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Article — Published Version

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Journal of Small Business Management

Suggested Citation: Theisen, Michelle; Isaak, Andrew; Lutz, Eva (2025) : Organizational homophily of family firms: The case of family corporate venture capital, Journal of Small Business Management, ISSN 1540-627X, Taylor & Francis, London, Vol. 63, Iss. 2, pp. 719-756, <https://doi.org/10.1080/00472778.2024.2349532>

This Version is available at:

<https://hdl.handle.net/10419/329768>

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To cite this article: Michelle Theisen, Andrew Isaak & Eva Lutz (2025) Organizational homophily of family firms: The case of family corporate venture capital, Journal of Small Business Management, 63:2, 719-756, DOI: [10.1080/00472778.2024.2349532](https://doi.org/10.1080/00472778.2024.2349532)

To link to this article: <https://doi.org/10.1080/00472778.2024.2349532>



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Organizational homophily of family firms: The case of family corporate venture capital

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ABSTRACT

Through the lens of organizational homophily, our study analyzes the network behavior of family firms in the high-risk context of family corporate venture capital (CVC). Specifically, we examine family corporate venture capitalists’ patterns in syndicate partner relationships using a global sample of 3,130 coinvestments from 2007 to 2022. We find that family corporate venture capitalists are more likely than their nonfamily counterparts to coinvest with syndicate partners who possess a similar wealth of experience in terms of overall investment experience, industry experience, and specialization. Family corporate venture capitalists follow the expected homophilic behavior of family firms when selecting nonfamily partners. This phenomenon is less pronounced in larger syndicates wherein individual syndicate partners may have less influence and there may be looser bonds between coinvestors. Our study contributes to research on family firms’ venturing and social capital as well as on CVC syndication.

KEYWORDS

Family firm; homophily; syndication; corporate venture capital; venture capital

Introduction

The sociological construct of homophily—the gravitation toward similarity—has long been a cornerstone in the understanding of interpersonal and organizational relationship dynamics (e.g., McPherson & Smith-Lovin, 1987; McPherson et al., 2001; Reagans et al., 2004). Homophily suggests that entities, whether individuals or organizations, tend to associate and bond with others who are similar to themselves (Ertug et al., 2022). This preference for similarity has previously been explored in the context of family firms, revealing the propensity of family firms to form partnerships with others who share similar characteristics (Ghinoi et al., 2023; Lamb et al., 2017). Such behaviors are driven by a desire to safeguard family-specific values and goals, including preserving reputation and status that have been cultivated over generations (Berrone et al., 2012; Chaudhary et al., 2021; Deephouse & Jaskiewicz, 2013; Santiago et al., 2019). Consequently, family firms place deep value on their social capital,

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fostering close, trusting relationships with similar family firms that share their vision and ethos (Miller et al., 2009; Sanchez-Ruiz et al., 2019; Zellweger et al., 2019).

However, the literature has yet to explore the extent and nuances of homophily behaviors when family firms venture beyond family-firm networks to engage with nonfamily entities. This gap in the literature is particularly relevant given the imperative for family firms to continuously innovate, not only to adapt to changing market conditions, but also to sustain growth over time. Without innovation, family firms risk losing their competitive edge and market relevance, which are essential for long-term survival (e.g., De Massis et al., 2016). The pressure to innovate often leads them toward external venturing through corporate venture capital (CVC) initiatives as potential means of strategic renewal (Agarwal & Helfat, 2009; Benson & Ziedonis, 2009; Ernst et al., 2005; Marra et al., 2020). Family-firm involvement in technology-oriented CVC deals is particularly significant, with approximately one-third of such transactions in the United States involving a family firm (Amore et al., 2023; Duran & Mingo, 2022). In this context, family firms frequently engage with nonfamily entities, both by investing in start-ups outside their traditional networks and by partnering with nonfamily investors to execute these investments. For example, based on the findings of explorative qualitative interviews, scholars have theorized that shared market experiences and, therefore, similarities play an important role in the attractiveness of start-ups as investment targets for family firms (Schickinger et al., 2022).

The dynamics of homophilic behaviors in CVC networks, especially in syndicates, are less understood. Family firms encounter several challenges when engaging in venture capital (VC), not only in managing high-risk strategic investments, but also in aligning said investments with their long-term financial stability and family-oriented objectives. Their aim to protect their family legacy and reputation may not be in line, for instance, with the financial-return-maximization motives of high-risk VC investments (Park et al., 2019). Hereby, syndication, or investing jointly with partners, is not just a strategic option but a cornerstone of the family-firm investment approach as 92% of deals involving family corporate venture capitalists are syndicated (Amore et al., 2023). This reliance on syndication highlights its critical importance for family corporate venture capitalists as a pivotal mechanism for diversifying and mitigating risks by participating in a broader array of VC deals with smaller individual commitments and leveraging the collective strengths and resources of coinvestors (Casamatta & Haritchabalet, 2007; Cumming, 2006; Ter Wal et al., 2016).

However, syndication also introduces further complexities into VC investments, including the potential for divergent objectives among investors (e.g., Park et al., 2019). Family firms must navigate these circumstances with three-fold objectives for their VC investments: financial, strategic, and family-specific returns. Selecting partners through a homophilic lens may help

preserve these multifaceted goals, particularly when forming relationships with nonfamily coinvestors, where clashes of differing motives may otherwise arise (Amore et al., 2023; Duran & Mingo, 2022). Homophilic behavior could present a powerful explanatory mechanism in this setting. This backdrop underscores a relevant gap in our understanding of how family firms navigate coinvestment partnerships within the CVC landscape, particularly in light of their unique blend of goals. We focus on collaboration between family and nonfamily firms to uncover whether and how family firms demonstrate homophilic behaviors in nonfamily-partner selection. In particular, we seek to understand the influence of similar experiences and specializations on coinvestor selection by family corporate venture capitalists in the context of large and small VC syndicates.

Based on a global sample of 3,130 coinvestments among corporate venture capitalists and their investment partners covering a 15-year period from 2007 to 2022, and a detailed data set of family firms from 46 capital markets, we investigate whether and how similarities in investment experience, industry experience, and specialization drive syndicate formation in family CVC deals and how the size of the syndicate impacts these relationships. Our findings suggest that family corporate venture capitalists pursue a homophilic coinvestment approach. In line with the homophilic behavior of family firms (Ghinoi et al., 2023; Lamb et al., 2017), they invest with coinvestors who have a similar wealth of knowledge in terms of investment experience, industry experience, and specialization. In so doing, family corporate venture capitalists take advantage of partner similarity to reduce the risks embedded in VC syndication and avert threats to their family-firm-specific goals (Chaudhary et al., 2021; Deephouse & Jaskiewicz, 2013; Sirmon & Hitt, 2003). We find dampened effects with larger syndicates, which are generally associated with more anonymous cooperation, less close relationships, and a tendency toward lower (financial) participation by individual syndicate partners (Kaplan & Strömberg, 2004; Park et al., 2019; Sorenson & Stuart, 2008). Partner similarity seems to be less important in larger syndicates, even for risk-averse family corporate venture capitalists (Block et al., 2019; Fang et al., 2021; Kempers et al., 2019). The extent of the homophilic behavior of family corporate venture capitalists in syndicate partner selection is therefore contingent on syndicate size.

By examining the composition of syndicates with family CVC participation through the lens of organizational homophily, we extend research not only on corporate venturing but also on social capital and network behavior of family firms (Minola et al., 2021; Sanchez-Ruiz et al., 2019; Zellweger et al., 2019). We further contribute to the literature on syndication networks of corporate venture capitalists by analyzing the influence of family ownership on relationships in syndication deals (Anokhin et al., 2011; Braune et al., 2021; Keil et al., 2010; Souitaris & Zerbinati, 2014).

Theoretical background

Homophily can be defined as a preference for someone who is similar to oneself over someone who is not (McPherson et al., 2001). In other words, similarity increases the probability of relationship formation and maintenance (Ertug et al., 2022; McPherson et al., 2001). This could be due to evolutionary reasons such as conflict avoidance as a strategy for human survival in a highly uncertain world. Connections with similar parties are often stronger than those with dissimilar parties and exert corresponding influence on the parties involved, such as by influencing circulated information (Lawrence & Shah, 2020; McPherson et al., 2001).

The social phenomenon of homophily has been documented in various contexts at both the individual and small-group levels, for example, regarding ascribed and achieved personal characteristics (e.g., age, gender, personality, national culture, or family orientation) in business and nonbusiness contexts (Ertug et al., 2018, 2022; Greenberg & Mollick, 2017; Lee et al., 2014; Parker, 2009; Reagans et al., 2004). Homophily on an organizational level—that is as both an intraorganizational and interorganizational context—has also attracted the attention of scholars (Collet & Philippe, 2014; Franke et al., 2006; Kleinbaum et al., 2013; Knoblen et al., 2019; Luo & Deng, 2009; Schickinger et al., 2022; Wholey & Huonker, 1993). Figure 1 places the focus of our study within the research on homophily.

In the context of family firms, or organizations characterized by family ownership/management and corresponding values and goals (Miller et al., 2007), there exist just a few studies on homophily, such as on employee perceptions of perceived homophily in family firms (Carmon et al., 2010). Although we know that family firms tend to include other family firms in their networks (Ghinoi et al., 2023) and prefer homogenization and homophily (Lamb et al., 2017), little is known about whether family firms show distinct patterns of interorganizational similarities when partnering with nonfamily firms.

Family firms place great value on building strong, reciprocal relationships with stakeholders and business partners of all kinds (Berrone et al., 2012; Miller et al., 2009). Previous research has revealed different facets of the so-called social capital of family firms at the family, intraorganizational, and interorganizational levels (Arregle et al., 2007; Zahra, 2010). Because of their high engagement to maintain positive social relationships, family firms can often derive unique social-capital benefits from these networks that can constitute a competitive advantage for family firms (Zahra, 2010).

The relationships underlying the social capital of family firms are usually built on reciprocal trust, which involves making oneself vulnerable to the other party over time (Arregle et al., 2007; Mayer et al., 1995; Rotter, 1971; Zucker, 1986). In facilitating interaction, coordination, and decision-making

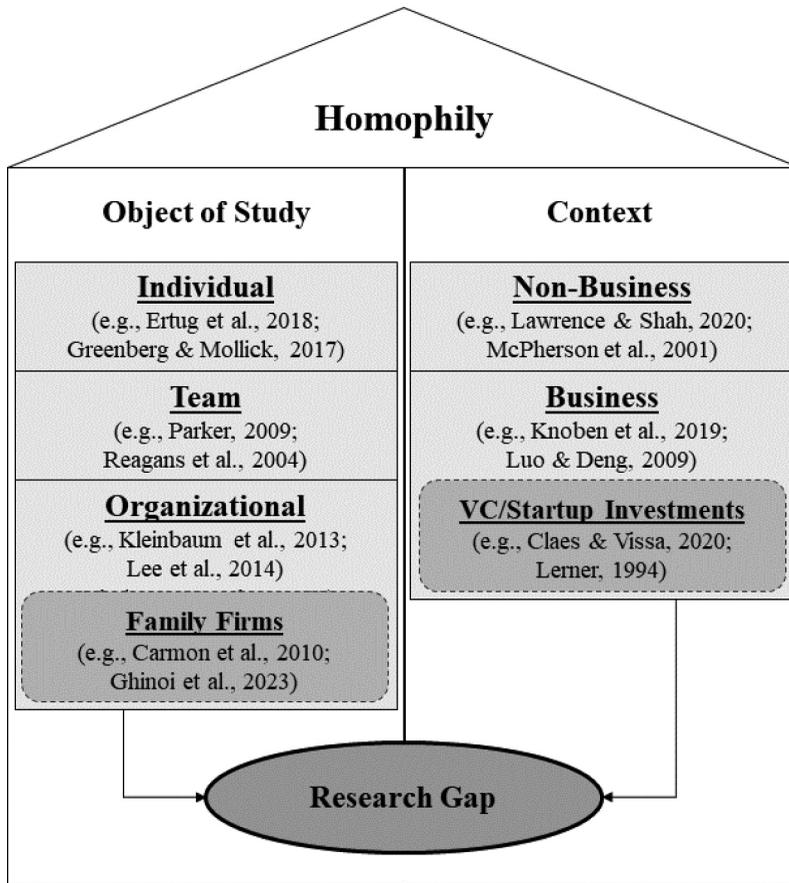


Figure 1. Research gap in the context of literature in the field of homophily research.

(Chaudhary et al., 2021), trust may serve as a remedy to risks and potential conflicts family firms face in uncertain situations, such as integrating new partners into their networks (Ingram & Morris, 2007; Powell et al., 2005; Rivera et al., 2010; Rosenkopf & Padula, 2008). Reputation, built by strong network ties, is essential for the development of trust and has been found to play a key role for family firms’ competitive advantages (Deephouse & Jaskiewicz, 2013; Morgan & Hunt, 1994; Santiago et al., 2019). Trustworthy partners are particularly important for family firms, as they will follow family-specific goals, such as the protection of both the family and the firm’s reputation and status (built) over generations (Baum et al., 2005; Chaudhary et al., 2021).

Family firms typically pursue both the long-term survival of their business and the preservation of their family legacy, meaning they must remain competitive without compromising their values (Istipliler et al., 2023; Jaskiewicz et al., 2015; Miller et al., 2003; Zellweger et al., 2012). A key way a family firm can keep and expand its competitive advantage is to stay at the forefront of

innovation (De Massis et al., 2016). CVC can be a tool for family firms to gain access to innovations developed by ventures (e.g., pioneering technology) and, ultimately, leverage this competitive advantage through cooperation or even by integrating a start-up into the family firm (Basu et al., 2016; Dushnitsky & Lenox, 2006). We define a family corporate venture capitalist as the investment unit within a family firm that finances start-ups by acquiring equity stakes, typically operating through a captive CVC fund owned by the family.

In CVC, companies with a nonfinancial core business that consider nonfinancial aspects such as strategic returns (e.g., through the internalization of external innovation) in addition to financial motives (Dushnitsky & Lavie, 2010; Gompers & Lerner, 2000) provide VC to start-ups. Family corporate venture capitalists are likely to pursue a third type of return: a return specific to the family's financial and nonfinancial wealth. Studies on technology-focused corporate venture capitalists in the United States suggest that both family investors and their investment targets benefit from such collaborations and the consideration of this additional return component (Amore et al., 2023; Duran & Mingo, 2022). CVC investors not only are given a window into new technologies developed by start-ups and early access to partnerships through which synergies can potentially be leveraged in the future but also experience a significant increase in their innovation capabilities and firm values (Basu et al., 2016; Benson & Ziedonis, 2009; Dushnitsky & Lenox, 2006). Investing as a corporate venture capitalist may be an attractive option for family firms that aim for continuous growth (Dushnitsky & Lenox, 2005, 2006).

However, CVC investments pose a risk to the parent company (in this case, to the family firm), as VC in general is characterized by exceptionally high risk (Cumming, 2006). Failure rates are high, with only 10 percent of VC investments yielding high returns (i.e., more than five times the capital invested) and 60 percent failing to render any return (Kerr et al., 2014). In addition, failed CVC investments can lead to an exploitation of support services from the parent company and brand equity damage (Alvarez-Garrido & Dushnitsky, 2016; Cumming, 2006; Kerr et al., 2014; Sageder et al., 2018). This high-risk profile may make start-ups relatively unattractive investment targets for risk-averse family firms at first glance (Block, 2012; Kempers et al., 2019). However, risk-reducing activities such as intense due diligence before investing in a start-up and monitoring and support postinvestment can help mitigate these hazards (Lerner, 1994; Meuleman et al., 2009). Syndication can also reduce risk as the investment amount is shared, allowing for more diversification at the fund level (Cumming, 2006). By increasing the pool of venture capitalists involved in a particular deal, syndication also increases both the financial and nonfinancial resources available (Casamatta & Haritchabalet, 2007; Ter Wal et al., 2016).

Although CVC coinvestors might pursue divergent goals, CVC investors can offer help beyond financial support with their experience, networks, and

knowledge, providing assistance in industry-specific or managerial matters (Alvarez-Garrido & Dushnitsky, 2016; Gutmann et al., 2019; Keil et al., 2010; Sapienza, 1992). CVC investors are able to assist other investors with the time-consuming hands-on support of the portfolio company (Anokhin et al., 2022).

For family corporate venture capitalists, syndication represents a double-edged sword. On the one hand, syndication spreads and reduces the risk of an investment, bringing it into an acceptable range for the family firm (Fang et al., 2021; Meuleman et al., 2009). We expect that investment syndication is of particular interest to family corporate venture capitalists, as it reduces both the necessary capital commitment and the potential fallout if the venture fails and accommodates the desire of family firms to build binding, reciprocal relationships with syndicate partners (Meuleman et al., 2009; Miller et al., 2009; Nguyen & Vu, 2021; Tian & Wang, 2014). Moreover, syndicated investments have a higher probability of a successful exit, via either trade sales or initial public offerings (IPOs), reducing the risk of financial and reputational loss to the family firm (Bertoni & Groh, 2014; Cumming et al., 2016; Giot & Schwienbacher, 2007).

On the other hand, as family firms are usually characterized by the high financial and emotional interconnection of the family (e.g., blood relatives/kinship ties, see e.g., Herrero et al., 2022; Kim & Marler, 2022) and the business, dependence on others in a VC syndicate can be seen as a threat to family control (Chua et al., 1999). Syndication forces family firms to share their deal flow if they are to benefit from partners' resources, and they may risk falling into asymmetrical dependence with their coinvestors (Casciaro & Piskorski, 2005; Hillman et al., 2009). The elimination of such negative consequences through contracts is not necessarily cost-efficient or entirely feasible in practice (Wright & Lockett, 2003). Family corporate venture capitalists may therefore pay more attention to signs of reliability and trustworthiness than nonfamily investors and exert homophily when selecting coinvestors, especially in smaller syndicates with higher interconnection between partners (Lerner, 1994). Homophily is known to increase trust (Leonhardt et al., 2020; Robson et al., 2008), an important component that family firms seek out in their relationships to protect their values and goal attainment (Chaudhary et al., 2021). Thus, the concept of homophily brings together the phenomenon of family firms' long-term preservation of their existing wealth with their participation in high-risk VC deals, finding an acceptable balance between their inherent avoidance of large risks and the high potential for long-term success brought by insights into innovative ventures (De Massis et al., 2016; Fang et al., 2021).

Hypotheses development

Organizational homophily in family CVC investments

The similarity that guides homophily can emerge from a variety of sources, such as similar ascribed or achieved personal characteristics, associated values,

or simply being in the same situation (Ertug et al., 2022). Similar experience is a pronounced component of homophily known to lead to the formation of relationships, not only on an individual level, but also on an organizational level in a business context (Lerner, 1994; Sorenson & Stuart, 2001). Having similar past experiences—that is, having been confronted with similar obstacles and forced to find solutions for these challenges—suggests entities have operated in a similar space and manner and have thereby built a similar bundle of information (Sorenson & Stuart, 2001). These experiences may shape similar attitudes and beliefs, which in turn increase the likelihood of similar interests, goals, and behavior (Ertug et al., 2022), leading to a more likely cooperation and stronger connection (McPherson et al., 2001). This temporal concatenation of similarity may, however, vary in strength among different objects of study and contexts (Ertug et al., 2022).

While most firms care primarily about profit maximization, family firms have the additional motive of maintaining the family's financial and nonfinancial wealth and legacy (Istipliler et al., 2023; Jaskiewicz et al., 2015; Miller et al., 2003; Zellweger et al., 2012). In other words, family firms are known for caring about their employees and future leadership generations, which often comprise family heirs (Jaskiewicz et al., 2015; Lee, 2006). Accordingly, family firms have been found to place particular value on homophily and homogenization in their networks (Ghinoi et al., 2023; Lamb et al., 2017), and they are likely to have specific motives to aim for similarity in cooperation. As family and firm are usually highly intertwined, putting the reputation and status of the family firm built over generations at risk becomes personal (Arregle et al., 2007; Deephouse & Jaskiewicz, 2013; Gómez-Mejía et al., 2007; Santiago et al., 2019; Zellweger et al., 2013). To reduce such risks, it is particularly crucial for family firms that their partners align with their values and respect their goals—both of which are more likely with similar experiences (Chaudhary et al., 2021). Moreover, homophily increases trust, especially in newly built relationships, which can facilitate interaction, coordination, and decision-making (Leonhardt et al., 2020; Levin et al., 2006; Robson et al., 2008). Trust may serve as a remedy to risks and potential conflicts, hence the importance of trust in relationships built with family firms (Ingram & Morris, 2007; Powell et al., 2005; Rivera et al., 2010; Rosenkopf & Padula, 2008).

From the perspective of risk-averse family firms (Block, 2012; Kempers et al., 2019), the need for trust-based relationships may be even more pronounced in the context of high-risk investments in young, innovative ventures (Fang et al., 2021). Homophily has long been observed in these types of investments (Bygrave, 1987; Du, 2016; Hochberg et al., 2015). Prior research has highlighted vertical homophily between the investor and the investee (Claes & Vissa, 2020; Franke et al., 2006; Hegde & Tumlinson, 2014; Kim & Higgins, 2007; Schickinger et al., 2022). However, as most VC investments are

syndicated, homophily also plays a role at the horizontal level—that is, between coinvestors (Lerner, 1994; Sorenson & Stuart, 2001), which is the main subject of this study. Venture capitalists who have considerable experience themselves pay attention to similarity in experience when selecting syndicate partners for first-round investments, suggesting that similar experience is a risk mitigator in VC investments with enhanced risk (Lerner, 1994). Because syndicated deals involve time-consuming steps and hurdles that must be overcome (Wright & Lockett, 2003), having established practices in place from having gone through a similar number of deals leads to improved deal effectiveness (Chung et al., 2000). This increased probability that a deal will be carried out successfully makes investing with similarly experienced partners particularly attractive for risk-averse family corporate venture capitalists (Block, 2012; Kempers et al., 2019).

Overall, from a homophily lens, coinvesting with investors who have conducted a similar number of previous deals would be meeting on equal grounds in terms of general investment knowledge (Chung et al., 2000). We expect family corporate venture capitalists to exhibit a preference for deals with similarly experienced syndicate partners so as to minimize or avoid additional risks (Fang et al., 2021) and fulfill their desire for trusting, long-term relationships (Chaudhary et al., 2021). Accordingly, we hypothesize the following:

Hypothesis (1a): Family corporate venture capitalists are more likely to participate in investments with coinvestors with similar investment experience.

While a similar level of general investment experience can increase the attractiveness of potential coinvestors to relatively risk-averse family corporate venture capitalists who want to safeguard their underlying family legacy for future generations (Istipliler et al., 2023; Jaskiewicz et al., 2015; Miller et al., 2003; Zellweger et al., 2012), having similar industry investment experience, even if not in the current focal industry, should also be a relevant factor for syndicate formation involving family corporate venture capitalists (Intihar & Pollack, 2012).

The requirements of VC investments differ across industries on a number of dimensions. In the case of biotech and pharma, such as in standardized clinical trials that may never reach beyond the initial phases, the time horizon is often long and a relatively large initial cash infusion is needed (Hopp & Rieder, 2011; Rossi et al., 2011). Considering the example of BioNTech, a producer of a widely used COVID-19 vaccine, such investments can be lucrative if they succeed (BioNTech, 2024). The specialized knowledge involved in biotech development is almost immeasurable; however, it requires the involvement of leading scientists around the world and investors must be

well versed in associated technologies and lingo (Baum & Silverman, 2004). In contrast to biotech, the artificial intelligence industry is fast paced, with start-ups emerging within months after algorithms are developed (Bessen et al., 2022). To mitigate potential conflicts arising from differences in industry practices, which could detrimentally impact the family firm's image and reputation, family corporate venture capitalists are likely to favor coinvestors with similar industry experience who are more inclined to assess situations in a similar manner and come to the same conclusions (Chaudhary et al., 2021; Ertug et al., 2022).

Not only do industries differ starkly, but increasing industry exposure leads investors to accumulate industry-specific social capital—that is, both strong and weak social ties in the focal industry (Sorenson & Stuart, 2001). From a homophily perspective, coinvestors who have previously invested in the same industry are more likely to share common networks through which a trustful relationship already exists that can influence the perception of new contacts (Sorenson & Stuart, 2001). Family-backed investors who are risk averse and known to favor binding, trusting relationships may particularly rely on these connections when they need to find new investment partners (Berrone et al., 2012; Sanchez-Ruiz et al., 2019; Zellweger et al., 2019).

Having similar industry investment experience, not only suggests that co-investors have gone through similar challenges, for example, in the form of industry-specific crises, but also increases the perceived similarity with the investment partner. The family firm and the investment partner are more likely to have overlapping social networks and similar degrees of accumulated social capital in the relevant industry, reducing the risks associated with syndicated deals and increasing their attractiveness to family corporate venture capitalists (Lerner, 1994; Sorenson & Stuart, 2001). This equal footing further forms a foundation for trust (Kim, 2015) that not only facilitates syndication formation and the deal process but also addresses family-specific investment and association criteria (Arregle et al., 2007; Bottazzi et al., 2016; Chaudhary et al., 2021). As a result, when coinvesting in start-ups, homophilic family corporate venture capitalists may prefer investment partners with similar industry exposure through investments. Therefore, we contend:

Hypothesis (1b): Family corporate venture capitalists are more likely to participate in investments with coinvestors with similar industry experience.

Similar specialization is another key component that can lead to homophily and preferred associations with coinvestors. In the context of family CVC, an emphasis on similar areas of specialization—that is, the degree of investment experience an investor has accumulated within a specific industry relative to their total portfolio of investments—may reflect a strategic alignment of

expertise with coinvestors in a syndicate, creating the impression that similar values and goals are being pursued (Miller et al., 2013). Research on homophily has shown that similar levels of specialization within a field can foster trust between syndicate partners (Aharonson et al., 2007; Ertug et al., 2022), which is an important component in relationship building for family-firm investors (Arregle et al., 2007; Chaudhary et al., 2021). Homophily also plays a role in coordination in collaborative partnerships (Calanni et al., 2015).

Family firms are proud of and seek to maintain their long-term legacies, which are often deeply embedded in a particular industry and result from specialization spanning several generations (Jaskiewicz et al., 2015). Family CVC (seen as an extended arm of the family) can benefit from this specialization history and the associated knowledge and connections (Alvarez-Garrido & Dushnitsky, 2016; Arregle et al., 2007). These factors can reinforce the likelihood of family corporate venture capitalists investing with coinvestors with similarly specialized investment portfolios. Hence, we posit:

Hypothesis (1c): Family corporate venture capitalists are more likely to participate in investments with coinvestors with a similar specialization.

Impact of syndicate size on organizational homophily in family CVC investments

The similarity of experience and specialization among venture capitalists (Casamatta & Haritchabalet, 2007), as well as the associated homophilic behavior in coming together to invest (Lerner, 1994), may be contingent on the size of the syndicate. In expanding a syndicate, lead investors usually aim to make use of a broader network and favor heterogeneity over homogeneity to sustain ongoing development (Du, 2016; Hochberg et al., 2007; Manigart et al., 2006; Nguyen & Vu, 2021). While complementary skills in syndicates can lead to better performance (Brander et al., 2002; Dimov & De Clercq, 2006; Giot & Schwienbacher, 2007), increased syndicate size comes at a price (Jääskeläinen, 2012). There is greater need for coordination and potential for conflict within the syndicate (Ma et al., 2013), something that family corporate venture capitalists in particular will seek to avoid due to stronger reputational concerns (Deephouse & Jaskiewicz, 2013; Santiago et al., 2019). In addition, as coinvestors have relatively less at stake in larger syndicates, they might choose to benefit from the advantages of a deal without putting in effort to support or monitor the start-up (Dimov & De Clercq, 2006; Kaplan & Strömberg, 2004; Wright & Lockett, 2003).

In all contexts, larger syndicates are characterized by less interaction between syndicate partners (Kim & Park, 2021; Wright & Lockett, 2003; Zhang et al., 2017). Board seats, for instance, are usually given to the lead

investor and two additional coinvestors. In larger syndicates, many coinvestors will not have a seat on the board and will hence have less contact with the other investors; as the coordinator, the lead investor is the primary contact for individual coinvestors (Park et al., 2019). Therefore, other trust-building factors, such as the reputation of the lead investor (Nahata, 2008; Plagmann & Lutz, 2019a, 2019b), might be more important for family corporate venture capitalists than coinvestor similarity. More-reputable venture capitalists are better at attracting other investors, which may in turn mean that larger syndicates are indicative of reputable coinvestors (Krishnan et al., 2011). Moreover, in larger syndicates, family investors are asked to provide relatively less equity and are, thus, less exposed to loss as they are less dependent on their coinvestors (De Clercq et al., 2008; Kaplan & Strömberg, 2004).

In smaller syndicates, where individual parties hold more sway and there are strong, often personal, relationships (Bygrave, 1987; Sorenson & Stuart, 2001; Zhang et al., 2017), the similarity of syndicate partners is important for risk-averse family corporate venture capitalists. With a large number of syndicate partners, the potential for disagreement and conflict rises, and the influence of an individual investor declines (Kaplan & Strömberg, 2004). Because family firms want to protect their legacy, reputation, and operations over the long term (Chaudhary et al., 2021; Istiqliler et al., 2023; Jaskiewicz et al., 2015; Miller et al., 2003; Zellweger et al., 2012), the possibility of exerting influence within a syndicate is likely important, implying that family corporate venture capitalists will prefer smaller syndicates.

The significance of homophily in the role of similar general investment experience as a predictor of investment participation is expected to be heightened in smaller syndicates. In these confined settings, each coinvestor's contribution becomes comparatively more pivotal to the collective decision-making process (Bellavitis et al., 2020; Zhang et al., 2017). Family corporate venture capitalists are likely to place a premium on similar general investment experience in such environments as it fosters a sense of alignment and mutual understanding among syndicate members. Conversely, in larger investor syndicates, the abundance of general investment knowledge is distributed across numerous coinvestors and diminishes the relative importance of homophilic investment experience (Ferrary, 2010). When there is a greater diversity of expertise within the syndicate, the influence of similar investment experience on investment likelihood is expected to weaken. Consequently, we contend:

Hypothesis (2a): Syndicate size negatively moderates the relationship between similar investment experience and the likelihood of investment participation by a family corporate venture capitalist such that this relationship becomes less positive with increasing syndicate size.

Within smaller syndicates, the relationship between similar industry experience and the likelihood of investment participation by family corporate venture capitalists is likely stronger than in larger syndicates. In the more compact setting of a small syndicate, family corporate venture capitalists might be more focused on engaging with other coinvestors that share similar industry experience. Family corporate venture capitalists, driven not solely by financial motivation but also by a commitment to contribute to the growth of their industry and to nurturing their family legacy (Jaskiewicz et al., 2015; Miller et al., 2013), are likely to prioritize coinvestors who possess similar industry experience. In larger syndicates, as the anonymity between coinvestors increases (Kim & Park, 2021; Wright & Lockett, 2003; Zhang et al., 2017), industry-specific exchange and network building might be less relevant for family corporate venture capitalists as the investments are viewed primarily from a financial perspective (Sorenson & Stuart, 2008; Wright & Lockett, 2003). Therefore, we posit:

Hypothesis (2b): Syndicate size negatively moderates the relationship between similar industry experience and the likelihood of investment participation by a family corporate venture capitalist such that this relationship becomes less positive with increasing syndicate size.

In smaller syndicates, family corporate venture capitalists are also expected to place heightened emphasis on homophily in terms of specialization. The interactions within smaller syndicates are more closely knit, and family corporate venture capitalists are likely to value similar levels of specialization more than in the more anonymous setting of large syndicates (Kim & Park, 2021; Wright & Lockett, 2003; Zhang et al., 2017). As active investors in small syndicates, family corporate venture capitalists aim to have partners at their side who are equal specialists in their field to ensure strategic alignment in terms of values and goals (Miller et al., 2013) and to minimize the risk of being exploited (Wright & Lockett, 2003), which is less important when the interdependence is lower, as in larger syndicates. Hence, we hypothesize:

Hypothesis (2c): Syndicate size negatively moderates the relationship between similar specialization and the likelihood of investment participation by a family corporate venture capitalist such that this relationship becomes less positive with increasing syndicate size.

Research model

Figure 2 illustrates our research model.

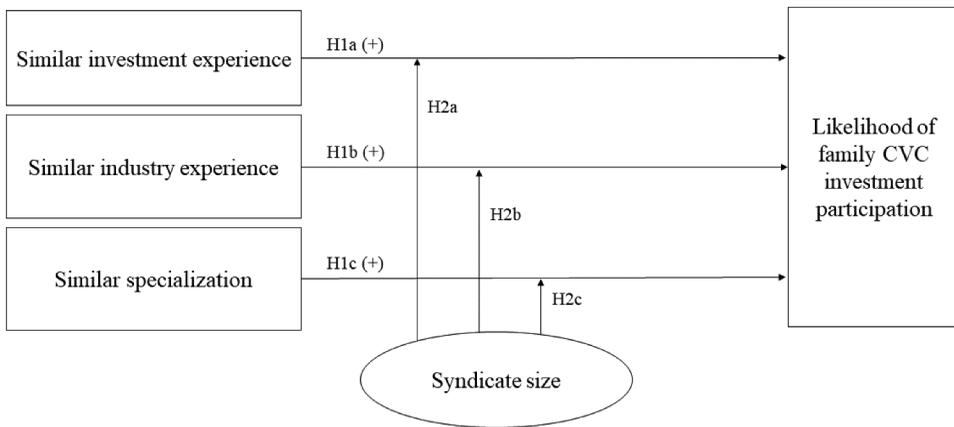


Figure 2. Research model illustrating the relationships studied.

Methods

Empirical strategy

To answer our research question, we employed a quantitative methodology based on multivariate regression analysis. Since we examined the likelihood of family corporate venture capitalists' investment participation, a binary dependent variable, we utilized logit regression with robust standard errors to resolve concerns regarding the influence of heteroskedasticity (Davidson & MacKinnon, 1984; Wooldridge, 2020). The variance inflation factors of all variables (excluding the individual dummies for venture industry, venture country, and CVC country) are below 2.5 in each model, as recommended by Allison (2012). Moreover, we found only four correlations between variables in the same model above 0.4, with the highest correlation between similar investment experience and nonfamily CVC in deal taking on a value of 0.490 (Table 3). Therefore, we do not expect multicollinearity to be an issue in our models.

Data and sample

Our study is based on data from the Private Equity Module of the London Stock Exchange Group (formerly Refinitiv Eikon), which is widely used in VC research (Amore et al., 2023; Tykiová & Schertler, 2014). It contains detailed information on global VC transactions and the participating parties. We retrieved data on national and multinational deals, covering a 15-year period from 2007 to 2022, resulting in a full data set of 262,509 investments by 25,179 investors in 131,561 companies. We then reduced this data set to include only investments in which at least one CVC investor participated. As we aimed to analyze start-up investments, we further filtered these data by the age of the

investment target, which we limited to a maximum of 10 years from the founding year until the investment round (Amore et al., 2023; Cumming et al., 2017).

We augmented the resulting data set with additional information on publicly listed family firms from the NRG Metrics Family Firms Dataset (NRG Metrics, 2023), which includes annual information on 30 variables related to the company, ownership, and management stemming from annual reports, SEC filings, corporate governance reports, firm presentations, and press releases. The family firms in the NRG Metrics Family Firms Dataset are identified as such using definitions based on family ownership and board involvement found in most cited papers (e.g., Miller et al., 2007; Villalonga & Amit, 2006). NRG Metrics's data has been used in recent studies on family firms (Davila et al., 2023; Gómez-Mejía et al., 2023; Miroshnychenko et al., 2021, 2023; Pinelli et al., 2023) and family CVC in particular (Duran & Mingo, 2022). Through this approach, we were able to identify 91 different family corporate venture capitalists.

To define a family firm, we aligned with one of the definitions by NRG Metrics (Number 4), which stipulates that a family firm must either have at least 5 percent ownership by a family or have at least one member of the founding family actively serving on the board (e.g., Miller et al., 2007; Villalonga & Amit, 2006). CVC is a viable option for firms only when they have reached a critical size necessary to implement this form of corporate venturing (Basu et al., 2011). By definition, companies with a VC unit are large entities, often publicly listed. The family ownership in these firms is, on average, significantly lower than in privately held companies, so it is not surprising that the family firms in our sample have an average family ownership share of only 3 percent. Consequently, we employ a broad definition of family firms for the purpose of our analysis.

To account for potential endogeneity in our analysis, we applied propensity score matching; that is, we created an artificial control group by matching each treated observation with a nontreated observation of similar characteristics (Abadie & Imbens, 2006; Zhang et al., 2022). To obtain comparable groups, we matched the two nearest neighbors based on three matching criteria: (1) the industry focus of the corporate venture capitalist, (2) the country in which the deal took place, and (3) the year of the transaction (Abadie & Imbens, 2006; Austin, 2010; Chemmanur et al., 2014; Chrisman & Patel, 2012; Cumming et al., 2016). We arrived at a final data set of 3,130 observations, including 1,095 observations of family CVC participation and 2,035 of nonfamily CVC participation.

While our study utilized a comprehensive data set of investors and deals for this population, a limitation of our data set is the number of identified family corporate venture capitalists. In our identification approach, we struck a balance between quantity and quality of the match by using family firms

contained in the NRG Metrics Family Firms Dataset and accounting for the limited number of identified family firms by nearest-neighbor matching and the inclusion of control variables. The use of the NRG Metrics database also limits our data set to between 2007 and 2022 as the database does not contain data before this time. With further development of the NRG Metrics database, both better separation of family and nonfamily corporate venture capitalists and observations over an extended period may be possible. Despite the inherent limitations, our identification approach also has some advantages—first, it is objective since an external party identified the family firms; second, the results can be easily compared to other studies that rely on the NRG Metrics Family Firms Dataset; and third, the use of this data set facilitates replication.

Measures

Dependent variable

The key dependent variable in our analysis is whether a family corporate venture capitalist participated in a syndicated investment. *Family CVC* is a binary variable that equals 1 for CVC investors included in the NRG Metrics Family Firms Dataset and 0 otherwise (Duran & Mingo, 2022; Gómez-Mejía et al., 2023; Miroshnychenko et al., 2021). We conducted matching based on the International Securities Identification Numbers (ISINs) of the investors retrieved from the London Stock Exchange Group database and the family firms in the NRG Metrics Family Firms Dataset.

We tested for differences in the matching results when controlling for both ISIN and year of information. Using this approach, we identified 82 family corporate venture capitalists. We then randomly checked the age of the affected family firms via internet research. Assuming that family involvement tends to decline over time and with greater firm size (e.g., Bammens et al., 2011; Howorth et al., 2004), we supposed the gradual development of the NRG Metrics database over the last years to be the reason for the deviation of nine family corporate venture capitalists. Thus, we conducted our analysis based on the 91 family corporate venture capitalists identified in the data set using the matching based on ISINs only.

Similarity variables

Our first independent variable is *similar investment experience*. We built a binary variable that equals 1 if the overall investment experience of the corporate venture capitalist matches the overall investment experience of the most experienced coinvestor within a 10 percent margin of deviation and 0 otherwise. The overall investment experience of each investor was calculated as the number of investments made by the investor on a 10-year rolling window (Gompers et al., 2008; Nörthemann, 2022). Because we assume the

overall investment experience of the most experienced coinvestor will influence the likelihood that both the overall investment experience of the corporate venture capitalist and that of the most experienced coinvestor are similar, we have included it as a control variable in our models.

Our second independent variable, *similar industry experience*, is a binary variable that equals 1 if the investment experience within the target industry of the corporate venture capitalist matches that of the most experienced coinvestor within a 10 percent margin of deviation and is otherwise 0. The investment experience of the investors within the industry of the target deal is calculated as the number of investments made by each investor within the industry on a 10-year rolling window (Gompers et al., 2008; Nörthemann, 2022). Because we assume the investment experience of the most experienced coinvestor within the target industry will influence the likelihood that both the investment experience within the target industry of the corporate venture capitalist and that of the most experienced coinvestor are similar, we have included it as a control variable in our models.

Our third independent variable is *similar specialization*. The corresponding binary variable equals 1 if the specialization degree of the corporate venture capitalist matches that of the most specialized coinvestor within a 10 percent margin of deviation and 0 otherwise. The degree of investor specialization is represented by a ratio that reflects the proportional experience of the investor within an industry measured against all of the investor's previous investments, calculated on a 10-year rolling window (Gompers et al., 2008; Nörthemann, 2022). The specialization ratio has a maximum value of 1 if all deals an investor has made can be assigned to the industry of the deal under consideration and a minimum value of 0 if the investor has no experience within the industry of the investigated deal (Nörthemann, 2022). As we were accordingly interested in the maximum degree of specialization in the syndicate partner network of a corporate venture capitalist, we have included the maximum specialization of the coinvestors of each corporate venture capitalist per deal as a control variable.

Finally, our moderating variable in these relationships is *syndicate size*. This metric variable counts the number of investors participating in each deal (Amore et al., 2023; Cumming et al., 2016; Lerner, 1994).

Further control variables

To reduce omitted variable bias, we included a vector of control variables on the investors, investments, and target ventures. First, we accounted for the age of the investing firms, as age is potentially associated with experience and VC network contacts, which can affect the corporate venture capitalist's coinvestment behavior (Basu et al., 2011; Colombo & Murtinu, 2017; Prügl & Spitzley, 2021). We also added a dummy variable to control for lone founder firms in our sample—that is, firms with no other parties than one founder (particularly

no relatives of the founder) involved in their founding because lone-founder firms may differ in their intentions and behavior from other (family) firms (Miller et al., 2007). Further, we checked for deals in which both a family corporate venture capitalist and a nonfamily corporate venture capitalist invested. Because the focal group and the control group are mixed in these deals, the hypothesized effects could otherwise be biased. We also consider the total disclosed sum of equity and debt in the deal, given that family corporate venture capitalists seem to prefer deals of larger size (Duran & Mingo, 2022). To account for deals that took place in a year affected by an economic downturn—such as the financial crisis years 2007 and 2008 or the COVID-19 pandemic years 2020 and 2021—we included a dummy variable for these exceptional years, as the associated differing market conditions might have influenced those deals (Miroshnychenko et al., 2021). We also added a dummy for cross-border deals in which the venture and the corporate venture capitalist do not have the same home country, as these investments come with additional risks (Bertoni & Groh, 2014; Cumming et al., 2016). Since start-ups are often based in larger cities for networking reasons (Colombelli, 2016; Stephens et al., 2019), we further controlled for whether the headquarters is located in a metropolis with at least one million inhabitants with a binary variable (1/0). We also accounted for the stage of the venture because the investment risk is known to increase for ventures in earlier stages (Cumming et al., 2016).

VC investments are more prevalent in some industries than others (Grilli & Murtinu, 2015). Therefore, we accounted for the venture industry using the Standard Industrial Classification (SIC) codes, available via the Private Equity Module of the London Stock Exchange Group, which we then assigned to the 10 broader SIC divisions. Finally, we integrated the home countries of the investment targets and the corporate venture capitalists into our models to account for country-specific effects such as the legal or institutional environment (Bottazzi et al., 2016; Li et al., 2014; Moore et al., 2015). Table 1 summarizes the variables used in our models; Table 2 provides descriptive statistics.

Results

Main results

We describe the results of our analyses in the order of our hypotheses (see Table 4).

The impact of our control variables on the likelihood of family corporate venture capitalist investment participation is tested in Model 1. We found significant influences for all of our control variables ($p < .10$) with the exception of crisis years, venture metropolis, and venture stage.

Table 1. Definition of variables.

Variable	Definition
<i>Dependent variable</i>	
Family CVC	A binary variable that equals 1 for corporate venture capitalists included in the NRG Metrics Family Firms Dataset and 0 otherwise, following for example Duran and Mingo (2022).
<i>Independent variables</i>	
Similar investment experience	A binary variable that equals 1 if the overall quantity of investment experience of the corporate venture capitalist matches that of the most experienced coinvestor within a 10 percent margin of deviation and 0 otherwise. For the calculation of investment experience, see <i>partner investment experience</i> .
Similar industry experience	A binary variable that equals 1 if the investment experience of the corporate venture capitalist within the target industry matches that of the most experienced coinvestor within a 10 percent margin of deviation and 0 otherwise. For the calculation of industry experience, see <i>partner industry experience</i> .
Similar specialization	A binary variable that equals 1 if the degree of specialization of the corporate venture capitalist matches that of the most specialized coinvestor within a 10 percent margin of deviation and 0 otherwise. For the calculation of specialization, see <i>partner specialization</i> .
<i>Moderator variable</i>	
Syndicate size	A metric variable counting the number of investors participating in each deal.
<i>Control variables</i>	
Partner investment experience	A metric variable of the number of investments made by the most experienced coinvestor, calculated on a 10-year rolling window.
Partner industry experience	A metric variable of the number of investments made by the most experienced coinvestor in the target industry, calculated on a 10-year rolling window.
Partner specialization	A ratio variable with a scale of 0 to 1 that reflects the proportional experience of the most experienced coinvestor within the present industry, measured against all previous investments of said coinvestor, calculated on a 10-year rolling window. We follow the methodology of Nörthemann (2022) in calculating the index.
CVC age (log)	A metric variable representing the log of 1 plus the number of years between the founding date of the corporate venture capitalist and the deal date.
Lone founder firm	A binary variable that equals 1 if the parent company was founded by a lone founder (i.e., no other parties than the founder were involved, particularly no relatives of the founder) and 0 otherwise.
Nonfamily CVC in deal	A binary variable that equals 1 if a family corporate venture capitalist and a nonfamily corporate venture capitalist have invested in the same deal and 0 otherwise.
Deal size (log)	A metric variable calculated as the log of 1 plus the disclosed sum of equity and debt of the deal at the deal date.
Crisis years	A binary variable that equals 1 if the deal took place in a year affected by an economic crisis (i.e., the financial crisis years 2007 and 2008 or the COVID-19 pandemic years 2020 and 2021) and 0 otherwise.
Cross-border	A binary variable that equals 1 if the target venture and CVC investor do not have the same home country and 0 otherwise.
Venture metropolis	A binary variable that equals 1 if the home city of the target venture is a metropolis (i.e., at least 1 million inhabitants) and 0 otherwise.
Venture stage	An ordinal variable that depicts the venture's stage at the deal date. It ranges from 1 to 4, with the following values: 1 (seed), 2 (early stage), 3 (later stage), and 4 (expansion).
Venture industry	A set of binary variables for each primary industry category in our data set. They equal 1 if the venture operates in that specific category and 0 otherwise. We used the SIC codes available via the Private Equity Module of the London Stock Exchange Group and assigned them to the 10 broader SIC divisions.
Venture country	A set of binary variables for the home country of each of the ventures in our sample.
CVC country	A set of binary variables for the home country of each of the CVC investors in our sample.

Note: This table displays the measurement of all variables used in our econometric models. To analyze the characteristics that impact the likelihood of a family corporate venture capitalist's investment participation, we used a binominal logit model.

As posited in Hypothesis 1a, family corporate venture capitalists are indeed more likely to participate in an investment when the most-investment-experienced coinvestor has a similar level of investment experience as themselves ($\beta = .7284$, $p = .0011$; Model 2). More precisely, family corporate venture

Table 2. Summary statistics.

VARIABLES	Observations	Mean	Std. Dev.	Minimum	Maximum	#True (dummies)
Family CVC	3,130	.350	.477	0	1	1095
Similar investment experience	3,130	.143	.350	0	1	448
Similar industry experience	3,130	.296	.457	0	1	928
Similar specialization	3,130	.283	.451	0	1	887
Syndicate size	3,130	6.303	4.545	2	66	n/a
Partner investment experience	3,130	211.237	315.493	0	2318	n/a
Partner industry experience	3,130	5.257	17.060	0	314	n/a
Partner specialization	3,130	.104	.222	0	1	n/a
CVC age	3,130	29.933	23.856	0	159	n/a
Lone-founder firm	3,130	.275	.447	0	1	861
Nonfamily CVC in deal	3,130	.216	.411	0	1	675
Deal size	3,130	44473588	2.054e + 08	0	5.500e + 09	n/a
Crisis years	3,130	.361	.480	0	1	1130
Cross-border	3,130	.349	.477	0	1	1091
Venture metropolis	3,130	.326	.469	0	1	1021
Venture stage	3,130	2.904	.975	1	4	n/a

Note: This table shows summary statistics for all variables used in our models (except the dummy variables controlling for venture industry, venture country, and CVC country).

capitalist participation in a deal is seven percentage points more likely if the overall investment experience of the corporate venture capitalist and the most experienced coinvestor in one deal is similar. For Hypothesis 1b, we also found a positive effect on the likelihood of investment participation by a family corporate venture capitalist when the corporate venture capitalist and the most experienced coinvestor have similar industry experience ($\beta = 1.1672$, $p < .001$; Model 3). Family corporate venture capitalists are 21 percentage points more likely to be involved in deals with a coinvestor with similar industry experience than in deals with a coinvestor without similar industry experience. Our findings also supported Hypothesis 1c, which predicted a positive relationship between specialization similarity and the likelihood of investment participation by a family corporate venture capitalist ($\beta = 1.2532$, $p < .001$; Model 4). More precisely, the participation of a family corporate venture capitalist is 24 percentage points more likely if the specialization of the corporate venture capitalist is similar to that of the most specialized coinvestor in the deal. Our results indicated that similarity in industry experience and specialization may be more relevant for family corporate venture capitalists than similarity in the amount of general investment experience.

Hypothesis 2a was not supported, as we found a negative but insignificant effect of similar general investment experience in larger syndicates on the likelihood of investment participation by a family corporate venture capitalist ($\beta = -.0563$, $p = .3037$; Model 5). When the syndicate size increases by one standard deviation, the likelihood that a family corporate venture capitalist will participate in an investment might increase by five fewer percentage points for similarly experienced coinvestors than for non-similarly

Table 3. Correlation table.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) Family CVC	1.000															
(2) Similar investment experience	0.048*	1.000														
(3) Similar industry experience	0.144*	0.480*	1.000													
(4) Similar specialization	0.156*	0.488*	0.928*	1.000												
(5) Syndicate size	-0.023	-0.057*	-0.166*	-0.175*	1.000											
(6) Partner investment experience	0.121*	-0.232*	-0.146*	-0.155*	0.151*	1.000										
(7) Partner industry experience	0.087*	-0.096*	-0.184*	-0.182*	0.084*	0.269*	1.000									
(8) Partner specialization	0.084*	-0.118*	-0.256*	-0.271*	0.227*	0.197*	0.369*	1.000								
(9) CVC age	0.225	-0.087*	-0.144*	-0.131*	0.078*	-0.119*	-0.089*	-0.128*	1.000							
(10) Lone-founder firm	0.432*	0.018	0.105*	0.113*	0.026	0.158*	0.047*	0.080*	0.006	1.000						
(11) Nonfamily CVC in deal	0.490*	0.030	0.064*	0.074*	0.177*	0.083*	0.088*	0.078*	0.080*	0.225*	1.000					
(12) Deal size	0.079*	-0.023	0.032	0.035	0.092*	0.040*	0.052*	0.002	0.019	0.097*	0.067*	1.000				
(13) Crisis years	-0.009	0.044*	0.000	0.009	0.026	-0.043*	-0.011	0.004	0.027	0.006	0.033	0.009	1.000			
(14) Cross-border	0.152*	0.061*	0.112*	0.122*	0.022	0.007	-0.021	0.041*	-0.021	0.171*	0.092*	0.107*	0.016	1.000		
(15) Venture metropolis	0.047*	0.056*	0.080*	0.093*	0.005	-0.076*	-0.057*	0.001	-0.022	0.046*	0.023	0.064*	0.006	0.116*	1.000	
(16) Venture stage	0.047*	0.012	-0.016	-0.005	0.000	0.046*	0.019	0.009	-0.005	-0.001	0.038*	0.049*	0.038*	0.076*	0.028	1.000

Note: This table displays pairwise correlations for the variables of key interest (except the dummy variables controlling for venture industry, venture country, and CVC country). * designates a 5% significance level.

Table 4. Binominal logistic regression on family corporate venture capitalist's investment participation after nearest-neighbor matching.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Similar investment experience		0.7284** (0.2224)			0.6069* (0.2392)		
Similar industry experience			1.1672** (0.1598)			0.8405** (0.1824)	
Similar specialization				1.2532** (0.1618)			0.8389** (0.1708)
Similar investment experience x syndicate size					-0.0563 (0.0548)		
Similar industry experience x syndicate size						-0.1129* (0.0519)	
Similar specialization x syndicate size							-0.1346** (0.0448)
Syndicate size					-0.1520** (0.0209)	-0.1324** (0.0175)	-0.1309** (0.0175)
Partner investment experience	0.0010** (0.0002)	0.0010** (0.0002)	0.0010** (0.0002)	0.0010** (0.0002)	0.0013** (0.0002)	0.0013** (0.0002)	0.0013** (0.0002)
Partner industry experience	0.0073* (0.0032)	0.0076* (0.0032)	0.0106** (0.0035)	0.0103** (0.0034)	0.0069* (0.0034)	0.0096** (0.0035)	0.0094** (0.0035)
Partner specialization	0.7738** (0.2936)	0.7461* (0.2953)	1.2201** (0.2994)	1.2638** (0.3013)	1.3936** (0.3038)	1.7190** (0.3088)	1.7365** (0.3118)
CVC age (log)	1.2220** (0.0989)	1.2433** (0.1001)	1.3334** (0.1045)	1.3387** (0.1050)	1.3355** (0.1036)	1.4172** (0.1094)	1.4204** (0.1096)
Lone-founder firm	2.0083** (0.1473)	1.9904** (0.1478)	1.9392** (0.1514)	1.9369** (0.1518)	1.9724** (0.1499)	1.9452** (0.1530)	1.9441** (0.1537)
Nonfamily CVC in deal	3.0180** (0.1487)	3.0095** (0.1485)	2.9788** (0.1474)	2.9870** (0.1477)	3.3719** (0.1622)	3.3321** (0.1622)	3.3407** (0.1626)
Deal size (log)	-0.0323** (0.0102)	-0.0311** (0.0102)	-0.0285** (0.0106)	-0.0276** (0.0107)	-0.0120 (0.0112)	-0.0097 (0.0115)	-0.0087 (0.0116)
Crisis years	-0.0428 (0.1230)	-0.0247 (0.1234)	0.0148 (0.1248)	0.0184 (0.1248)	0.0086 (0.1275)	0.0534 (0.1282)	0.0592 (0.1282)
Cross-border	-1.0718** (0.2430)	-1.0512** (0.2462)	-1.0764** (0.2464)	-1.1032** (0.2480)	-1.0827** (0.2479)	-1.0933** (0.2477)	-1.1225** (0.2493)
Venture metropolis	0.0920 (0.1419)	0.1013 (0.1422)	0.0846 (0.1467)	0.0826 (0.1468)	0.1204 (0.1485)	0.1088 (0.1523)	0.1104 (0.1522)
Venture stage	0.0920 (0.0598)	0.0866 (0.0602)	0.1124† (0.0615)	0.1085† (0.0615)	0.0954 (0.0619)	0.1193† (0.0629)	0.1172† (0.0629)
Venture industry dummies	yes						
Venture country dummies	yes						
CVC country dummies	yes						
Observations	3,130	3,130	3,130	3,130	3,130	3,130	3,130
Wald chi ²	1,142	1,105	1,121	1,120	1,107	1,122	1,136
Prob > chi ²	0	0	0	0	0	0	0
Pseudo R ²	0.491	0.493	0.506	0.507	0.516	0.526	0.527
AIC	2,202	2,195	2,145	2,139	2,107	2,066	2,061

Note: In this table, we present the results of binominal logistic regressions with the likelihood of a family corporate venture capitalist's investment participation as the dependent variable. As independent variables, we use similarity in investment experience, industry experience, and specialization and interaction terms with the variable syndicate size, which reflects the number of investors who participated in each deal. Heteroskedasticity-robust standard errors are reported in parentheses, significance is marked by † at 10%, * at 5%, and ** at 1%. The constant is included in the models but not shown. One asterisk (*) indicates 5% significance, and two asterisks (**) indicate 1% significance.

experienced coinvestors, based on investment experience. However, Hypothesis 2b was supported, as we observed that syndicate size negatively moderates the relationship between similar industry experience and family CVC investment participation ($\beta = -0.1129$, $p = .0295$; Model 6). When the syndicate size increases by one standard deviation, the likelihood of

investment participation by a family corporate venture capitalist increases by 10 fewer percentage points for coinvestors with similar industry experience than for coinvestors without similar industry experience. Hypothesis 2c was also supported, as we found a negative impact of syndicate size on the effect of similar specialization on family CVC investment participation likelihood ($\beta = -.1346$, $p = .0027$; Model 7). When the syndicate size increases by one standard deviation, the likelihood of investment participation by a family corporate venture capitalist increases by 13 fewer percentage points for coinvestors with similar specializations than for non-similarly specialized coinvestors.

Robustness checks

To ensure the robustness of our results to different estimation methods, we reran the same models using probit regressions, another common approach to estimate influences on binary dependent variables (Wooldridge, 2020), and received similar results (Table 5). We created alternative similarity variables based on the experience value of the lead investor in each deal (identified by the greatest equity invested), obtaining similar results that confirm the robustness of our findings to different computational approaches. Finally, we built a slightly different dependent variable called active family CVC, a dummy variable equaling 1 for family corporate venture capitalists who invested more than once within the study period and 0 otherwise. Running the same regressions on this dependent variable, we again received similar results.

Discussion

Homophily in syndicated deals with family corporate venture capitalists

In this study, we investigated how the organizational homophily of family firms regarding (industry) investment experience and specialization impacts interorganizational collaboration with nonfamily coinvestors when investing venture capital in high-risk ventures. Through this lens, we uncovered family firms' organizational homophily changes with the composition of syndicates.

Our finding that family corporate venture capitalists are more likely to participate in investments with syndicate partners that have similar experience—in terms of general investment experience, industry experience, and specialization—shows that syndicate partner similarity is relevant in their decision to join investor syndicates. Family firms display homophilic behavior not only on an individual level or when engaging with other family firms (Carmon et al., 2010; Ghinoi et al., 2023) but also with nonfamily-firm partners when investing in innovative ventures via family CVC. Family firms may view engaging with the wrong investment partners as a potential

Table 5. Binominal probit regression on family corporate venture capitalists' investment participation after nearest-neighbor matching.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Similar investment experience		0.4022** (0.1246)			0.3196* (0.1327)		
Similar industry experience			0.6598** (0.0850)			0.4743** (0.0938)	
Similar specialization				0.7091** (0.0865)			0.4630** (0.0926)
Similar investment experience x syndicate size					-0.0321 (0.0296)		
Similar industry experience x syndicate size						-0.0599* (0.0258)	
Similar specialization x syndicate size							-0.0755** (0.0246)
Syndicate size					-0.0863** (0.0103)	-0.0748** (0.0096)	-0.0738** (0.0096)
Partner investment experience	0.0005** (0.0001)	0.0006** (0.0001)	0.0006** (0.0001)	0.0006** (0.0001)	0.0008** (0.0001)	0.0007** (0.0001)	0.0007** (0.0001)
Partner industry experience	0.0042* (0.0018)	0.0043* (0.0018)	0.0060** (0.0019)	0.0058** (0.0019)	0.0040* (0.0019)	0.0055** (0.0020)	0.0054** (0.0020)
Partner specialization	0.4110** (0.1574)	0.3981* (0.1580)	0.6667** (0.1607)	0.6924** (0.1620)	0.7695** (0.1628)	0.9532** (0.1656)	0.9621** (0.1670)
CVC age (log)	0.6418** (0.0502)	0.6520** (0.0505)	0.7034** (0.0536)	0.7056** (0.0539)	0.7048** (0.0528)	0.7484** (0.0558)	0.7491** (0.0560)
Lone-founder firm	1.1168** (0.0774)	1.1049** (0.0778)	1.0750** (0.0790)	1.0723** (0.0792)	1.1014** (0.0789)	1.0832** (0.0797)	1.0815** (0.0801)
Nonfamily CVC in deal	1.7184** (0.0814)	1.7128** (0.0815)	1.7017** (0.0816)	1.7048** (0.0819)	1.9203** (0.0882)	1.8981** (0.0881)	1.9022** (0.0885)
Deal size (log)	-0.0176** (0.0060)	-0.0170** (0.0060)	-0.0157* (0.0061)	-0.0152* (0.0062)	-0.0059 (0.0064)	-0.0048 (0.0065)	-0.0042 (0.0066)
Crisis years	-0.0129 (0.0675)	-0.0026 (0.0676)	0.0216 (0.0681)	0.0238 (0.0681)	0.0148 (0.0691)	0.0410 (0.0695)	0.0448 (0.0696)
Cross-border	-0.5880** (0.1342)	-0.5846** (0.1369)	-0.5815** (0.1374)	-0.5951** (0.1386)	-0.6076** (0.1393)	-0.5981** (0.1393)	-0.6122** (0.1407)
Venture metropolis	0.0644 (0.0773)	0.0698 (0.0773)	0.0616 (0.0795)	0.0590 (0.0797)	0.0781 (0.0800)	0.0714 (0.0821)	0.0705 (0.0822)
Venture stage	0.0552† (0.0329)	0.0518 (0.0330)	0.0650† (0.0335)	0.0628† (0.0335)	0.0555 (0.0339)	0.0684* (0.0342)	0.0673* (0.0343)
Venture industry dummies	yes						
Venture country dummies	yes						
CVC country dummies	yes						
Observations	3,130	3,130	3,130	3,130	3,130	3,130	3,130
Wald chi ²	1,491	1,466	1,494	1,492	1,479	1,504	1,493
Prob > chi ²	0	0	0	0	0	0	0
Pseudo R ²	0.488	0.491	0.504	0.506	0.515	0.525	0.526
AIC	2,213	2,206	2,152	2,146	2,113	2,070	2,065

Note: In this table, we present the results of binominal probit regressions with the likelihood of a family corporate venture capitalist's investment participation as the dependent variable. As independent variables, we use similarity in investment experience, industry experience, and specialization and interaction terms with the variable syndicate size, which reflects the number of investors who participated in each deal. Heteroskedasticity-robust standard errors are reported in parentheses, significance is marked by † at 10%, * at 5%, and ** at 1%. The constant is included in the models but not shown. One asterisk (*) indicates 5% significance, and two asterisks (**) indicate 1% significance.

threat to their long-term family wealth, their status or reputation, and their family legacy and heritage (Baum et al., 2005; Chaudhary et al., 2021; Deephouse & Jaskiewicz, 2013; Santiago et al., 2019). Their homophilic behaviors in these investment decisions may serve as a protective mechanism, as coinvestors with similar experience and specialization are likely to bring

similar values and goals, thereby, posing less of a threat to family-specific values and goals in an already risky environment (Chaudhary et al., 2021; Deephouse & Jaskiewicz, 2013; Sirmon & Hitt, 2003).

In addition, our results show that syndicate size moderates the relationship between syndicate partners' similar industry experience and specialization and the likelihood of investment participation by a family corporate venture capitalist. The more coinvestors that are involved in a syndicate, the less direct exchange there is between them (Bygrave, 1987; Sorenson & Stuart, 2001; Zhang et al., 2017). Furthermore, larger syndicates usually require fewer resources (both financial and nonfinancial) from family corporate venture capitalists, so they have less to lose (Kaplan & Strömberg, 2004). Therefore, similarity of industry experience and specialization with coinvestors might lose significance as a prospective protective mechanism for family firms when facing the decision of whether to invest in a large syndicate.

Theoretical contributions and implications

Our study builds on the emerging research on CVC investments by family firms, particularly the work of Amore et al. (2023) and Duran and Mingo (2022). These pioneering studies suggest significant differences in the outcomes of CVC investments between family firms and nonfamily firms and have begun to explore potential reasons for these discrepancies at the individual level in the family firms, including factors such as the presence of a family CEO or the composition of the board. Our study further investigates the organizational characteristics that distinguish family CVC investors from nonfamily CVC investors. We contribute to the field by demonstrating that family corporate venture capitalists not only prioritize partnerships with entities that share family-specific values but also exhibit homophilic behaviors in their coinvestment choices. This focus on the motivations and strategic orientations behind (co)investment decisions offers new insights into the contrasting investment strategies and observed outcomes of family and nonfamily CVC entities, providing a deeper understanding of the dynamics at play.

Our analysis situates itself within the sphere of family investments and their engagement with new ventures (Schickinger et al., 2022; Zahra, 2010). The existing literature predominantly examines how family-specific resources, values, and goals influence the external venturing of family firms (Prügl & Spitzley, 2021; Ramírez-Pasillas et al., 2021) and delineates the investment criteria of family offices (Block et al., 2019; Schickinger et al., 2022), generally focusing on the vertical dyadic relationships between family investors and start-ups. Our study extends these insights by exploring the triadic relationship that includes coinvestors alongside family CVC investors and start-ups. We uncover

homophily-driven patterns in coinvestment scenarios, enriching our understanding of how family-related CVC investors differ from their nonfamily counterparts. By providing quantitative evidence in the organizational context of family CVC, our research underscores the pivotal role of homophily in facilitating investor syndication, particularly when navigating complex investment goals that include financial, strategic, and family-specific objectives.

Furthermore, our study adds to the broader field of research on the social capital of family firms, particularly concerning their interorganizational network behaviors (Arregle et al., 2007; Chirico et al., 2021; Sanchez-Ruiz et al., 2019; Zellweger et al., 2019). Prior literature has underscored the unique form of social capital inherent in family firms and the ability of these firms to leverage this asset to gain competitive advantage through network building (Zahra, 2010). By incorporating the concept of homophily, we demonstrate that family corporate venture capitalists prioritize partner similarity in syndicate investments to avoid conflict and safeguard both the financial and non-financial assets of the family. Our findings confirm that family firms adhere to family-specific principles in network building and leverage the competitive advantages derived from their social-capital approach, even in high-risk environments such as VC investment.

Our findings have practical implications for family-controlled corporate venture capitalists and other investor types, who can learn about the similarity of syndicate partner traits that family corporate venture capitalists value when approaching family corporate venture capitalists for potential investment syndicates. Family firms that are interested or already active in CVC can learn common patterns in family CVC (co)investing and reflect on possible consequences, such as for their network building within an industry. Additionally, start-up owners can gain insights into the coinvestment criteria of family corporate venture capitalists if they seek to take advantage of the benefits that family corporate venture capitalists bring as traditionally long-term investors, such as a higher likelihood of a successful exit and a more valuable innovation process after an IPO (Amore et al., 2023; Ma et al., 2022).

Limitations and avenues for future research

The limitations of our study uncover promising avenues for future research on homophily of family firms. First, our study is focused only on organizational-level behavior but individual top management team members have an important influence on the organizational behavior. Building on our study, researchers could examine the influence of individual (family) board members' homophily on syndicated CVC investments by family firms. This would permit the exploration of individual-level homophily factors such as age, gender, and education to determine which carry over to interorganizational

investment syndication involving family CVC. The analysis of further moderation effects may be interesting in this regard.

Second, due to the context of our study, we were only able to identify a small amount of family corporate venture capitalists in our data set, despite applying a relatively broad definition of family firms. Thus, we are not able to consider the heterogeneity within the family firms. Assuming a larger overall number of family corporate venture capitalists can be clearly identified (by other means), comparisons could be drawn within the group of family corporate venture capitalists or their parent companies. In this context, family-firm-specific characteristics could be compared, such as the share of family ownership or the generation of the family in charge, as both may influence the degree of risk aversion in investment decisions in family firms (Block, 2012; Kempers et al., 2019). For instance, younger leadership generations in family firms may be willing to take greater risks to realize their own vision, separate from their parents, or in cases where a nonfamily chief executive officer takes the helm, risk preferences may change (De Massis et al., 2021; Duran et al., 2016).

Third, while we used a global data set, the lion's share of our observations are from the United States and Japan due to the utilized sources.¹ While these countries are both highly developed economically, they differ starkly in their national cultures (e.g., in their degree of individualism and the willingness of their actors to trust strangers) and in the professionalization and size of their respective VC industries, which could impact their homophilic behaviors. We partly account for this heterogeneity by controlling for CVC country, venture country, and venture industry in our models but leave a more in-depth analysis of cross-national differences to future studies.

Finally, our study focuses on extant syndication relationships. Because our data is only on investments, we do not have any information on how intensive the exchange between the coinvestors is following the investment. Therefore, further research might pay more attention to the development of family firms' investor behavior over time, for example, through postinvestment analysis (Hoy, 2006; Raitis et al., 2021). More precisely, analyzing family firms' investment behavior against the background of different life cycle stages, studying the relationship between family corporate venture capitalists and investment targets over time, and investigating the long-term consequences of homophily for investments and participating parties (e.g., on performance and innovation) are promising research areas.

Conclusion

For long-term survival over several family generations, family firms need to both retain existing and build new competitive advantages, while protecting

¹Descriptive information for the country composition of our data can be provided on request.

their reputation and long-term family legacy, which is often deeply embedded in a particular industry. To do so, they are often forced to expand their networks and rely on new partners. Generally, family firms are characterized by homophily and gravitate toward similar partners. We extend previous studies by examining the syndication patterns of family corporate venture capitalists through the lens of (inter)organizational homophily. We find that family corporate venture capitalists are more likely than their nonfamily counterparts to coinvest with syndicate partners that possess a similar wealth of experience, aligning with the homophilic behavior of family firms. To safeguard their unique family values and pursue their family-specific objectives without hindrance, they collaborate with nonfamily investment partners who share similar investment experience, industry knowledge, and specialization. This phenomenon is less pronounced in larger syndicates as they are often accompanied by looser bonds between syndicate partners and less individual influence. Our study adds to the research streams on family firms' venturing and social capital as well as on ownership and the syndication behavior of corporate venture capitalists by providing insights into the network management of family corporate venture capitalists on an organizational level in high-risk contexts, stimulating further conversation on the topic.

Acknowledgments

The authors appreciate the valuable and developmental feedback received from Guest Editor Josip Kotlar, anonymous reviewers, Chelsea Sherlock, the participants at the 17th Annual Theories of Family Enterprise Conference at Rowan University in New Jersey, and the participants at the 43rd Babson College Entrepreneurship Research Conference at the University of Tennessee.

Disclosure statement

No potential conflict of interest was reported by the authors.

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