) and the costs of restructuring proceedings are the highest in the European Union (European Commission, 2016). Thus, given the weaknesses of the Italian context, analyses on the topic might be useful for regulators and professionals. Moreover, the Italian insolvency law has been recently reformed to comply with the EU Directive on Restructuring and Insolvency, making research on the topic highly relevant, particularly considering potential future amendments. In addition, in Italy SMEs account for 99,9 % of the total number of firms (OECD, 2022), and approximately 85 % of Italian businesses are family owned (OECD, 2017).

3.2. *Variables definition*

Once the sample was settled, we proceeded to the definition of our dependent variable. In line with previous literature (Denis & Rodgers, 2007), we classified debt restructuring proceedings as successful if the firms involved survived until year t + 3. Here, t represents the year of homologation, which typically occurs one year after the start of the proceeding (Danovi et al., 2018). Consequently, firm survival is assessed four years after the initiation of the proceeding. Therefore, our dependent variable, OPERATING, is a binary variable that takes the value of 1 if the firm remains active and avoids bankruptcy four years after the start of the proceeding, and 0 otherwise.

Then, we identified family firms. To do so, we relied on the definition provided by the European Commission (European Commission, 2009), according to which private firms are family-controlled when the family holds the majority of stakes and at least one member of the family seats on the board. In line with existing literature (Miller et al., 2007; Mitter et al., 2022), we define a "family" as a group of two or more people who are biologically linked or spousal couples. The manual identification of family members poses challenges; however, to spot biological ties we used the last name criterion, a common approach in family business research (Gomez-Mejia et al., 2001). Moreover, we examined each person with a different surname one-by-one to understand if, based on the home address provided by the Aida Bureau Van Dijk database and information on corporate websites or social networks profiles, it was possible to confirm a spousal link with a family member. We used a strict definition of family that excludes individual entrepreneurs. Thus, when no information was found about a second family member involved in the governance or operations of the company, either through LinkedIn or the corporate organizational chart provided by official channels, we did not classify it as a family firm. We did not classify as family firms three firms that met our identification criteria in the year of the petition filing, but not in subsequent years. We believe the resources and motivations of the executives of these three firms in achieving homologation and executing the plan to be influenced by non-family logic. No other family firm changed its status in the period of interest. At the end of this phase, we were able to identify 191 family firms within our sample. In order to distinguish these firms, we use a dummy variable named FAM equal to 1 when the firm is a family firm, otherwise 0.

With reference to the subsample of family firms, we have measured the level of family involvement based on two proxies. The choice of the proxies is grounded on previous literature on family business, including the presence of a family member serving as the chair of the board of directors (or sole administrator) (Miller et al., 2007) and the number of generations involved in the company (Chrisman & Patel, 2012). The generational transition was assessed based on information about the ages of family members and the company's founding history. Accordingly, we use the following variables to assess family involvement:

a) N*generations* is a dummy variable equal to 1 when the firm has experienced at least one generational transition, otherwise 0;

b) *Chair* is a dummy variable equal to 1 when the chair of the board of directors (or the sole administrator) is a member of the family, otherwise 0.

Based on previous literature (Routledge & Gadenne, 2000), the following financial control variables have been selected: PRODUCTIVITY, measured as the value added divided by the total number of employees, in order to account for corporate operating performance; SIZE, which assesses the company's dimensions in terms of sales; DE, which indicates the company's leverage ratio; CU_INDEX, which evaluates the company's current liquidity; and EQU_POS, which measures the positivity of equity. Moreover, we control for the number of years the company has been operating (AGE), as it is a proven determinant of successful debt restructuring (Kim & Kim, 1999). Additionally, we have included RURAL as a control variable, which measures whether the company is located in a rural area based on the classification by Sørensen (2012), since it is a significant factor in responsiveness to crises (Cuéllar-Fernández et al., 2024). According to Sørensen (2012), an area is considered rural if its municipality has fewer than 5001 inhabitants. We obtained the population data for each municipality from ISTAT website.[3] Moreover, due to the differences in the efficiencies of tribunals across Italy with respect to the disposal of these types of proceedings (Melcarne & Ramello, 2020), we control for the firm's geographical area using the NUTS1 classification (i.e., northwest, northeast, central, south, insular). Board diversity, measured by the percentage of female directors (%BOARD_F), is also included as a control variable, as it is recognized as a factor reducing the likelihood of financial distress (García & Herrero, 2021). Aligning with previous studies (Paletta & Alimehmeti, 2022), we have included the presence of a control body (ST_AUD) as a control variable. In Italy, only joint-stock companies ("S. p.A.") are required to appoint a control body, a statutory auditor, or an external auditor, while limited liability companies ("S.r.l.") are mandated to appoint a control body only when they meet specific criteria. As an additional control variable related to corporate governance, we included board size (BOARD_SIZE). Moreover, we considered the amount of the firm's short-term debt, defined as debt obligations due within 12 months (SHORT_DEBT). Finally, we controlled for the industry in which the company operates, using the first digit of the NACE rev.2 classification. A breakdown of the sample by industry is provided in Appendix A. The selected variables are listed in Table 2.

Table 2
Variables description.

Variable	Description
Dependent variable	
OPERATING	A dummy variable where 1 = the firm is still in business four years after the beginning of the proceeding, and 0 = the firm is no longer in business
Independent variables	
Variables of interest	
FAM	A dummy variable where 1 = a family owns the majority stake in the firm and at least one family member serves on the board, and 0 = the firm is not majority-owned and controlled by a family
NGENERATIONS	A dummy variable where 1 = the firm has experienced at least one generational transition, and 0 = the firm is founder-run
CHAIR	A dummy variable where 1 = the chair of the board is a member of the family, and 0 = the chair of the board is not a family member
Control variables	
SIZE	The natural logarithm of sales
LEVERAGE	Total liabilities divided by equity
CURRENTRATIO	Current assets divided by current liabilities
PRODUCTIVITY	Value added (mln) divided by total employees. The value added is calculated as the difference between total revenues and total production costs.
EQU_POS	A dummy variable where 1 = positive equity, and 0 = negative equity
AGE	Number of years the firm has been operating
RURAL	A dummy variable where 1 = the firm is located in a municipality with fewer than 5.001 inhabitants, and 0 = the firm is located in a municipality with more than 5.001 inhabitants
%BOARD_F	Percentage of female directors
ST_AUD	A dummy variable where 1 = there is a control body, and 0 = no control body has been appointed
BOARD_SIZE	Total number of board members
SHORT_DEBT	Total amount of debt obligations due within 12 months
NUTS1 classification	Geographical dummy variables that categorize the Italian territory into five distinct macro-areas: Northwest, Northeast, Central, Southern, and Insular.
INDUSTRY	First digit of the NACE rev.2 classification

3.3. Methodology

In order to evaluate our hypotheses, we adopt a model based on multivariate logit regression. This methodology is widely used in the stream of literature that analyzes corporate financial distress (Elloumi & Gueyié, 2001; Lisboa et al., 2021; Lizares & Bautista, 2021; Polemis & Gounopoulos, 2012). Specifically, our model builds upon the framework proposed by Routledge and Gadenne (2000). Thus, for H1 we use the following logit regression:

$$\begin{aligned} PROB(OPERATING_i = 1) = {} & \beta_0 + \beta_1 FAM_i + \beta_2 PRODUCTIVITY_i \\ & + \beta_3 SIZE_i + \beta_4 DE_i + \beta_5 CUR\_INDEX_i \\ & + \beta_6 EQU\_POS_i + \beta_7 AGE_i + \beta_8 RURAL_i \\ & + \beta_9 \%BOARD\_F_i + \beta_{10} ST\_AUD_i \\ & + \beta_{11} BOARD\_SIZE_i + \beta_{12} SHORT\_DEBT_i \\ & + Geographical\ Area\ fixed\ effects \\ & + Industry\ fixed\ effects + \varepsilon_i \end{aligned} \quad (1)$$

In order to evaluate H2 and H3, we took into account only family firms, and we performed the following regression model:

$$\begin{aligned} PROB(OPERATING_i = 1) = {} & \beta_0 + \beta_1 X_i + \beta_2 PRODUCTIVITY_i \\ & + \beta_3 SIZE_i + \beta_4 DE_i + \beta_5 CUR\_INDEX_i \\ & + \beta_6 EQU\_POS_i + \beta_7 AGE_i + \beta_8 RURAL_i \\ & + \beta_9 \%BOARD\_F_i + \beta_{10} ST\_AUD_i \\ & + \beta_{11} BOARD\_SIZE_i + \beta_{12} SHORT\_DEBT_i \\ & + Geographical\ Area\ fixed\ effects \\ & + Industry\ fixed\ effects + \varepsilon_i \end{aligned} \quad (2)$$

Where X is equal to:

- *Ngenerations* for H2;
- *Chair* for H3.

4. Results

4.1. Descriptive statistics and correlation analysis

As shown in the table, the companies included in the sample exhibit notably adverse economic performance. In fact, the average PRODUCTIVITY is −0.01 and the median value is found to be 0. This is not surprising since our sample includes only companies that are going through debt restructuring proceedings. The data on corporate debt turns out to be in line with these considerations. In fact, DE variable, computed as the ratio between corporate debt and total equity, shows high values, highlighting large level of corporate debt. Moreover, the

[3] Source: http://dati.istat.it/Index.aspx?DataSetCode=DCIS_POPRES1#

Table 3
Descriptive statistics (full sample).

Variables	N	Mean	Median	SD	Max	Min
OPERATING	311	0.50	1.00	0.50	1	0
FAM	311	0.61	1.00	0.49	1	0
PRODUCTIVITY	311	−0.01	0.00	1.15	19.63	−2.26
SIZE	311	8.53	8.67	1.41	11.99	1.31
DE	311	−1.80	−2.26	13.27	123.10	−60.22
CUR_INDEX	311	0.68	0.53	0.74	7.03	0
EQU_POS	311	0.13	0.00	0.34	1	0
AGE	311	27.67	28.00	16.31	117	2
RURAL	311	0.17	0.00	0.38	1	0
%BOARD_F	311	0.14	0.00	0.26	1	0
ST_AUD	311	0.61	1.00	0.49	1	0
BOARD_SIZE	311	1.36	1.00	0.88	8	1
DEBT_SHORT	311	35.56	8.51	109.01	816	0

negative value of the average DE is a consequence of a negative equity value.

Table 4 compares the main descriptive statistics of the sample, distinguishing between family and non-family firms. In terms of profitability, the two sub-samples are found to be similar; indeed, both groups of firms report an average productivity of approximately zero. Greater differences are noted, however, in relation to the debt to equity ratio. In fact, family firms show on average lower levels of corporate debt, in line with previous literature on the capital structure of family firms (Jansen et al., 2022; Mbanyele, 2020; Strebulaev & Yang, 2013; Vandemaele & Vancauteren, 2015).

About 55 % (104 out of 191) of family businesses are still active three years after the start of the debt restructuring process, while this figure drops to 43 % (52 out of 120) for non-family businesses.

Table 5 shows the results of the correlation analysis. We can observe that there are no large associations in place to influence the results of our model. In fact, considering control variables, the highest level of correlation is 0.586 reported between the variables EQU_POS and DE. A low level of correlation is also observed between ST_AUD and SIZE (0.481). However, these values are not critical and likely to adversely affect the results of our models. Thus, we conclude that collinearity is not an issue in our analysis.

4.2. Regression analyses

Table 6 reports the results of our multivariate logit regression analyses, with OPERATING as our dependent variable. In columns 1, we present the results related to H1, whereas in columns 2 and 3, we focus on the results pertaining to H2 and H3, which focus on the subsample of family firms. As a robustness test, in columns 4, 5 and 6, we replicate the analyses using a linear probability model (LPM).

Column 1 (H1) highlights that the coefficient of our main explanatory variable FAM is positive and significant at the 5 % level, suggesting that being a family firm positively influences the likelihood of successfully recovering from financial distress through a debt restructuring proceeding. This result is confirmed also in the LPM.

Focusing on control variables, we find that corporate productivity, is significantly and positively associated with the likelihood of achieving success in a debt restructuring procedure. This result aligns with previous literature, which underscores the importance of corporate economic performance in distress situations (Campbell, 1996; Casey et al., 1986). With regards to the other control variables, we find that also CUR_INDEX is positively associated to our dependent variable, with a significance level of 5 %, in accordance with previous empirical findings (Routledge & Gadenne, 2000). This finding suggests that a higher level of current assets or, on the other hand, a lower level of short-term debt, positively influences the outcome of the restructuring procedures. Focusing on SIZE and DE, we find a non-significant relationship with our dependent variable. In particular, it is interesting to point out that a higher level of debt in relation to corporate equity seems to have no influence on a company's likelihood of success in debt restructuring procedures. Considering the governance variables, we find that the size of the board is positively associated to our dependent variable, with a significance level of 1 %. Moreover, %BOARD_F exhibits a positive and statistically significant relationship with the likelihood of success in debt restructuring procedures in the LPM.

Moving on to the sub-sample of family firms, we find a significant and positive relationship between our dependent variable and *Ngenerations* (Column 2 and 5), the variable that indicates the presence of a generational transition. This result allows us to accept also our second hypothesis, thus suggesting that being a family business at later generational stages has a positive impact on the likelihood of successful debt restructuring. It is also important to note that the results for PRODUCTIVITY, CUR_INDEX and BOARD_SIZE are the same even within the subsample of family firms.

Focusing on columns 3 and 6, we can observe that our original hypothesis (H3) can be accepted here as well. Indeed, the variable *Chair* is found to be positively associated with our dependent variable, with a significance level of 1 % in both the proposed models. Thus, if the chair of the board is a family member, firms seem to be more likely to succeed in debt restructuring proceedings. Also in this case, the control variables PRODUCTIVITY, CUR_INDEX and BOARD_SIZE are significantly and positively related with our dependent variable.

In order to perform a further robustness test on our data, we revised the criteria for classifying a business as family owned, according to Kotlar et al. (2018). Specifically, for this test we classify companies as family firms only when the family owns the majority of stakes, and the percentage of family directors is greater than or equal to 30 % (FM2) or 50 % (FAM3), in line with Wilson et al. (2013). Table 7 summarizes the results of the analysis.

Columns 1 and 4 present the results of the regressions performed to test H1, both with the logit model and LPM respectively. Columns 2 and 3 report the results concerning our robustness test using the logit model, while in columns 5 and 6 we report the results obtained using the LPM. The results presented in Table 7 reveal that both the main explanatory variables, FAM2 and FAM3, exhibit a positive and statistically significant relationship with the dependent variable. These results confirm the hypothesis that family businesses are more effective in making their debt restructuring attempts successful. In fact, our initial findings remain consistent even with a more stringent definition of family firms. Moreover, it is important to emphasize that the variable FAM3 exhibits the highest coefficient, further highlighting the positive impact of being a family-run business on the likelihood of successfully completing a debt restructuring proceeding. The results are generally consistent employing the LPM.

4.3. Time-dependent variable approach

In order to confirm our results, we conducted further analyses employing a time-dependent variable approach. Although the logistic model is suitable for determining whether a bankruptcy event occurs, survival analysis considers when, and how quickly, the event takes place. Thus, survival analysis offers a time-dependent perspective that is not captured by logistic regression alone and complements our findings. The decision to adopt survival analysis is further motivated by the possibility to properly handle censored observations, which arise when events (such as bankruptcy) do not occur within the specified observation period. While survival models do not substantially alter the conclusions related to logistic regression, they enhance confidence in our results by mitigating potential biases and offering a more comprehensive perspective on the timing of bankruptcy.

We defined our dependent variable, namely survival time, as the number of days between the bankruptcy date and January 1st of the year in which the companies in the sample started the debt restructuring proceeding (i.e., 2017 or 2018). For companies that went bankrupt during the period under consideration, we retrieved the bankruptcy date

Table 4
Descriptive statistics (family vs non-family firms).

FAM= 0	N	Mean	Median	SD	Max	Min
OPERATING	120	0.43	0.00	0.50	1	0
PRODUCTIVITY	120	0.09	0.00	1.82	19.63	−2.24
SIZE	120	8.49	8.76	1.50	11.99	3.40
DE	120	−2.67	−2.22	17.33	123.10	−60.22
CUR_INDEX	120	0.59	0.52	0.48	3.71	0.04
EQU_POS	120	0.10	0.00	0.30	1	0
AGE	120	23.93	17.00	18.76	117	3
RURAL	120	0.10	0.00	0.30	1	0
%BOARD_F	120	0.10	0.00	0.23	1	0
ST_AUD	120	0.56	1.00	0.50	1	0
BOARD_SIZE	120	1.41	1.00	0.95	8	1
DEBT_SHORT	120	32.95	9.11	83.53	700	1.07
FAM= 1	**N**	**Mean**	**Median**	**SD**	**Max**	**Min**
OPERATING	191	.545	1.000	.499	1	0
NGENERATIONS	191	0.74	1.00	0.44	1	0
CHAIR	191	0.96	1.00	0.20	1	0
PRODUCTIVITY	191	−0.07	−0.01	0.25	0.35	−2.26
SIZE	191	8.55	8.64	1.36	11.59	1.31
DE	191	−1.26	−2.30	9.92	60.99	−33.61
CUR_INDEX	191	0.73	0.53	0.86	7.03	0
EQU_POS	191	0.15	0.00	0.36	1	0
AGE	191	30.01	31.00	14.11	91	2
RURAL	191	0.22	0.00	0.41	1	0
%BOARD_F	191	0.16	0.00	0.27	1	0
ST_AUD	191	0.64	1.00	0.48	1	0
BOARD_SIZE	191	1.33	1.00	0.83	8	1
DEBT_SHORT	191	37.20	8.19	122.52	816	0

from Aida Bureau Van Dijk database. In case companies did not go bankrupt during the observation period, we used December 31st, 2022, as the censoring date (i.e., the last day of observation for the analysis).

The definition of the survival time allowed us to perform two important analyses to validate our findings: the Kaplan-Meier and Cox Survival analyses. The Kaplan–Meier analysis is a univariate technique that focuses on graphically depicting the probability of survival over time. The Kaplan–Meier curves, displayed as step functions, show the cumulative probability of survival at each point in time. This approach is particularly helpful for exploratory analysis, providing an initial understanding of survival trends over time and between groups. Differently, Cox survival analysis, also known as the Cox proportional hazards model (Cox, 1972), is a multivariate technique that accommodates multiple predictive factors, thereby broadening its analytical scope. At the core of the Cox model is the hazard rate, which reflects the instantaneous probability of the event occurring at a specific time, given that the subject has survived up to that point. These ratios represent the relative shift in risk associated with a one-unit change in a specific covariate, while controlling for the effects of other factors in the model. In its mathematical form, the Cox model can be expressed as:

$$h(t) = h_0(\mathrm{t}) \exp(\beta_1 X_1 + \quad \beta_2 X_2 + \quad \ldots + \beta_p X_p) \tag{3}$$

where $h(t)$ is the hazard function that reflects how the instantaneous risk of an event varies over time, $h_0(\mathrm{t})$ is the baseline hazard function representing the instantaneous risk of the event at time t for an individual with all covariates set to their reference level (usually zero), β_1, β_2, … β_p are the regression coefficients for the corresponding covariates X_1, X_2, … X_p, $\exp(\beta_i)$ represent the hazard ratios.

The Cox proportional hazards model is semi-parametric in nature. The model estimates the relative hazard associated with covariates while leaving the baseline hazard function unspecified (Lane et al., 1986). This approach ensures flexibility in capturing the underlying hazard dynamics without making restrictive parametric assumptions about the baseline hazard function form (Jain & Kini, 2008). Additional details on the Cox proportional hazards model are provided in Appendix B.

Finally, the Cox model relies on the proportional hazards assumption, which posits that the hazard ratio between two groups remains constant throughout the observation period. In this study, we formally tested this assumption following the approach of Caselli et al. (2021). The tests indicate that the proportional hazard assumption was not violated in this study. Detailed results of this diagnostic are presented in Appendix C.

Table 8 presents the results of the Cox regression, where for each variable, the Hazard Ratio (HR) is displayed, calculated as the exponentiated form of the coefficient. Thus, an HR between 0 and 1 indicates a lower probability of experiencing the "failure" event, in our case represented by OPERATING= 0. Conversely, an HR greater than 1 suggests an increased likelihood of observing failure.

In the model reported in column 1, we observe that the variable FAM shows an HR of 0.660. This implies that family firms tend to survive 34 % more (i.e., 1–0.660) compared to non-family firms. Similar results are highlighted concerning the other two main explanatory variables. Specifically, *Ngenerations* records an HR of 0.549, significant at the 5 % level, suggesting that among family firms, those undergoing generational transition tend to survive 45,1 % more. The results regarding the *Chair* variable also confirm our previous findings. Specifically, among family firms, those with a family member as chair of the board tend to survive 67.8 % more. The results concerning the control variables are consistent with the previous analyses.

4.4. Propensity score matching

The comparison between family and non-family firms may be subject to potential selection bias issues. To overcome these issues, we employ propensity score matching (PSM). This approach allows us to enhance the comparability between the two groups of firms (family vs. non-family) under consideration. Given the smaller number of non-family firms in our sample, we perform the matching by selecting the non-family firms as the “treated” group. Thus, we are able to associate each non-family firm with at least one family firm that has similar characteristics based on the covariates used in the analysis. This process

Table 5
Correlation results. Notes: this table presents the correlations of the variables used in the main analysis. * indicates significance level at 0.1. The two control variables with the highest level of correlation are EQU_POS and DE with a value of 0.586. A low level of correlation is also observed between ST_AUD and SIZE (0.481).

Variables	(OPERATING)	(FAM)	(NGENERATIONS)	(CHAIR)	(PRODUCTIVITY)	(SIZE)	(DE)	(CUR_INDEX)	(EQU_POS)	(AGE)	(RURAL)	(%BOARD_F)	(ST_AUD)	(BOARD_SIZE)	(DEBT_SHORT)
OPERATING	1.000														
FAM	0.108 *	1.000													
NGENERATIONS	0.183 *	0.573 *	1.000												
CHAIR	0.123 *	0.850 *	0.511 *	1.000											
PRODUCTIVITY	0.096 *	−0.068	−0.054	−0.062	1.000										
SIZE	−0.046	0.019	0.001	−0.004	0.062	1.000									
DE	−0.016	0.052	0.077	0.047	0.002	−0.026	1.000								
CUR_INDEX	0.147 *	0.091	0.141 *	0.033	−0.007	0.047	0.107 *	1.000							
EQU_POS	0.065	0.075	0.077	0.099 *	0.012	0.028	0.586 *	0.225 *	1.000						
AGE	0.087	0.182 *	0.243 *	0.171 *	0.010	0.060	0.052	0.121 *	0.122 *	1.000					
RURAL	0.058	0.148 *	−0.053	0.132 *	−0.043	−0.007	−0.037	0.068	−0.025	0.027	1.000				
%BOARD_F	0.063	0.119 *	0.144 *	0.133 *	−0.038	0.039	−0.033	0.051	0.036	0.184 *	0.000	1.000			
ST_AUD	0.003	0.080	0.071	−0.010	0.019	0.481 *	−0.034	−0.061	−0.018	0.152 *	−0.039	0.042	1.000		
BOARD_SIZE	0.256 *	−0.044	0.013	0.008	0.005	0.085	−0.031	0.027	0.035	0.061	−0.069	−0.023	0.090	1.000	
DEBT_SHORT	0.040	0.019	0.044	−0.040	0.114 *	−0.007	−0.028	0.368 *	−0.056	0.037	0.073	−0.015	−0.007	0.050	1.000

** * *p < 0.01, * *p < 0.05, *p < 0.1*

leads to the identification of 66 family firms matched with 115 non-family firms,[4] resulting in a total of 181 firms.[5]

The propensity scores are measured through a logit model, with the same independent variables employed as in Eq. (1). The results of the estimation are presented in column 1 of Table 9.

To confirm that the two groups of firms are identical in terms of observed characteristics, we conduct several tests. First, we re-estimate the model using only the 181 firms identified through the PSM. As shown in column 2 of Table 9, none of the coefficients are statistically significant, in contrast to the previous estimates. Moreover, the pseudo R^2 value is considerably lower than that observed in the previous analysis. Next, we graphically represent the distribution of propensity scores by comparing the pre- and post-matched samples. The results confirm the effectiveness of the matching process. Further details, including t-tests for the covariates before and after matching, are provided in Appendix D.

Column 1 of Table 10 presents the results of the Eq. (1) estimated using the matched sample. The coefficient of FAM is statistically significant and positive related to the dependent variable, confirming that family firms are more likely to succeed in debt restructuring proceedings than non-family firms. The results of the LPM reported in column 2 are qualitatively similar.

5. Conclusions

5.1. Discussion

This study investigates the effect of family ownership and control, as well as family involvement on the outcome of debt restructuring proceedings in private Italian SMEs. Wilson et al. (2013) suggested that family firms might exert more effort than non-family firms in resolving financial distress through debt restructuring proceedings, as they are ultimately oriented towards the preservation of their SEW. Previous literature emphasizes the crucial role of executives in debt restructuring proceedings (Arora, 2018). However, the motivations and resources that drive family executives to address financial distress through debt restructuring had remained largely unexplored. This study contributes to existing literature by examining how the distinctive behaviors of family executives affect the outcomes of debt restructuring proceedings. Since family firms are characterized by the prioritization of their SEW (Berrone et al., 2012), family executives take this into account when assessing the potential gains and losses associated with debt restructuring.

The results of the multiple empirical analyses suggest that family firms are more likely to manage financial distress through debt renegotiation than non-family firms. These findings support the assumption that, for family members, corporate failure would not only result in economic damage but also bring about severe reputational and social consequences for the family involved, ultimately leading to the end of the family dynasty. Moreover, the findings can also be interpreted by considering the SEW-related resources of family executives, such as strong social ties and networks, which enable them to secure approval for the plan and implement it effectively, thereby increasing their confidence in the likelihood of success.

Our findings also may indicate that family involvement is a determinant of successful debt restructuring. First, we find that if more than one generation is involved in the family business, firms tend to have a greater chance of success in the procedures. Later generations are more motivated than founders because they have a stronger reputation to

[4] Five non-family firms were excluded from the analysis because there were no family firms in the same industry.

[5] A single family firm can be associated with multiple non-family firms. By avoiding a one-to-one association, we were able to identify and consider the closest matching companies within each group.

Table 6
Multivariate logit regression analyses. Notes: for variable descriptions, please refer to previous sections. * ** , * * and * indicate significance level respectively at 0.01, 0.05 and 0.1. Robust Standard Errors are presented in parentheses. The variable FAM is positively associated with our dependent variable ($p < 0.05$), both in the logit and in the LPM. There is also evidence of a positive and significant relationship between the variables Ngenerations and Chair, and the likelihood of successfully completing a debt restructuring proceeding.

OPERATING	(1)	(2)	(3)	(4)	(5)	(6)
FAM	0.582 * *			0.129 * *		
	(0.282)			(0.060)		
NGENERATIONS		0.772 * *			0.168 *	
		(0.394)			(0.090)	
CHAIR			3.339 * **			0.407 * **
			(0.886)			(0.085)
PRODUCTIVITY	1.416 * *	1.704 *	1.513 *	0.051 * **	0.276 * *	0.260 * *
	(0.569)	(0.950)	(0.897)	(0.012)	(0.118)	(0.118)
SIZE	−0.131	−0.005	0.019	−0.030	0.003	0.007
	(0.104)	(0.157)	(0.138)	(0.023)	(0.036)	(0.033)
DE	0.001	0.002	0.007	0.000	0.001	0.002
	(0.013)	(0.024)	(0.024)	(0.003)	(0.005)	(0.005)
CUR_INDEX	0.516 * *	0.552 * *	0.681 * **	0.095 * **	0.093 * *	0.115 * **
	(0.229)	(0.244)	(0.252)	(0.032)	(0.037)	(0.036)
EQU_POS	−0.087	−0.021	−0.191	0.007	0.008	−0.028
	(0.514)	(0.682)	(0.699)	(0.114)	(0.145)	(0.147)
AGE	0.005	−0.001	0.005	0.002	−0.000	0.001
	(0.008)	(0.012)	(0.011)	(0.002)	(0.003)	(0.002)
RURAL	0.376	0.160	−0.083	0.075	0.044	−0.005
	(0.380)	(0.451)	(0.451)	(0.082)	(0.100)	(0.100)
%BOARD_F	0.306	0.790	0.604	0.007 * **	0.161	0.132
	(0.539)	(0.732)	(0.694)	(0.002)	(0.148)	(0.148)
ST_AUD	0.148	0.337	0.361	0.014	0.059	0.068
	(0.314)	(0.439)	(0.418)	(0.068)	(0.096)	(0.094)
BOARD_SIZE	0.931 * **	0.471 *	0.510 *	0.150 * **	0.085 * *	0.095 * *
	(0.247)	(0.270)	(0.268)	(0.029)	(0.043)	(0.043)
DEBT_SHORT	−0.000	−0.001	−0.001	−0.000	−0.000	−0.000
	(0.001)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)
_cons	−0.918	0.183	−3.151	0.380	0.547	0.159
	(1.463)	(2.196)	(2.418)	(0.336)	(0.478)	(0.468)
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Geographical effects	Yes	Yes	Yes	Yes	Yes	Yes
N	311	191	191	311	191	191
adj. R^2				0.086	0.048	0.053
pseudo R^2	0.147	0.137	0.144			

protect and recognize their enhanced SEW-related resources, such as more consolidated social ties. Moreover, the heightened capabilities of second and subsequent generations, such as a higher level of entrepreneurial orientation (Cruz & Nordqvist, 2012; Zahra, 2005) and education (Kelly et al., 2000), can facilitate the development and execution of effective strategies during the proceeding. Secondly, we find that when the chair of the board is a family member, firms may have a greater chance to succeed in debt restructuring procedures. Family members are more motivated to succeed because bankruptcy under family board leadership would lead to more severe reputational consequences. Moreover, family owners acknowledge their greater chances of success, as a family member serving as the chair of the board exerts increased family control over business decisions (Sacristán-Navarro et al., 2011), and is capable of effectively leveraging the SEW-related resources.

Finally, it is also important to acknowledge that the period under consideration in the present analysis was affected by the COVID-19 pandemic. This may have had ramifications for SMEs' financial recovery, manifesting in intensified financial pressures and a consequent shift in stakeholders' attitudes towards debt restructuring. However, since the pandemic likely exerted a broad influence across family and non-family firms, we believe that our core findings remain consistent despite this exceptional event.

5.2. Contributions and practical implications

We believe that the existing literature on family business, particularly studies examining how family firms differ from non-family firms in survival-threatening contexts (Calabrò et al., 2021; Czakon et al., 2023), might benefit from this research. Indeed, by focusing for the first time on debt restructuring, this study highlights how the unique characteristics of family businesses, rooted in their SEW, enhance their likelihood of succeeding in such proceedings compared to non-family businesses. This study also makes a valuable contribution to the recent stream of literature that applies the mixed-gamble logic of the behavioral agency model to explain the behaviors of family executives in contexts of vulnerability (Gomez-Mejia et al., 2018; Gómez-Mejia et al., 2023), by extending its applicability to debt restructuring proceedings. In addition, this study advances existing research on the heterogeneity of family firms (Daspit et al., 2021), by showing that greater family involvement – resulting in a higher SEW to protect – leads family executives to anticipate larger payoffs from resolving financial distress, thereby motivating them to take more effective actions. Additionally, our research contributes to the literature on debt restructuring by examining, for the first time, the idiosyncrasies of family firms as determinants of successful proceedings. In particular, it strengthens the findings of previous studies focusing on the role of individual motivations and behaviors (Arora, 2018), by suggesting that it is not only the financial characteristics of firms that influence their success in debt restructuring proceedings, but also the efforts of executives in securing approval and executing the plan effectively. Given that debt restructuring represents one of the most effective mechanisms for the recovery of zombie SMEs (Carreira et al., 2022), we believe that our study can also enrich the existing literature on turnaround attempts of SMEs (Rico et al., 2021), by highlighting that their ownership and governance structures should also be considered when assessing their eligibility for such proceedings

This study also contributes to practice. SMEs represent the vast majority of companies worldwide (World Bank, 2023), and they are

Table 7
Robustness test. Notes: for variable descriptions, please refer to the previous sections. * ** , * * and * indicate significance level respectively at 0.01, 0.05 and 0.1. Robust Standard Errors are presented in parentheses. Column 1 shows the results related to our baseline regression. The main explanatory variables FAM2 and FAM3 are positively and significantly associated with our dependent variable. In columns 4, 5 and 6 we replicate the analyses using a LPM.

OPERATING	(1)	(2)	(3)	(4)	(5)	(6)
FAM	0.582 * *			0.129 * *		
	(0.282)			(0.060)		
FAM2		0.578 * *			0.132 * *	
		(0.282)			(0.060)	
FAM3			0.656 * *			0.147 * *
			(0.283)			(0.059)
PRODUCTIVITY	1.416 * *	1.373 * *	1.385 * *	0.051 * **	0.051 * **	0.050 * **
	(0.569)	(0.565)	(0.572)	(0.012)	(0.012)	(0.012)
SIZE	−0.131	−0.125	−0.122	−0.030	−0.028	−0.028
	(0.104)	(0.104)	(0.103)	(0.023)	(0.023)	(0.023)
DE	0.001	−0.000	−0.000	0.000	−0.000	−0.000
	(0.013)	(0.013)	(0.013)	(0.003)	(0.003)	(0.003)
CUR_INDEX	0.516 * *	0.510 * *	0.498 * *	0.095 * **	0.093 * **	0.095 * **
	(0.229)	(0.229)	(0.226)	(0.032)	(0.032)	(0.031)
EQU_POS	−0.087	−0.056	−0.040	0.007	0.013	0.012
	(0.514)	(0.529)	(0.535)	(0.114)	(0.117)	(0.118)
AGE	0.005	0.005	0.005	0.002	0.002	0.002
	(0.008)	(0.008)	(0.008)	(0.002)	(0.002)	(0.002)
RURAL	0.376	0.390	0.362	0.075	0.079	0.074
	(0.380)	(0.379)	(0.381)	(0.082)	(0.080)	(0.080)
%BOARD_F	0.306	0.287	0.248	0.007 * **	0.007 * **	0.007 * **
	(0.539)	(0.538)	(0.538)	(0.002)	(0.002)	(0.002)
ST_ AUD	0.148	0.155	0.153	0.014	0.016	0.018
	(0.314)	(0.314)	(0.315)	(0.068)	(0.068)	(0.068)
BOARD_SIZE	0.931 * **	0.925 * **	0.929 * **	0.150 * **	0.149 * **	0.148 * **
	(0.247)	(0.243)	(0.244)	(0.029)	(0.029)	(0.029)
DEBT_SHORT	−0.000	−0.000	−0.000	−0.000	−0.000	−0.000
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
_cons	−0.918	−0.952	−0.993	0.380	0.363	0.357
	(1.463)	(1.470)	(1.468)	(0.336)	(0.337)	(0.334)
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Geographical effects	Yes	Yes	Yes	Yes	Yes	Yes
N	311	311	311	311	311	311
adj. R^2				0.086	0.087	0.091
pseudo R^2	0.147	0.146	0.149			

more vulnerable to external crises than large companies (OECD, 2021). Stakeholders involved in debt restructuring proceedings of SMEs, including creditors, judicial trustees, advisors, and judges, should take into account the company's ownership and control structure when assessing its potential in a proceeding. Indeed, different corporate executives might be driven by varying motivations and could utilize different resources depending on the situation. Moreover, the findings of this study could provide valuable insight for financially distressed SMEs, as they highlight the importance of personal motivations, subjective assessment of payoffs, and resources in determining the effectiveness of measures aimed to address financial distress. Indeed, SMEs, regardless of whether they are family-owned or not, might consider improving their social ties and expanding the time frame for decision-making to increase their chances of successful financial recovery through debt restructuring proceedings. Moreover, external advisors should support financially distressed SMEs in accurately forecasting the probabilities of successful debt renegotiation. This support could enable viable firms to invest effort confidently, knowing they have a good chance of success, while it could indicate to non-viable firms the necessity to pursue alternative strategies. Our findings may also offer valuable insights for companies and policy actors operating in countries that share similar economic and institutional characteristics with Italy. Specifically, those with many SMEs, lengthy insolvency processes, and a similar civil law framework could find our contributions relevant for both business strategies and policy design.

5.3. Limitations and avenues for future research

Along with the aspects highlighted above, our paper has some limitations that we hope will provide momentum for future research. First of all, although classifying family firms through a binary variable is common in the literature, this approach may limit the explanatory potential related to family influence, as it does not fully capture nuances in ownership intensity, governance, and cultural involvement. While we included additional variables (*Ngenerations* and *Chair*) to partially address this issue, future studies could employ more granular measures of family involvement to better capture its multidimensional nature. This limitation might also partially explain the relatively low pseudo-R^2 and adjusted R^2 values observed in our analyses. Future studies might therefore benefit from exploring additional explanatory variables, such as differences in managerial capabilities or access to financial and non-financial resources, to further enhance the understanding of these dynamics. Moreover, our study does not consider the causes that led to debt restructuring proceedings. Future research could analyze whether the causes of debt restructuring in family firms differ from those in non-family firms, extending the study of Mitter et al. (2022). Considering the context-specific nature of our analysis, extending the analysis to other countries would help to examine whether the findings hold across different institutional settings. Moreover, our research is constrained by the unavailability of financial statements from several financially distressed companies that started a debt restructuring proceeding in 2017 and 2018, thereby precluding their inclusion in our analyses. Future studies could focus solely on companies that did not present their financial statements. By manually collecting data, researchers could investigate whether the differences between family and non-family firms in the likelihood of successful debt restructuring hold true for these companies as well. Since family firms' exit strategies differ from those chosen by non-family firms (Chirico et al., 2020), future studies might investigate whether there are differences between family and non-family firms in terms of debt restructuring strategies. Moreover,

Table 8
Cox regression. Notes: for variable descriptions, please refer to the previous sections. * ** , * * and * indicate significance level respectively at 0.01, 0.05 and 0.1. The figures reported represent the hazard ratios, with standard errors in brackets. The hazard ratio value concerning our main explanatory variable FAM highlight that family firms have a higher probability of survival. Moreover, among family firms, those that have undergone at least one generational transition and have a family member as chairperson, show a higher likelihood of survival.

Survival time Failure: OPERATING= 0	(1)	(2)	(3)
FAM	0.660 * *		
	(0.119)		
NGENERATIONS		0.549 * *	
		(0.157)	
CHAIR			0.322 * **
			(0.121)
PRODUCTIVITY	0.433 * **	0.199 * **	0.219 * **
	(0.120)	(0.086)	(0.117)
SIZE	1.088	0.997	0.951
	(0.083)	(0.111)	(0.104)
DE	1.006	1.006	1.002
	(0.007)	(0.019)	(0.020)
CUR_INDEX	0.660 * *	0.675 * *	0.639 * *
	(0.128)	(0.121)	(0.118)
EQU_POS	0.792	0.874	0.951
	(0.261)	(0.394)	(0.444)
AGE	0.995	1.003	0.996
	(0.005)	(0.009)	(0.008)
RURAL	0.751	0.858	1.034
	(0.194)	(0.281)	(0.336)
%BOARD_F	0.807	0.489	0.606
	(0.303)	(0.252)	(0.324)
ST_AUD	0.948	0.743	0.751
	(0.202)	(0.213)	(0.219)
BOARD_SIZE	0.511 * **	0.742	0.721
	(0.101)	(0.173)	(0.169)
DEBT_SHORT	1.000	1.001	1.001
	(0.001)	(0.001)	(0.001)
Industry effects	Yes	Yes	Yes
Geographical effects	Yes	Yes	Yes
N	311	191	191
pseudo R^2	0.042	0.050	0.050

upcoming studies could analyze the initial evidence following the recent introduction of insolvency reforms in the European Union to assess their effectiveness in promoting a rescue culture. Scholars might further explore the link between generational involvement and successful debt restructuring, by measuring generational involvement based on the specific number of transitions, since we could not retrieve this information. We believe that a qualitative study would also be valuable for directly measuring the level of SEW, as well as quantifying the payoffs anticipated by family and non-family executives during financial distress. Future studies could also investigate whether family involvement influences the success of debt restructuring proceedings in large and listed companies, that are characterized by greater visibility and different dynamics compared with SMEs. Finally, exploring whether the findings of this study would also hold true in the context of out-of-court debt restructuring proceedings represents another promising avenue for further research.

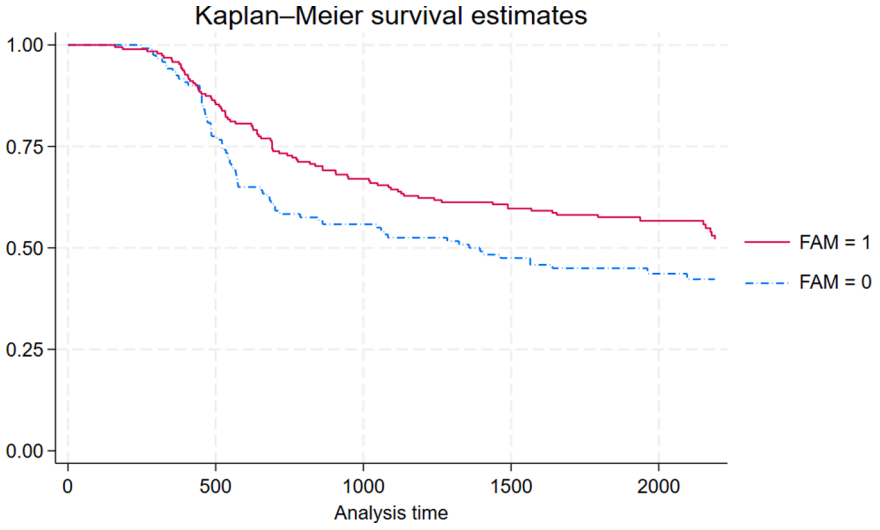

Fig. 1. Shows the Kaplan-Meier curves. As highlighted by the trend of the solid red line, family firms tend to survive longer. Specifically, after the initial 500 days, there is a clear divergence in terms of survival probability between the two groups under analysis. The gap remains consistent throughout the entire period. This relationship is significant at 5 % (chi2(1) = 4.68, p-value = 0.0306).

Table 9
PSM results. Notes: * ** , * * and * indicate significance level respectively at 0.01, 0.05 and 0.1. Robust Standard Errors are presented in parentheses.

Non-Family firms	Pre-Match	Post-Match
PRODUCTIVITY	0.192	0.170
	(0.283)	(0.359)
SIZE	0.015	0.118
	(0.109)	(0.130)
DE	−0.003	0.007
	(0.013)	(0.013)
CUR_INDEX	−0.241	−0.103
	(0.230)	(0.302)
EQU_POS	−0.162	−0.747
	(0.503)	(0.609)
AGE	−0.016 *	−0.007
	(0.009)	(0.010)
RURAL	−0.719 *	0.188
	(0.379)	(0.536)
%BOARD_F	−1.085 *	0.459
	(0.596)	(0.850)
ST_AUD	−0.470	−0.175
	(0.314)	(0.395)
BOARD_SIZE	0.121	0.079
	(0.156)	(0.188)
DEBT_SHORT	0.000	−0.001
	(0.001)	(0.002)
_cons	0.305	−1.044
	(1.631)	(1.773)
Industry effects	Yes	Yes
Geographical effects	Yes	Yes
N	306	181
pseudo R^2	0.106	0.059

Table 10
Baseline regressions on matched sample. Notes: * ** , * * and * indicate significance level respectively at 0.01, 0.05 and 0.1. Column 1 reports the estimates of the logit model, while column 2 shows the results of the LPM. Robust Standard Errors are presented in parentheses.

OPERATING	(1)	(2)
FAM	0.954 * *	0.179 * *
	(0.382)	(0.076)
PRODUCTIVITY	1.554 *	0.048 * **
	(0.863)	(0.010)
SIZE	−0.303 * *	−0.057 * *
	(0.130)	(0.023)
DE	−0.011	−0.001
	(0.015)	(0.003)
CUR_INDEX	0.902 *	0.145 * **
	(0.501)	(0.048)
EQU_POS	0.176	0.072
	(0.693)	(0.150)
AGE	−0.004	0.000
	(0.011)	(0.002)
RURAL	0.336	0.077
	(0.645)	(0.132)
%BOARD_F	1.007	0.224
	(0.849)	(0.169)
ST_AUD	0.324	0.054
	(0.435)	(0.088)
BOARD_SIZE	1.383 * **	0.128 * **
	(0.369)	(0.030)
DEBT_SHORT	−0.000	−0.000
	(0.002)	(0.000)
_cons	−1.360	0.332
	(1.707)	(0.312)
Industry effects	Yes	Yes
Geographical effects	Yes	Yes
N	181	181
adj. R^2		0.097
pseudo R^2	0.207	

CRediT authorship contribution statement

Federico Bertacchini: Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Investigation, Formal analysis, Data curation. **Pier Luigi Marchini:** Supervision, Conceptualization. **Carlotta Magri:** Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of Competing Interest

The Authors declare that there is no conflict of interest.

Appendix A

Table A.1
Provides the breakdown of the sample by industry

Industry	# firms
Mining and Quarrying	4
Consumer goods	52
Industrial goods	80
Utilities and Waste Management	33
Wholesale and Retail Trade	103
Transport and Logistics	6
Real Estate	15
Professional, Technical and Support Service Activities	6
Human Health and Social Work Activities	7
Arts, Entertainment and Recreation	5

Table A.1 – Industry classification is based on NACE rev.2

Appendix B

In the Cox proportional hazard model, the baseline hazard function is left unspecified and can be estimated non-parametrically based on empirical data. Starting from the baseline hazard function, the baseline survivor function can be obtained as follows:

$$S_0(t) = \exp(-H_0(t))$$

where $S_0(t)$ is the baseline survivor function that represents the probability of survival up to time (t) for a hypothetical unit with all covariates set to their reference level, and $H_0(t)$ is the cumulative hazard function that expresses the cumulative hazard as the total accumulated risk of failure up to time (t). In this study we estimate the cumulative hazard function through the Breslow method, a widely used approach for handling tied event times in survival analysis (Lin, 2007).

This appendix includes a table displaying a subset of the dataset to illustrate the baseline survivor function and a graph offering a visual representation of its evolution over time.

Table B.1 presents a subset of the dataset, showing for simplicity only the first and the last 10 observations, ordered by survival time (_t). The variable Obs identifies the observation number. The variable _t represents the survival time, which is defined as the number of days until bankruptcy occurs or the observation is censored. The variable _d is a binary indicator of the event status, where a value of 1 signifies that the bankruptcy event occurred at the corresponding survival time, while a value of 0 indicates that the firm did not go bankrupt in the observation period. The variable _s represents the baseline survivor function, which estimates the probability of survival at a given time point _t. The table illustrates the baseline survivor function and its evolution over time, providing a clear view of survival probabilities across the observed time range.

Figure B.1 Provides a visual representation of the baseline survivor function over time. On the x-axis, the survival time (_t) is displayed, representing the time at which events occur, or observations are censored. The y-axis shows the baseline survivor function (s), which represents the probability of surviving beyond a given time point. The graph is a step function, as the survival probabilities decrease only at the times when events occur, remaining constant during intervals without events. This stepwise nature reflects the discrete changes in survival probability at each event time.

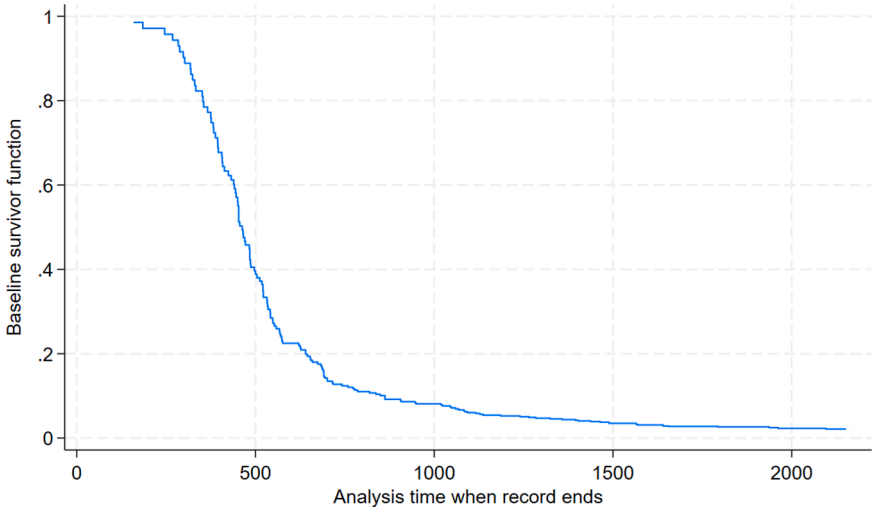

Figure B.1.

Table B.1
Baseline survivor function in _

Obs	_t	_d	_s
1	159	1	0.986
2	185	1	0.972
3	246	1	0.957
4	268	1	0.943
5	284	1	0.930
6	288	1	0.916
7	298	1	0.902
8	302	1	0.889
9	318	1	0.875
10	319	1	0.862
…	…	…	…
302	2190	0	0.015
303	2190	0	0.015
304	2190	0	0.015
305	2190	0	0.015
306	2190	0	0.015
307	2190	0	0.015
308	2190	0	0.015
309	2190	0	0.015
310	2190	0	0.015
311	2190	0	0.015

Appendix C

We assessed the proportional hazards assumption using multiple diagnostic techniques. First, we use the Schoenfeld residuals test. This test evaluates the proportional-hazards assumption by examining the relationship between the scaled Schoenfeld residuals and time. Under the null hypothesis, the slope of this relationship is zero, indicating that the log hazard ratio is constant over time. A significant result suggests a violation of the proportional hazard assumption. As shown in Table C.1, the Prob>chi2 of the global test and our main explanatory variable are not significant. Therefore, there is no evidence of the violation of the proportional hazard assumption.

Next, we employed a log–log survival plot to visually inspect whether the curves for different covariate levels are parallel. This is a key indicator that the proportional hazards assumption holds. Figure C.1 confirms that the proportional hazard assumption for FAM has not been violated.

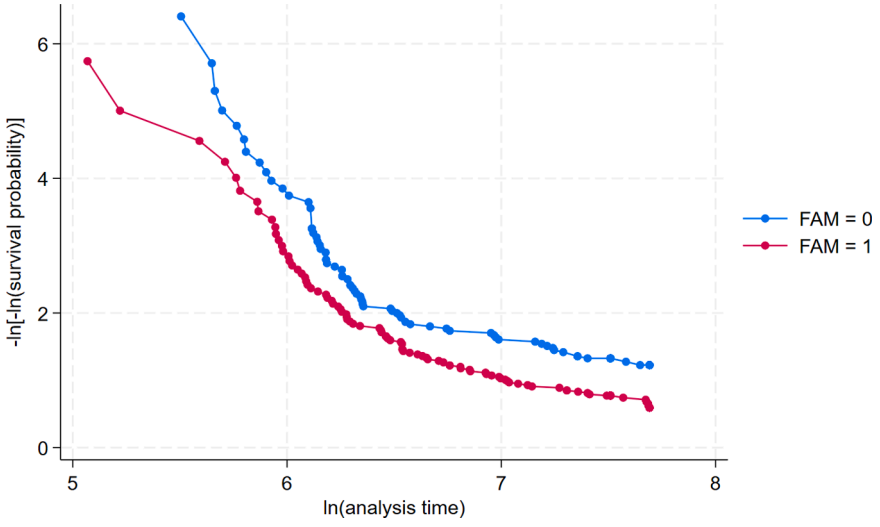

Figure C.1.

Finally, we compare the observed Kaplan-Meier curves with those predicted by the Cox model. A close alignment between these curves, as shown in Figure C.2, confirms that the proportional hazard assumption is satisfied.

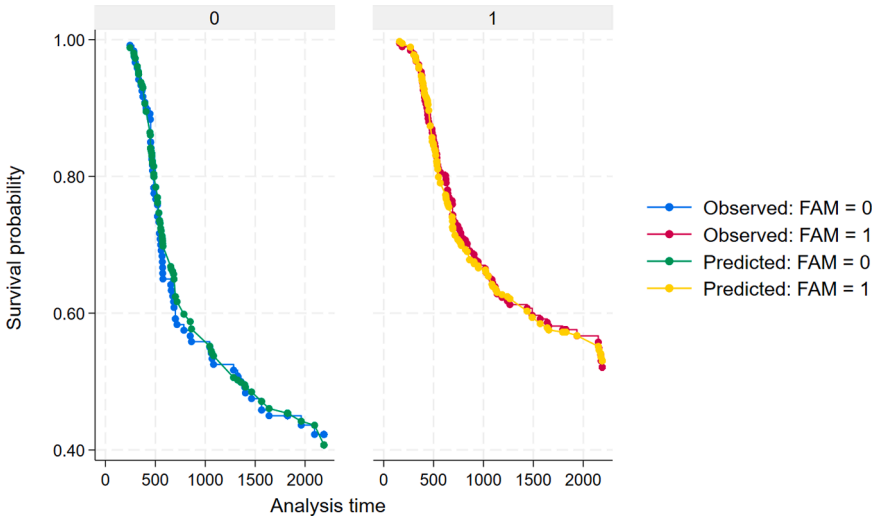

Figure C.2.

Table C.1
Test of proportional-hazards assumption. For the purposes of simplicity and clarity, the table does not report the sectoral and geographical fixed effects included in the model. However, these effects were taken into consideration during the estimation process.

	rho	chi2	df	Prob>chi2
FAM	−0.003	0.000	1	0.973
PRODUCTIVITY	0.064	0.800	1	0.373
SIZE	0.213	6.770	1	0.009
DE	−0.002	0.000	1	0.982
CUR_INDEX	0.070	0.740	1	0.388
EQU_POS	0.066	0.840	1	0.358
AGE	0.126	2.630	1	0.105
RURAL	−0.096	1.570	1	0.210
%BOARD_F	−0.124	2.490	1	0.115
ST_AUD	−0.038	0.230	1	0.628
BOARD_SIZE	−0.065	0.520	1	0.470
DEBT_SHORT	0.035	0.390	1	0.531
Global test		**30.77**	**25**	**0.1968**

Appendix D

Figure D.1 shows the kernel density distributions for family and non-family firms. In the post-matched sample, the distributions are nearly identical, thus confirming the effectiveness of the matching process.

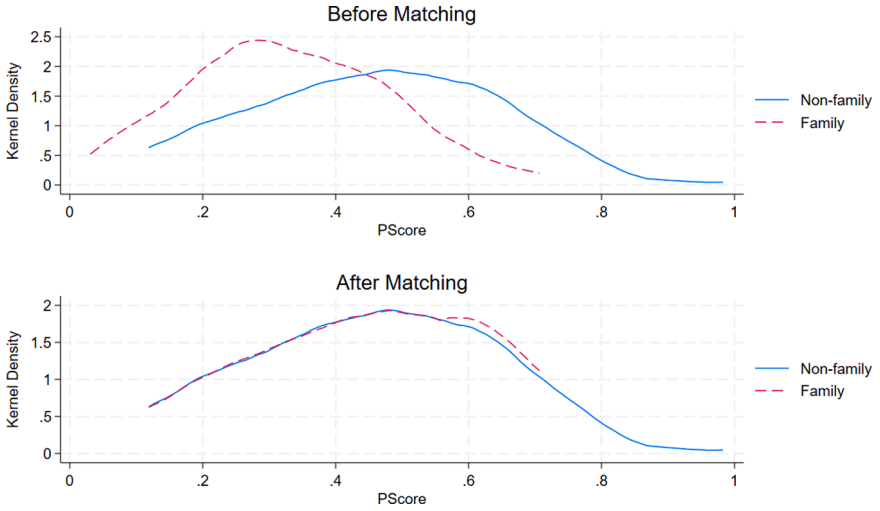

Figure D.1.

Table D.1 reports the *t*-test results for the covariates before and after matching process. In the matched sample, there are no statistically significant differences between family and non-family firms.

Table D.1
T-tests for the covariates before and after matching. The covariates means for non-family firms (the treated group) differ slightly from those reported in Table 4, as a result of the exclusion of five non-family firms from the matching process due to the absence of any corresponding family firm in the same industry.

	Mean			T-test	
Variable	Treated	Control	%bias	t	p > t
PRODUCTIVITY					
Unmatched	0.096	−0.067	12.300	1.200	0.232
Matched	0.096	−0.045	10.700	0.810	0.417
SIZE					
Unmatched	8.517	8.546	−2.000	−0.180	0.861
Matched	8.517	8.195	22.500	1.620	0.106
DE					
Unmatched	−2.701	−1.260	−10.000	−0.910	0.362
Matched	−2.701	−1.131	−10.900	−0.840	0.402
CUR_INDEX					
Unmatched	0.604	0.733	−18.300	−1.460	0.145
Matched	0.604	0.683	−11.300	−1.010	0.315
EQU_POS					
Unmatched	0.104	0.152	−14.200	−1.180	0.239
Matched	0.104	0.157	−15.600	−1.170	0.242
AGE					
Unmatched	24.496	30.010	−33.000	−2.900	0.004
Matched	24.496	25.148	−3.900	−0.310	0.759
RURAL					
Unmatched	0.104	0.215	−30.400	−2.490	0.013
Matched	0.104	0.096	2.400	0.220	0.827
%BOARD_F					
Unmatched	0.089	0.159	−28.700	−2.360	0.019
Matched	0.089	0.049	16.200	1.610	0.109
ST_AUD					
Unmatched	0.565	0.639	−15.000	−1.280	0.203
Matched	0.565	0.522	8.900	0.660	0.510
BOARD_SIZE					
Unmatched	1.400	1.330	7.900	0.680	0.498
Matched	1.400	1.330	7.800	0.570	0.567
DEBT_SHORT					
Unmatched	31.635	37.198	−5.300	−0.430	0.666
Matched	31.635	27.393	4.100	0.350	0.726

Data availability

Data will be made available on request.

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