The Journal of Technology Transfer
https://doi.org/10.1007/s10961-022-09986-2

Family firm ambidexterity: the influence of paradoxical tensions and the Entrepreneurial Family's cohesion

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Accepted: 30 November 2022

Abstract
This study presents paradoxical tensions as the 'missing link' at the intersection of the entrepreneurial family and family firm management: a link that crucially affects innovation-related decisions such as ambidexterity. Specifically, the study argues that the relationship between family cohesion and organizational ambidexterity within entrepreneurial family firms is mediated by paradoxical tensions (latent and salient). Drawing on survey data from 206 German family firms, support is found for the hypotheses advanced. Building on cognitive resource theory, this study demonstrates that differently perceived paradoxical tensions in entrepreneurial family firms have different meaningful effects on organizational ambidexterity. Implications for theory and future research are discussed.

Keywords Entrepreneurial family firms · Organizational ambidexterity · Paradoxical tensions · Family cohesion

JEL classification O3 · O30 · M10

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Published online: 10 February 2023

1 Introduction

There exists a consensus in the literature about the importance of firms engaging in *incremental innovation* (exploitation) whilst simultaneously fostering more *radical innovation* (exploration), in order to respond to changing markets and demands (Junni et al., 2013): this is often referred to as 'ambidexterity'. Firms face the challenge of balancing divergent demands in order to achieve this innovation-related ambidexterity, and to secure long-term business success (e.g. Cao et al., 2009; Gibson & Birkinshaw, 2004; Lubatkin et al., 2006). To be successful, firms must thus learn to cope with and manage paradoxical tensions of different natures (Bhatnagar et al., 2022; Gibson & Birkinshaw, 2004; Smith & Lewis, 2011), which have been suggested to facilitate ambidexterity (Ingram et al., 2016; Arredondo & Cruz, 2018), but which might also engender significant potential for conflicts (Eddleston & Kellermanns, 2007).

Since paradoxes arise from competing systems, innovation research has recently focused on family firms, where the competing systems of the family and the firm co-exist (Chrisman et al., 2015). Exploration has thus begun with regard to the antecedents and contextual circumstances under which family firms display innovation-related ambidexterity (Veider & Matzler, 2016). Some studies confirm a positive relationship between the entrepreneurial family and the innovation system (Lubatkin et al., 2006; Stubner et al., 2012); others propose a negative relationship (Ceipek et al., 2021). The literature dealing with the ability of family firms to achieve ambidexterity with regard to innovation is, in fact, highly fragmented (Arzubiaga et al., 2018) and its antecedents, especially, remain unknown (Allison et al., 2014).

Family firms, as an idiosyncratic type of organization within the *entrepreneurship* domain, therefore constitute a particularly interesting milieu in which to study paradoxical tensions and innovation-related ambidexterity, because of the close interplay between the entrepreneurial family, family managers, and the organizational innovation system, assumed in the literature to be the drivers of the mixed results (Kammerlander et al., 2020). Whereas extant studies have found that inter-organizational relationships foster ambidexterity (Haim Faridian et al., 2022; Wolf et al., 2019), the literature has hitherto remained surprisingly silent with regard to the effect of intra-organizational relations between—for example—the entrepreneurial family, family managers, and the organization. Entrepreneurial family firms are defined by an overlap of the usually independent social systems of the firm—that is, the organization and the entrepreneurial family that often constitutes the organization's management—and thus goals related to the ownership and management of the firm, as well as those related to the socioemotional wealth (SEW) of the family, simultaneously emerge (Chua et al., 1999; Gomez-Mejia et al., 2007).

Entrepreneurial families therefore provide a fertile environment for paradoxical thinking (Ingram et al., 2016). Indeed, because the family firm consists of competing systems, family managers are constantly exposed to paradoxical tensions (Allison et al., 2014; Stewart & Hitt, 2010), which can provide a fertile learning environment as these tensions are resolved (for a very recent overview of this, see Mansoori & Lackeus, 2020). However, as paradoxical situations may lead to stress or conflict (Eddleston & Kellermanns, 2007), it is important to understand whether a paradoxical situation within the entrepreneurial family is experienced as stressful or fruitful. Paradoxical tensions occurring in situations with low stress levels in particular promote future adaptions to new situations (Schwabe et al., 2010), thereby constituting a potentially important cognitive resource (Fiedler & Garcia, 1987) for family firms.

However, what is not clear is how the family manager's ability to cope with paradoxical tensions affects *management* decisions regarding the innovation process in family firms (De Massis et al., 2016), and how the intensity of such tensions affects innovation-related ambidexterity. Moreover, there exists a lack of a clear understanding of how paradoxical tensions within the entrepreneurial family are managed via unique idiosyncrasies, such as family cohesion going hand-in-hand with highly shared values (Olson, 2000), which has been found to reduce internal conflicts (Zahra, 2010). Indeed, entrepreneurial family firms might possess unique (cognitive) resources, such as their cohesion, which can function as an important aspect in reducing stress and conflicts emerging with paradoxical tensions. Family cohesion, generally defined as "an individual's sense of belonging to a particular family and his or her feelings of morale associated with membership in the family" (Bollen & Hoyle, 1990, p. 482), leads to trust, which, in turn, reduces cognitive and process conflict (Kudlats et al., 2019), as well as relationship conflicts within the entrepreneurial family (Kidwell et al., 2012).

Accordingly, this study aims to address the ambiguous role of aspects related to entrepreneurship that have been so far underrepresented in the published ambidexterity literature (Guerrero, 2021) by exploring the antecedents of innovation-related ambidexterity in the unique context of entrepreneurial family firms. Specifically, it seeks to shed more light on the influence of paradoxical tensions in the entrepreneurial system on innovation-related ambidexterity in family firms, via their management systems, since managerial tensions, for example, have also been found to promote ambidexterity (Akulava & Guerrero, 2022). Cognitive resource theory (CRT) (Fiedler, 1986) is relied upon in order to derive hypotheses about the relationship between differently shaped paradoxical tensions, with regard to their intensity (i.e., latent vs. salient), in entrepreneurial family firms, family cohesion, and innovation-related organizational ambidexterity.

This study makes multiple contributions. Firstly, it contributes to a deeper theoretical understanding of how tensions in the two interrelated areas of entrepreneurship (i.e., the entrepreneurial family) and management (i.e., the family manager) affect each other and result in the organizational ambidexterity of the firm's innovation systems. Strong support is found for the concept that paradoxical tensions perceived by family managers affect ambidexterity with regard to the firm's innovation system: namely that *latent* tensions promote ambidexterity, whereas if tensions become *salient*, they hinder ambidexterity. This adds to the literature on organizational *innovation* and particularly, on ambidexterity as an innovation paradox (e.g., Andriopoulos & Lewis, 2009; Oughton et al., 2002). Secondly, the study contributes to the *entrepreneurship* literature on family firms, which have been acknowledged as providing constantly emerging paradoxes, as well as unique characteristics and dynamics when it comes to innovation-related decisions (e.g., De Massis et al., 2013; Duran et al., 2016). This study answers the call to investigate how family-related factors such as family cohesion (Olson, 2000) can be drivers of ambidexterity and innovation (see Chrisman et al., 2015; Ingram et al., 2016, Kammerlander et al., 2020). Thirdly, the study adds to the *management* literature, in particular that on organizational paradoxes and CRT. Empirical evidence is added to Fiedler's (1986) CRT, proposing that a leader's perceived stress in an uncertain decision situation plays an important role in organizational outcomes, such as innovation, that can affect performance. The measurement of paradoxical tensions is further expanded by extending Ingram et al. (2016), and measuring both latent and salient tensions, so that this study's data can provide a more nuanced assessment of paradoxical tensions that can both promote and hinder innovation. In summary, this study proposes that the paradoxical tensions to which family managers are exposed are the 'missing link' between the entrepreneurial family and management decisions within the

family firm. Specifically, novel empirical insights are provided into the crucial role social interactions between family managers and the entrepreneurial family play, with regard to innovation-related decisions (ambidexterity) at the firm level.

2 Theoretical framework

2.1 Latent and salient paradoxical tensions

A recent but already established scholarly work concerning paradox is Smith and Lewis' (2011) dynamic equilibrium model. This model comprehensively explains how paradoxes and paradoxical tensions develop in an organization, and how cyclical responses enable organizations to prosper in the long-term (e.g. Cao et al., 2009; Gibson & Birkinshaw, 2004; Lubatkin et al., 2006). At its core, the equilibrium model/theory of paradox assumes that paradoxical tensions are integral to complex systems and that organizations will only succeed if they address contradictory, interrelated demands simultaneously. This model thus serves as a foundation for a comprehensive theory of paradox (Smith & Lewis, 2011).

Most important in this context is the perceived stress inherent in situations of paradoxical tensions. As paradoxical situations (and how to deal with their inherent paradoxical tensions) might constitute important learning experiences, the perceived stress in these learning situations plays a crucial role in terms of whether rigid, habitual memory is activated, or whether more flexible, cognitive memory is achieved. The literature provides the first evidence that the perception of paradoxical tensions can be of varying intensity (Smith et al., 2017).

In general, paradoxes are cognitively and socially constructed, as actors perceive the relationship between poles via paradoxical cognition (Smith & Tushman, 2005). As such, it is an individual actor's type of recognition of the paradoxical tensions that renders paradoxes salient (Lewis, 2000). Sometimes paradoxical tensions are perceived only vaguely (Ingram et al., 2016), or even ignored entirely (Smith & Lewis, 2011), and are therefore associated only with low levels of stress. For the purposes of this study, these tensions are referred to as *permanently present latent paradoxical tensions*. However, if tensions emerge and are tangible at the surface level, they are associated with stressful situations, and are perceived as a hindrance (Smith & Lewis, 2011). In this study, such tensions are referred to as *acute emerging salient tensions*.

2.2 Paradoxical tensions and *innovation*-related ambidexterity in family firms

Innovation-related organizational ambidexterity is defined as the firm's ability to balance the needs for exploitation and exploration simultaneously (Gedajlovic et al., 2012; March, 1991). For a firm, this means managing the incremental improvement of existing products and processes (exploitation), whilst at the same time engaging in the development of radical new innovations (exploration) (Nosella et al., 2012; Raisch & Birkinshaw, 2008; Zimmermann et al., 2015). Achieving innovation-related ambidexterity challenges firms to deal with a constant trade-off, aligning exploitation and exploration, which leads to tensions (Gibson & Birkinshaw, 2004) that manifest themselves in stresses of varying degrees and intensities (Junni et al., 2015). Nevertheless, it is of the utmost importance for organizations to manage such tensions, as prior empirical evidence shows clear patterns of positive

short- and long-term effects of ambidextrous behavior on important performance outcomes (Brannon et al., 2013; Vrontis et al., 2017; Soetanto & Jack, 2018).

Research across different streams has explored the antecedents of innovation-related ambidexterity and discovered that ambidexterity is highly dependent on organizational structures and behavioral contexts (Raisch & Birkinshaw, 2008). In other words, in order for ambidexterity to become a dynamic capability, firms have to establish structural mechanisms that are able to deal with trade-offs (Gibson & Birkinshaw, 2004), and a context that enables managers to cope with opposing demands (Ghoshal & Bartlett, 1994). Family firms constitute such a unique context, providing structural mechanisms that are frequently associated with paradoxical thinking and innovation (Kotlar et al., 2014; Lubatkin et al., 2006). Entrepreneurial families strive for innovation to achieve growth, firm performance and firm survival (De Massis et al., 2013; Sirmon & Hitt, 2003). Empirical evidence indicates that the idiosyncrasies of family firms—for instance, their specific resources and agency cost constellations—influence their willingness and ability to engage in organizational ambidexterity (Veider & Matzler, 2016).

2.3 Paradoxical tensions in the *entrepreneurial* family

Family involvement has been shown to be an important influencing factor with regard to innovation (Cucculelli et al., 2022; Pucci et al., 2020; Kraiczy et al., 2015b) and innovation-related organizational ambidexterity (Lubatkin et al., 2006; Stubner et al., 2012). Considerable focus has recently been directed at how the entrepreneurial system (i.e., the entrepreneurial family) influences ambidexterity in family firms (Veider & Matzler, 2016). Whilst some strands of the literature have argued for (and empirically revealed) increased levels of organizational ambidexterity in family firms as compared with other types of firms (e.g., Lubatkin et al., 2006; Stubner et al., 2012), there is also evidence of negative relationships between family involvement and ambidexterity, as well as high levels of heterogeneity among family firms with regard to their ambidexterity (Hiebl, 2015). Debate, therefore, still continues as to in which cases (and why) the entrepreneurial family might foster or prevent ambidextrous structures and behaviors.

The aforementioned mixed findings may be a result of the entrepreneurial family's constant exposure to paradoxical tensions, which stem from a permanent need to balance divergent family and business goals (Distelberg & Sorenson, 2009; Ingram et al., 2016; Zellweger et al., 2012). According to the concept of socioemotional wealth (SEW), introduced by Gómez-Mejía and colleagues (2007), and based on the theoretical tenets of prospect and behavioral agency theories (Wiseman & Gomez-Mejia, 1998), entrepreneurial families not only follow economic goals, but, at the same time, pursue noneconomic goals, such as the family's affective needs, in terms of identity, influence, and perpetuation of the family dynasty (Gomez-Mejia et al., 2018; Gomez-Mejia et al., 2007). It has been argued that SEW is a unique factor that differentiates family firms from non-family firms, as well as explaining the heterogeneity among family firms (Berrone et al., 2012; Deephouse & Jaskiewicz, 2013; Madison et al., 2016). SEW can serve as a reference point for managers (Nason et al., 2019; Zellweger & Dehlen, 2012), which influences their decision-making behavior with respect to the preservation or enhancement of existing endowments (e.g., Chua et al., 2015; Kotlar et al., 2018; Berrone, e tal., 2012).

However, if the variety of goals and conflicting expectations in the entrepreneurial family increases, owing to the consideration of multiple goals, highly complex situations emerge and might serve as fertile ground for the proliferation of tensions and conflicts

(Arzubiaga et al., 2018; Calabrò et al., 2016; Duran et al., 2016; von Schlippe & Frank, 2017). Through the interdependence between the entrepreneurial family and the firm, unique and complex dynamics emerge (Memili et al., 2015; Sorenson, 1999) where boundaries are blurred, misunderstandings occur frequently, and opposing demands from different perspectives potentially create acute, emerging, salient, family firm-specific, paradoxical tensions (e.g., Beehr et al., 1997; Chrisman et al., 2015). Such tensions, once perceived as stressful, are frequently shared within the entrepreneurial family's history and memory, thereby becoming institutionalized and, thus, more difficult to resolve (Schulze et al., 2003), since they foster 'rigid habits' rather than the flexible 'cognitive habits' (Schwabe & Wolf, 2013) required for ambidexterity.

Entrepreneurial family firms, however, have been found to possess idiosyncratic mechanisms for reducing internal conflicts and stresses, one of which is termed 'social cohesion' or 'family cohesion' (Björnberg & Nicholson, 2007). Social cohesion refers to the shared attraction to, or liking for, a group (Evans & Jarvis, 1980; Beal et al., 2003), emotional bonds of friendship, caring and closeness amongst group members, and an enjoyment of each other's company, or social time together (MacCoun, 1996); this goes along with high levels of mutual interaction and bonding amongst group members (Gully et al., 1995). There is meta-analytical evidence in the literature suggesting that social cohesion has a significant relationship with various performance measures (Castaño et al., 2013). For example, social cohesion is positively related to team climate (Xue et al., 2011) and motivation (Gu et al., 2011), negatively linked to conflicts among group members (Tekleab et al., 2009), and suggested to reduce perceived stress (Steinhardt et al., 2003). Learning in situations of social cohesion, therefore, has the potential to support flexible cognitive habits.

Cohesion in the entrepreneurial family has thus gained prominence in family firm research (Long & Mathews, 2011; Zahra, 2012). 'Family cohesion' is defined as the degree of closeness and emotional bonding experienced by the members of the family (Olson, 2000) and has been shown empirically to strengthen the family's intentions for transgenerational sustainability and the pursuit of non-economic values (Long & Mathews, 2011). On an individual level, family cohesion has the potential to minimize the perceived anxiety of owner-managers (Smyrnios et al., 2003). In general, it seems that family cohesion varies substantially between different entrepreneurial families (Björnberg & Nicholson, 2007) and can be seen as a central element of family firm heterogeneity (Rau et al., 2019; Daspit et al., 2018; Labaki et al., 2013). Accordingly, the varying presence of cohesion in family firms and the diminishing effect of cohesion on stress makes this construct a suitable candidate for explaining differences in innovation-related ambidexterity in family firms.

2.4 Paradoxical tensions and the family *manager's* cognitive resources

Recent research has shifted the focus from innovation-related organizational ambidexterity to the individual level, in order to understand the psychological micro-foundations of individual ambidexterity, demonstrating, for example, that ambidextrous knowledge seeking and offering significantly affects organizational performance (Schnellbächer & Heidenreich, 2020). Research has increasingly discussed internal processes for top managers that facilitate the implementation of structural and contextual ambidexterity (Tushman & O'Reilly, 1997).

Whilst initial studies suggested that a leader's organizational tenure was in itself a sufficient and valid yardstick of her/his experience, more recent studies have posited that prior

experience is relevant to performance in the present job, as is the present decision situation, and these are the factors that should be considered (Quiñones, 2004). Experience could thereby be viewed as opportunities for learning, and has shown itself to be central to cognitive resource theory (CRT) (Fiedler & Garcia, 1987; Fiedler, 1986). Fiedler (1986) has thus proposed that a leader's perceived stress in an uncertain decision situation plays an important moderating role in her/his influence on organizational performance. If a leader is under stress, which arouses leader anxiety (Fiedler, 1993), her/his intellectual abilities will be diverted from the task and, as a result, measures of leader intelligence and competence will not correlate with organizational performance (Fiedler & Garcia, 1987). In fact, when a leader is under stress, her/his relevant experiences (and not her/his abilities) will determine performance (Fiedler & Garcia, 1987). Early applications of CRT made the point that the stress that is central to the theory is the type generated by the boss for the leader (Fiedler et al., 1993). This narrow view was later revised, as it could be assumed that any stress-producing anxiety would impede functioning in the same manner (Fiedler, 1996; see also Fiedler 2002).

In this vein, it could be argued that uncertain decision situations, like ambidexterity situations, might elicit leader stress and anxiety; in other words, based on CRT, a top manager's domain-specific experiences will most likely influence decision performance and thus, innovation-related ambidexterity (Gavetti & Levinthal, 2000). This is supported by prior academic research, which has found a strong relationship between the ability of a top manager for paradoxical thinking and firm innovation (Andriopoulos & Lewis, 2010; Gotsi et al., 2010; Lewis, 2000; Miron-Spektor et al., 2018).

In the context of entrepreneurial family firms, research has consequently emphasized the effects of family involvement in top management (for an overview, see Tretbar et al., 2016) in terms of achieving organizational ambidexterity (Lubatkin et al., 2006). Thus, members of the entrepreneurial family who serve as family managers usually have a high degree of managerial discretion, due to their combined ownership and management position (Schulze et al., 2001); thus, they also exercise a considerable influence over firm decisions, especially decisions regarding innovation (Kraiczy et al., 2015a). Initial empirical evidence certainly demonstrates that the influence of an individual manager's innovation behavior on firm-level, innovation-related ambidexterity is more pronounced in family firms, as compared to non-family firms (Strobl et al., 2020).

Several propositions have been put forward to explain why and how family managers especially might affect innovation-related ambidexterity, owing to reasons—amongst others—of willingness, such as the pursuance of family-centered noneconomic goals (Chrisman et al., 2012), and ability, such as intimate knowledge of existing processes and procedures (Ireland & Webb 2007). Thereby, the individual manager's ability for paradoxical thinking has, in particular, been shown to positively influence firm innovation: something managers frequently learn through past experiences (Andriopoulos & Lewis, 2010; Gotsi et al., 2010; Lewis, 2000; Miron-Spektor et al., 2018). This ability for paradoxical thinking might have been developed because family managers constantly perceive challenges arising from the entrepreneurial family system to balance economic and socioemotional wealth (Gomez-Mejia et al., 2018), constituting a setting of permanent learning opportunities, in terms of how to handle paradoxical situations by adapting their way of thinking (logic), their visualization of processes (model), and their application of concrete business practices and activities (tactics) (for a very recent overview of the management area, see Mansoori & Lackeus, 2020). Family management might, thus, constitute an important element in explaining the interplay between the entrepreneurial family and innovation-related ambidexterity.

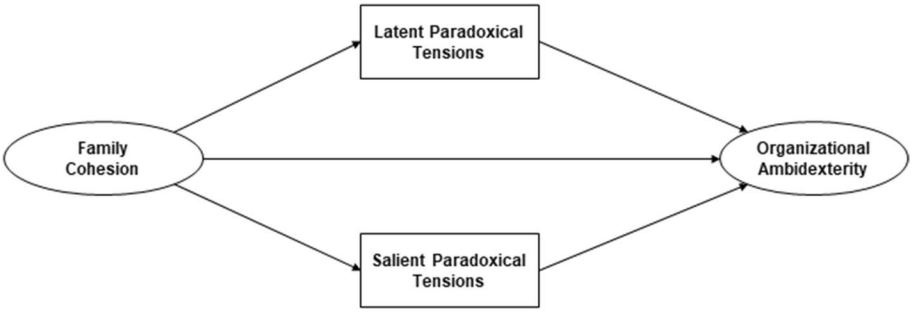

Fig. 1 Research model

3 Development of hypotheses

Below, drawing on CRT, hypotheses are derived concerning the relationships between differently perceived paradoxical tensions, family cohesion, and organizational ambidexterity. Firstly, the direct relationship between differently perceived paradoxical tensions and innovation-related ambidexterity is theorized; secondly, the direct link between family cohesion and innovation-related ambidexterity is theorized; finally, the mediation effect of paradoxical tensions on the relationship between family cohesion and innovation-related ambidexterity in family firms is theorized. The research model is shown in Fig. 1.

3.1 Differently perceived paradoxical tensions and innovation-related ambidexterity

Ambidexterity, amongst other things, can be facilitated by top managers (Tushman & O'Reilly, 1997), notably by those who have experience of dealing with uncertain and stressful situations (Mom et al., 2015). To be exposed to paradoxical tensions outside the firm (e.g. in the family) and to gain experience of how to effectively handle such tensions provides valuable learning moments, which could be fruitfully transferred to the firm level and to paradoxical decision situations. Theoretical as well as empirical research indicates that paradoxical tensions do indeed influence business organizations in general, and entrepreneurial family firms specifically (e.g. Arzubiaga et al., 2018; Poole & Van De Ven, 1989; Schad et al., 2016; Lewis, 2000; Miron-Spektor et al., 2018). In particular, members of entrepreneurial families are widely known to cope with permanently present latent (i.e. vaguely perceived and less stressful for the family members) paradoxical tensions, arising from the permanent need to balance divergent family and business goals on an almost daily basis (Distelberg & Sorenson, 2009; Ingram et al., 2016). However, the perception and characteristics of such permanently present latent tensions might alter over time (Smith & Lewis, 2011); nevertheless, the fundamental nature of the paradoxes remains stable (Plate & von Schlippe, 2010).

Moreover, family firm research has demonstrated that competing demands from the entrepreneurial family and the firm can indeed be synergetic, and need not be incompatible (Stewart & Hitt, 2010). In family firms, financial and non-financial, or business and family goals and values coexist, and numerous studies have shown that family firms are often more able to align these goals; self-evidently, the adroit handling of these is a valuable

capability (Gomez-Mejia et al., 2018; Gomez-Mejia et al., 2007; Veider & Matzler, 2016). Such ability for paradoxical thinking has been found to enable an open and holistic mindset (Schuman et al., 2010), which fosters creative problem-solving and establishes a decision-making culture that enables innovation (Ward, 2009). Indeed, a strong relationship between the occurrence of paradoxes and the ability for ambidexterity fostering firm innovation has been found (Andriopoulos & Lewis, 2010; Gotsi et al., 2010; Lewis, 2000; Miron-Spektor et al., 2018).

Academic research draws on several established theories in order to highlight the positive influences of the paradoxical thinking required to handle permanently present latent paradoxical tensions, and to secure long-term survival: one of the primary goals family firms pursue (Hiebl, 2015; Raisch & Birkinshaw, 2008; Veider & Matzler, 2016). Based, for example, on CRT, the experiences of managers are more helpful in uncertain and stressful decision situations than are their intelligence or competence. Those family managers who are experienced in paradoxical thinking, should thus be better able to handle paradoxical situations. They provide resources to the firm, increasing the firm's ability to pursue different goals and tasks at the same time, in turn supporting organizational ambidexterity.

In their work on paradox theory, Smith & Lewis (2011) use the term 'virtuous circle' to describe how paradoxical tensions can spur creativity and opportunity (see also Beech et al., 2004). The literature thus assumes that family managers, who permanently perceive latent paradoxical tensions, are more ambidextrous than managers who have had less exposure to paradoxical tensions (Arzubiaga et al., 2018). Consequently, it is stated here that there is a positive relationship between the existence of permanently present latent paradoxical tensions and the innovation-related ambidexterity level of an organization. Hence, it is hypothesized that:

H1a Latent paradoxical tensions positively influence innovation-related ambidexterity.

In contrast, several studies have found that family firm specifics that lead to paradoxical tensions in the owner family can also hinder ambidexterity—especially if such tensions come to the surface in such a way as to be perceived as hindrances (Smith & Lewis, 2011). Such acutely emerging salient tensions between opposing goals might lead to misunderstandings, stress, and even open conflict amongst family members, or within the family firm management (Danes et al., 1999). Conflicts result in opposing demands that create anxiety, and leave individuals and firms enmired in the decision-making process (Lewis, 2000; Sharma & Irving, 2005). In coping with conflicts and solving them—for example, through a long sense-making process (Shepherd, 2009)—the family firm loses dynamism, speed, and thus innovativeness (Allison et al., 2014). Hence, tensions that are perceived as salient hinder family firms and result in less ambidextrous behavior within the family firm, as its owner managers remain locked in conflict (Kammerlander, 2013). Moreover, the experiences family managers forge in these stress-loaded learning situations will most likely translate into rigid, habitual memory and, thus cannot be fruitfully transferred into paradoxical situations (Schwabe & Wolf, 2013).

The extant literature has found that acutely emerging salient tensions are indeed mostly negative in larger, later-generation family firms, where the positive aspects of family involvement appear to become obstacles to simultaneously balancing and pursuing the tensions caused by contradictory yet interrelated elements (e.g. Hiebl, 2015; Veider & Matzler, 2016). In these cases, owner-managers tend to become more risk-averse, and prefer to do what they have done for many years, reducing their open-mindedness to new ideas

(Breton-Miller & Miller, 2006). Additionally, family dominance, which typically increases in times of conflict, can also result in reduced cognitive diversity and absorptive capacity, both antecedents of ambidexterity (Cohen & Levinthal, 1990). Based on these findings, and in line with paradox theory, this study concludes that paradoxical tensions, when they are perceived as salient, lead to negative effects such as conflicts, anxiety and being enmired in decision-making. This negatively influences the family manager's ability to be ambidextrous, thus reducing her/his innovative behavior. Therefore, it is hypothesized that:

H1b Salient paradoxical tensions negatively influence innovation-related ambidexterity.

3.2 Family Cohesion and innovation-related ambidexterity

Extant research has demonstrated that family members significantly influence firm outcomes due to their kinship ties, which stem from the embeddedness of the entrepreneurial family and the business system (Gagné et al., 2014). Family members frequently maintain a strong presence in the family firm's management, and have unique ways of interacting with each other, which might lead to positive cohesion within the whole management team (Ensley & Pearson, 2005; Zahra, 2012).

'Cohesion' refers to the shared attraction to, or liking for, a group (Evans & Jarvis, 1980; Beal et al., 2003) that goes along with high levels of mutual interaction and bonding amongst group members (Gully et al., 1995). Social identity theory, for instance, suggests that cohesion leads to increased cooperation and mutual aid within a group, and in general, to higher levels of group member participation whilst fulfilling demanding tasks (Wong, 2004). Furthermore, cohesion promotes intragroup communication and mutual understanding, and thus facilitates the coexistence of conflicting demands that ambidexterity entails (Beal et al., 2003; Ensley et al., 2002). Enhanced communication, cooperation, and supportive behavior foster the establishment of shared perceptions about cognitive, emotional or affective states (Mathieu et al., 2008; Marks et al., 2001) and thus promote a deepened mutual understanding amongst family members, that may potentially even result in similar thinking patterns (Zahra, 2012).

In general, research on psychological climate (Edmondson, 1999; Pirola-Merlo et al., 2002; Gilson & Shalley, 2004) suggests that such emergent socio-psychological states constitute positive stimuli within teams, so that group members feel comfortable with openly exchanging information and testing novel approaches (Gilson & Shalley, 2004). Hence, family members are more inclined to exchange knowledge, share experiences and expand the firm's overall network (Zahra et al., 2007), which leads to an increased variety of perspectives (Zahra, 2012). This improves a team's ability to process complex information (Wong, 2004), to collectively master challenging learning objectives, and to achieve high levels of commitment within the group (Barrick et al., 2007). Cohesive teams, thus, are expected to increasingly benefit from and incorporate knowledge sources, as well as the learning efforts of their team members (Gully et al., 1995). Hence, increased cohesion supports the ability of the family manager to deal with conflicting goals and to facilitate the coexistence of contrasting goals and agendas (Smith & Tushman, 2005).

Taken together, increased cohesion improves the family firm's decision-making abilities (e.g., Kellermanns & Eddleston, 2004) and fosters entrepreneurial spirit (Kraus et al., 2012). Prior research has confirmed that team cohesion (Janssen et al., 2004), and family cohesion in particular, improves organizational processes and eventually firm outcomes (Pieper, 2007) such as organizational learning (Zahra, 2012) or the ability for ambidexterity

(e.g. Jansen et al., 2009; Jansen et al., 2016; Lubatkin et al., 2006; Rondi et al., 2018). Miller and Le Breton-Miller (2006), for example, find that the cohesive management styles of family owners regarding incentives, discretion, governance, people, and external relationships, foster ambidexterity. In a similar vein, a positive effect on family firm ambidexterity was demonstrated by Stubner and colleagues (2012) in cases where family and firm culture were strongly aligned. Accordingly, it is hypothesized that:

H2 Family cohesion positively influences innovation-related ambidexterity.

3.3 Family cohesion, perceived paradoxical tensions, and innovation-related ambidexterity

The theorized positive direct effect of family cohesion on innovation-related ambidexterity could be further explained by the influence of family cohesion on paradoxical tensions, thus resulting in an indirect mediation mechanism of differently perceived paradoxical tensions. As outlined above, team cohesion leads to more open communication within the group, resulting in an increased variety of perspectives (Foo et al., 2006; Mesmer-Magnus & DeChurch, 2009; Zahra, 2012), higher participation from group members when working together on tasks (Yoo & Alavi, 2001) and increased information-sharing within the group (Mesmer-Magnus & DeChurch, 2009).

Such behavior, comprising open communication and information-sharing, might theoretically be explained by a heightened psychological safety climate resulting from close, supportive interpersonal relationships (Kahn, 1990) and, thus, cohesion. Indeed, psychological safety has statistically been shown to be positively related to information sharing (Frazier et al., 2017). In family firms in particular, psychological safety allows family members to openly express disagreement, for example, with respect to their SEW preferences (Vandekerkhof et al., 2018). Psychological safety therefore creates an atmosphere of trust and mutual respect, in which family members feel comfortable, and are not fearful of negative judgments when openly communicating different opinions or positions (Edmondson, 1999; Kahn, 1990; West & Anderson, 1996). As a consequence, one might assume that the higher a group's cohesion (and the increased psychological safety it brings), the higher the probability that permanently present paradoxical tensions will come to the fore and be collectively perceived. However, psychological safety is also a team factor that facilitates the process of working together, despite the presence of different positions within the family firm TMT (Vandekerkhof et al., 2018).

At the same time, cohesion not only fosters open and more interactive communication, but also elicits cooperative forms of communication (Abu Bakar & Sheer, 2013; Mesmer-Magnus & DeChurch, 2009). In fact, research has frequently and explicitly linked specific facets of communication to team cohesion, including cooperative communication (Abu Bakar & Sheer, 2013; Carless & De Paola, 2000; Lee, 1997). Cooperative communication behavior in individuals includes exchanging information and exhibiting the willingness to share ideas and scarce resources (Tjosvold et al., 1984). Cooperative group discussions have been found to increase the internal processing of information by the individual members (Greenhalgh & Chapman, 1998; Henningsen & Henningsen, 2003) and to foster a team communication culture where concerns can be openly expressed, responsiveness to each other is exhibited, and mutual support and sensitivity are shown, in order to achieve overall agreement within the group (Tjosvold, et al., 1984; Chen et al., 2006). Furthermore, communication literature (e.g., Kramer 2014; Sias & Jablin, 1995) suggests that a cooperative communication climate within a group in general positively

impacts group dynamics, which contributes to improved interpersonal relationships and positive organizational outcomes (Pillemer et al., 2003; Yoo & Alavi, 2001).

In summary, a high degree of family cohesion leads to an emergent state of psychological safety, promoting open communication with regard to group members' individual preferences, needs, or opinions, and thus results in a higher disclosure of paradoxical tensions. At the same time, a high degree of family cohesion also promotes cooperative communication, meaning that group members execute team processes, and seek consensus and shared decision-making (Marks et al., 2001). Therefore, the paradoxical tensions remain permanently present, but are of a latent nature and, thus, increase innovation-related ambidexterity (see H1a), resulting in the following mediation hypothesis:

H3a The relationship between family cohesion and innovation-related ambidexterity is mediated by latent paradoxical tensions. Specifically, increasing family cohesion raises the latent paradoxical tensions, thereby increasing organizational ambidexterity.

As discussed above, family firm members face permanently present latent paradoxical tensions, stemming from the close interrelation of the family with the firm (Gagné et al., 2014). The huge variety of goals and different perspectives becomes even more apparent under conditions of high family cohesion and corresponding open communication. However, since family cohesion promotes not only open but also cooperative communication, tensions will most probably remain of a latent nature (see H3a).

Additionally, members of cohesive teams are more likely to experience a cooperative work context that facilitates negotiation, mutual adjustment, and the integration of conflicting agendas and learning attitudes (O'Reilly et al., 1989; Nakata & Im, 2010). Cohesion provides reliable platforms for voicing dissenting opinions, and promotes norms of constructive conflict resolution when engaging in explorative and exploitative learning (Wong, 2004). Therefore, members of cohesive teams would be expected to be more tolerant towards disagreement and dissent, and to embrace cooperative conflict management, including interventions to resolve dissimilar values (Ensley et al., 2002). Such cooperative behavior amongst cohesive teams thus suggests a negative relationship between family cohesion and acutely emerging salient paradoxical tensions.

As a consequence, cohesive family members will go to great lengths to obviate latent tensions, preventing them from becoming salient. Because owner families and family firms have been found to protect their SEW (Gomez-Mejia et al., 2011), especially the positive image of the owner family and the family firm with regard to external stakeholders (Zellweger et al., 2012), this, as well as their emotional attachments within the family (Astrachan & Jaskiewicz, 2008), leads them to avoid circumstances that will cause those socioemotional assets to deteriorate in value. For example, in situations involving stressful, external events, permanently present latent tensions can suddenly become acute, and are then perceived as salient tensions by family managers (Smith & Lewis, 2011). In such exceptional situations, the usually cohesive, close collaboration, as well as behavioral or social integration (Ensley & Pearson, 2005), are endangered. As a result, the constructive atmosphere can be destroyed and internal conflicts can arise (Kellermanns & Eddleston, 2004). Consequently, prior latent tensions might evolve into tensions perceived as salient, that may reinforce conflicts among the family management and result in an overall climate that is perceived as negative and hindering (Björnberg & Nicholson, 2007). This might give rise to bad feeling, repression, denials, or even a blocking of awareness (Lewis, 2000), which may prevent family firm managers from making important decisions.

As cohesive family members demonstrably strive for common values and aim at the fulfilment of the family mission (Lee, 2006; Zahra, 2012), they are particularly skeptical of, or anxious about, emerging salient paradoxical tensions (Lewis, 2000). Through their strong presence in the firm's management, cohesive family members strive for increasing consensus among the whole management team (Ensley & Pearson, 2005). This consensual and positive climate provides a less stressful experience. In such a learning environment, a family manager's flexible cognitive memory can be enhanced. This, in turn, makes it more probable that the manager will use her/his experience with regard to paradoxes in firm-internal ambidextrous decision-making situations. Accordingly, it is hypothesized that:

H3b The relationship between family cohesion and innovation-related ambidexterity is mediated by salient paradoxical tensions. Specifically, increasing family cohesion lowers the salient paradoxical tensions, thereby increasing organizational ambidexterity.

4 Methods

4.1 Sample and data collection

Two large databases of business contacts from universities in Germany and Switzerland were used to identify N = 6.202 German family firms and their corresponding family members across a broad range of industries. In order to ensure that the survey was sent only to family firms meeting the definition, the following three criteria were applied. Firstly, for family ownership, a threshold was set of at least 5% of stocks to be owned by family members (e.g., Gomez-Mejia et al., 2003). Secondly, concerning active family involvement in the firm, at least one (owner-) family member was required to be actively involved in managing or supervising the family firm, e.g. in the firm's top management team or supervisory board (e.g., Anderson et al., 2003). Thirdly, for the self-perception of being a family firm, the study followed the work of, e.g., (Eddleston et al., 2012; Kotey, 2005). Only those companies with more than 50 employees, and a location in Germany were then included. Further screening of the database with regard to contact details, including names and personal email addresses, resulted in a reduced sample of N = 3.870 German family firms; a sample of verified individual family firm contacts was preferred, since personalized surveys generate higher response rates and better response quality (Heerwegh et al., 2005).

A web-based online survey was sent via email to the owner-managers of the family firms identified. The key informant approach was used, in line with other studies on family firms (e.g. Eddleston et al., 2008; Querbach et al., 2020), because owner-managers have first-hand experience and profound knowledge of both the firm's ambidexterity, and the family's cohesion and paradoxical tensions. Online surveys typically outperform paper-based mailing in terms of response rates, response speed, costs, and convenience for respondents (Sheehan, 2001; Wright, 2005). An individual access code for every recipient ensured that each company was able to complete only one questionnaire.[1]

[1] In addition, secondary access codes offered the option of inviting an additional member of the owner family to answer the questionnaire. However, the number of secondary respondents was very limited (seven companies, with fourteen respondents) and after data revision, only one company with two respondents remained. These datasets were therefore ultimately not used in any analyses.

Data collection lasted for two months, from May to July 2017. Within the data collection period, each contact received an initial invitation and two reminders, which resulted in a total of 299 survey responses. Those firms that were not considered family firms according to the definition above (N = 7) were excluded, as were responses from respondents who were not family members, or who had no operational or strategic influence in the firm (N = 26). After removing questionnaires with incomplete information (N = 60), a final sample size of 206 was arrived at.

4.2 Variables

4.2.1 Dependent variable

Organizational ambidexterity[2] (OA) is a second order construct that originates in the work of He and Wong (2004). Several authors have successfully used this measure in their research (e.g., Cao et al., 2009; Chang & Hughes, 2012; Gedajlovic et al., 2012; Lubatkin et al., 2006). This study adopts the refined measures of Lubatkin and colleagues (2006), which also incorporate a two-dimensional definition of ambidexterity with a technology/product perspective and a customer/market segment perspective (Benner & Tushman, 2003). The final construct consisted of six items for exploration, and six items for exploitation. For all items, respondents were asked to rate their firm's ambidextrous orientation on a seven-point Likert scale from 1 = 'strongly disagree' to 7 = 'strongly agree'. Researchers use different methods to combine exploitation and exploration measures and to create a single ambidextrous orientation measure. He and Wong (2004) subtract exploitation from exploration; Gibson and Birkinshaw (2004) multiply both; Lubatkin and colleagues (2006) use the sum of all items. The recommendations of Lubatkin and colleagues (2006) and Edwards (1994) were followed for this study, identifying the most interpretable approach of combining exploration and exploitation measurements. Firstly, a regression analysis was undertaken, with firm performance as a dependent variable, and three separate versions of ambidextrous orientation as independent variables: multiplying exploration and exploitation constructs, subtracting exploitation from exploration, adding both, and multiplying both. Comparable to the work of Lubatkin and colleagues (2006), the additive model was superior to both alternatives, with the highest explanatory value. Organizational ambidexterity (OA) was defined as a second order construct, which had an overall reliability of 0.84. The utilized sub-dimensions for exploitation and exploration in this analysis have a reliability of 0.76 and 0.82 respectively.

4.2.2 Independent/mediating variables

The research model consists of three independent constructs: latently perceived paradoxical tensions, saliently perceived paradoxical tensions, and family cohesion. *Latent paradoxical tensions* includes six items, adopted from a scale developed by Ingram and colleagues (2016) for measuring perceived paradoxical tensions. Participants were able to answer each item on a seven-point Likert scale ranging from 1 = 'strongly disagree' to 7 = 'strongly agree'. The reliability coefficient was good ($\alpha = 0.84$).

[2] Lubatkin et al. (2006) originally used the term 'ambidextrous orientation'. For reasons of consistency with the theory, the term 'organizational ambidexterity' (OA) is used throughout here.

Theoretical considerations highlighted the need for differentiation between *latent* (Ingram et al., 2016) and *salient paradoxical tensions*. Therefore, a second construct was added to the questionnaire. Whilst latent paradoxical tensions were measured following the four-item scale of Ingram and colleagues (2016), the scale to measure salient paradoxical tensions was designed specifically for the purposes of this study[3]. Salient paradoxical tensions measure the degree to which latent paradoxical tensions influence the decision-making of team members of family firm managements. The construct consists of six items. Each item's text thereby consists, in part, of the item text of latent paradoxical tensions and an extension that asked participants whether or not the described tensions influence business-related behavior. The reliability coefficient was good ($\alpha = 0.87$).

Family cohesion (FC) is a four-item construct adopted from Smyrnios and colleagues (2003). The construct measures the level to which family members exhibit effective communication, have commitment to each other, express appreciation to each other, and spend special time with each other. Participants were asked to assess the cohesion of their core family on a 7-point scale from 1 = 'strongly disagree' to 7 = 'strongly agree'. The questionnaire specified the question as being related to the cohesion between the respondents' parents, siblings, or children. The reliability coefficient is good ($\alpha = 0.88$).

4.2.3 Control variables

In addition to the aforementioned measures, several variables were controlled for that have been associated with the main constructs within research literature: past firm performance, generation of family ownership, family ownership, and firm size. However, perceived environmental uncertainty could not be controlled for, since low factor loadings and high cross loadings did not allow for construct assignment.

Past firm performance was used as a control variable because research has already identified a positive association between a firm's ambidextrous orientation and performance (e.g., Cao et al., 2009; Chang & Hughes, 2012; Gibson & Birkinshaw, 2004; Jansen, Van Den Bosch, & Volberda, 2006; Lubatkin et al., 2006). A four-item construct measured a firm's performance relative to other major competitors. Items were adopted from Lubatkin and colleagues (2006) as well as from Gupta and Govindarajan (1986). Participants were able to rate the performance of their firm in the last twelve months as compared to their main competitors on a seven-point scale from 1 = 'much worse' to 7 = 'much better'. Performance indicators include revenues, market share, and number of employees, as well as profit ratio. Reliability was good ($\alpha = 0.86$). *Generation of family ownership* was further controlled for, as both variables have been associated with exploration and exploitation (Hiebl, 2015; Lubatkin et al., 2006; Veider & Matzler, 2016). In order to control for *family ownership*, the work of Chua, Chrisman, and Sharma (1999) was followed, and shares owned by the owning family measured. Finally, research has associated firm size with inertia, difficulty in processing information related to changing resources, and failure to adapt to changing resource conditions (Hannan & Freeman, 1989; Lubatkin et al., 2006). Therefore, firm size was controlled for, using the *number of employees*.

[3] Designed for the purposes of this study after lengthy discussion with, and the cooperation of, V. Schlippe.

Table 1 Descriptive statistic and correlations

Variable		Mean	SD	1	2	3	4	5	6	7
1	Past performance	4.70	0.94							
2	Generation	3.19	2.76	0.039						
3	Family ownership	97.260	11.26	−0.013	−0.002					
4	Number of employees	3.90	1.28	0.066	0.105	−0.056				
5	Family cohesion	5.26	1.14	0.357***	0.016	−0.099	−0.159*			
6	Latent paradox	3.94	1.63	0.046	0.052	0.030	−0.123†	0.042		
7	Salient paradox	1,94	1.12	−0.273***	−0.048	−0.016	−0.010	−0.284***	0.297***	
8	Ambidexterity	5.20	0.79	0.327**	0.028	−0.053	−0.072	0.436***	0.240***	−0.195**

N = 206; *** p≤.001; ** p ≤ .0.01; * p ≤ .0.05; †≤0.10

4.3 Data analysis and results

For actual calculations, AMOS software version 27 and SPSS Statistics version 27 were used. The descriptive statistics and correlations of the dependent, independent and control variables are shown in Table 1.

Subsequently, an overall mediation analysis was carried out. In order to do so, the four steps suggested by Baron and Kenny (1986) for a classical mediation analysis were followed. In the first model, the controls were entered with ambidexterity as dependent variable. Past performance was significantly related to ambidexterity ($\beta = 0.331$; $p < .001$). This control variable is also significant for *salient* paradox as a dependent variable ($\beta = -0.272$; $p < .001$) in Model 6 with salient paradox as a dependent variable, but is not significant if *latent* paradox is the dependent variable. The other control variables were not significant in any of the models.

In the first step (Model 2), the mediators were added to the control variables. Both latent paradoxical tensions ($\beta = 0.285$; $p < .001$) and salient paradoxical tensions ($\beta = -0.211$; $p < .01$) were significantly related to ambidexterity, supporting H1a and 1b. In Model 3, the independent variable 'family cohesion' was added to the control variables, with the presence of the mediator variable. The construct is significantly related to ambidexterity ($\beta = 0.359$; $p < .001$), supporting H2. The significant relationships further fulfill the requirement that both independent and mediator variables have a significant relationship to the dependent variable. In Models 4 to 7 the mediators were used as dependent variables. The second step in the Baron and Kenny model dictates that the independent variable must be significantly related to the mediators. This was the case for salient paradox ($\beta = -0.225$; $p < .01$) in Model 7, but not for latent paradox ($\beta = 0.004$; ns.) in Model 5.

The third step requires that the mediators affect the dependent variable (ambidexterity) in the presence of the independent variable (family cohesion). This was the case for both latent paradox ($\beta = 0.260$; $p < .001$) and salient paradox ($\beta = -0.136$; $p < .05$) in Model 8. The first three steps had to be met for mediation to occur, and required as a fourth step that the independent variable (cohesion) become less significant for partial mediation or non-significant for full mediation to occur. As the three steps were not met for latent paradox, there is no mediation for this variable. However, all three steps were met for salient paradox and the beta coefficient was reduced for cohesion ($\beta = 0.327$; $p < .001$), suggesting partial mediation. Accordingly, H3a is not supported, whilst support is found for the mediational effect of salient paradoxical tensions that were argued in H3b. The full regression models are shown in Table 2.

4.4 Post-hoc tests

In order to control for non-response bias, early respondents were compared with late respondents, as late and non-respondents tend to show similar characteristics (Oppenheim, 1966; Kanuk & Berenson, 1975). Respondents who answered the initial mailing were classified as early, and respondents who answered after the second reminder as late. Analyses of variance between early and late respondents and all dependent and independent constructs show no statistically significant results.

Secondly, checks were carried out to ascertain whether the sample was similar to the total population of German family firms. Key characteristics on the firm level in this sample were therefore compared with data about the entire firm population in 2019, provided

Table 2 Regression models

Variables	Ambidexterity			Latent paradox		Salient paradox		Ambidexterity
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Controls								
Past performance	0.331***	0.258***	0.199**	0.053	0.052	−0.272***	−0.189**	0.160*
Generation	0.027	0.000	0.018	0.064	0.064	−0.039	−0.034	0.003
Family ownership	−0.055	−0.065	−0.17	0.023	0.024	−0.019	−0.042	−0.029
Number of employees	−0.100	−0.059	−0.031	−0.132†	−0.134†	0.011	−0.032	−0.001
Independent variable								
Family cohesion			0.359***		0.004		−0.225**	0.327***
Mediator								
Latent paradox		0.285***						0.260***
Salient paradox		−0.211**						−0.136*
R^2	0.118	0.201	0.225	0.023	0.023	0.076	0.118	0.285
Adj. R^2	0.101	0.177	0.206	0.003	−0.002	0.058	0.096	0.260
ΔR^2		0.083***[1]	0.105***[1]		–		0.038**[2]	0.054***[3]
F statistic	6.754	11.612	11.612	1.173	0.934	4.144	5.366	11.289

[1]Compared to Model 1;[2]compared to Model 6;[3]compared to Model 3; N = 206; $p \leq .001$; ** $p \leq .0.01$; * $p \leq .0.05$; †≤0.10

by the German foundation of family firms (Stiftung Familienunternehmen, 2019). On the firm level, 99% of all family firms have an annual turnover below EUR 50 m. Similarly, with regard to the number of employees within the whole family firm population, 97% had fewer than 50 employees, whereas only 0.2% had more than 250 employees. The sample for this study, in contrast, consisted of family firms, of which 87% had more than 250 employees. Thus, large-sized family firms would seem to be overrepresented in this sample. This apparent shortcoming might, however, be viewed instead as a strength of this sample, as in micro-firms, which are often the proverbial 'one-man band', the processes observed never occur. On the individual level, within the entire family firm population of Germany, 89% of the firms are owned by the family and 86% are managed by at least one family member. In the sample for this study, according to the definition of family firms used here, and the aforementioned exclusion criteria, 100% of the firms were owned and managed by the family, which is close to the actual figure.

In addition, attempts were made to mitigate the potential for common method bias as far as possible. Firstly, the study was pre-tested with practitioners, and instructions and questions were designed to be straightforward (e.g., avoiding scientific terms or multi-part questions). Questions were asked in an order that was not conducive to participants guessing at relationships (Podsakoff et al., 2003). Furthermore, the survey was guaranteed to be entirely confidential; this should mitigate social desirability biases (Podsakoff et al., 2003). As suggested, Harman's single factor test (Harman, 1967) was also conducted, whereby all multi-item constructs were entered into an exploratory factor analysis. To mitigate common method bias concern, the first factor should not explain more than half of the overall variance (Podsakoff & Organ, 1986). Overall, the exploratory factor analysis extracted 65.235% of cumulative variance with the first factor accounting for 21.812%, for less than the suggested threshold, thus mitigating common method concerns. In a second step, a structural equation model was run, where all items were loaded on one method factor. The resulting model fit was extremely poor ($\chi 2 = 2564.078$; df = 464; $p < .001$; CFI = 0.299; NFI 272; RMSEA = 0.149) (e.g., Hu & Bentler, 1995).

Academic debate is ongoing with regard to the overuse of control variables (Berenth and Aguinis, 2016); the analysis here erred on the side of parsimony. However, an additional analysis was undertaken, with age, gender and education as controls. The results remained very similar. In a further step, the model was also run including social desirability items as controls (Winkler et al., 2006): here, once again, the results remained largely the same.

5 Discussion

5.1 Implications for theory and practice

Although a growing body of literature exists that examines how entrepreneurial families and their family managers affect innovation-related ambidexterity, research on the paradoxical tensions fostering or hindering family firm innovation remains in its infancy (De Massis et al., 2013; Duran et al., 2016; Urbinati et al., 2017). Despite the fact that authors such as Plate and von Schlippe (2010) and Ward (2009) have undertaken groundbreaking theoretical work in explaining the causes, types, and consequences of paradoxes in family firms—a growing domain within the entrepreneurship field—knowledge remains fragmented. Academic research into innovation-related

ambidexterity, driven by the unique peculiarities of the entrepreneurial family firm and their managers, requires further contribution and substantiation (Arzubiaga et al., 2018; De Massis et al., 2013; Hiebl, 2015; Kammerlander et al., 2020).

This study makes a contribution towards closing this gap in the extant literature by drawing on data from 206 German family firms, in order to assess the effect of different family firm idiosyncrasies, potentially serving as antecedents of innovation-related ambidexterity. The findings lead to the conclusion that, in family firms, ambidexterity serves as the 'missing link' between innovation, management and entrepreneurship. The following paragraphs outline how ambidexterity specifically connects these three academic fields by revealing the contribution this study makes to each of them.

Firstly, this study contributes to the literature on organizational *innovation* by further investigating ambidexterity as an innovation paradox. Specifically, the work on organizational paradoxes provided by Ingram and colleagues (2016), who were among the first to link latently perceived paradoxes to family firms' innovative behavior, but not to ambidexterity, is further built upon and extended. In particular, this study not only investigates the effect of paradoxical tensions on innovation-related ambidexterity, but furthermore distinguishes between two different types of paradoxical tensions (latent and salient types), and investigates their effect on ambidexterity in the unique context of entrepreneurial family firms and their managers. Theorizing, and strong empirical support, is provided for a positive effect of paradoxical tensions perceived as latent, as well as a negative relationship between paradoxical tensions perceived as salient, on innovation-related ambidexterity. This novel differentiation between latent and salient paradoxical tensions constitutes an important extension to the framework of Ingram and colleagues (2016). Moreover, it is in line with prior research assuming the positive (e.g. Gedajlovic et al., 2012) and negative effects (e.g., Veider & Matzler, 2016) of paradoxical tensions on a firm's innovation capabilities; thus, it adds to the frequent calls for a more nuanced investigation of the reasons behind such mixed results (Allison et al., 2014). This is important, as the successful management of different paradoxical tensions has been shown to have positive effects on ambidextrous behavior and, eventually, on performance outcomes (Vrontis et al., 2017; Soetanto & Jack, 2018).

Secondly, this study adds to the *entrepreneurship* literature, particularly the growing domain of family firms and the entrepreneurial family, as family involvement has been shown to influence innovation (Cucculelli et al., 2022; Pucci et al., 2020). Specifically, the study draws on family cohesion (Olson, 2000) as a family-unique resource assumed to reduce stress and conflicts stemming from paradoxical tensions within the entrepreneurial family (Eddleston & Kellermanns, 2007). The study thereby theorizes and empirically tests a direct, positive effect of family cohesion on organizational ambidexterity, as well as the indirect effects of family cohesion on organizational ambidexterity via mediation of latent and salient tensions. In particular, it is theorized that a high level of family cohesion leads to a rise in latent paradoxical tensions and, thus, increases organizational ambidexterity; a high level of family cohesion leads to the lowering of the salient paradoxical tensions, also increasing organizational ambidexterity. The data provides strong empirical support for the direct relationship, as well as for the indirect effect of salient tensions, thus supporting partial mediation in this case. In contrast, no support is found in the case of latent tensions. It is assumed that latent paradoxical tensions are commonly present in family firms (Ingram et al., 2016), and thus exist alongside other family firm-specific characteristics, such as family cohesion. Therefore, family cohesion might not have a mediating effect via latent paradoxical tensions.

In contrast, regarding the case of tensions emerging as salient that would ordinarily negatively affect innovation-related ambidexterity, family cohesion can reduce stress (Olson, 2000), thereby lessening the negative effect of salient tensions and, thus, positively affecting organizational ambidexterity. This brings novel insights to the literature, showing that the idiosyncrasies of the entrepreneurial family firm, such as family cohesion, can reduce conflicts and stresses (Eddleston & Kellermanns, 2007) and therefore lessen the negative effect of hindering, salient paradoxical tensions on innovation-related ambidexterity. Family firms thereby seem to have the ability to learn from family cohesion, in order to be able to inhibit the emergence of salient paradoxical tensions, which adds to prior studies that assume family-related factors reduce the potentially negative effects of paradoxical tensions (e.g., Allison et al., 2014; Ingram et al., 2016). Hence, this study suggests that entrepreneurial family firms are able to build, and draw upon, specific resources (Habbershon & Williams, 1999) stemming from their constant exposure to different types of paradoxes, as well as from family cohesion (Olson, 2000), in order to behave ambidextrously.

Thirdly, these findings also add to the *management* literature: specifically, the literature considering the hitherto under-researched role of family managers' (Scholes et al., 2021; Kammerlander et al., 2020) constant exposure to organizational paradoxes (Lin et al., 2013) and CRT (Fiedler, 1986). The distinction made here between the two different perceptions of permanently present *latent* and acutely emerging *salient* paradoxical tensions—(with the former being seen as a cognitive capability supporting ambidexterity, and the latter seen as cognitive stress, hindering ambidexterity) – contributes novel insights on organizational paradoxes, and adds empirical evidence to Fiedler's (1986) CRT, proposing that a manager's perceived stress in an uncertain decision situation plays an important moderating role on organizational outcomes, such as innovation. Thus, in stressful situations, paradoxes no longer serve as a cognitive *resource*, but constitute a cognitive *obstacle*, hindering innovation. Moreover, by empirically testing these relationships using relatively new measures, the study also contributes to extant theory on organizational paradoxes from a methodological point of view.

In summary, this study presents those paradoxical tensions that family managers experience in their entrepreneurial families as the 'missing link' between the entrepreneurial family and important management decisions at the firm level, such as innovation-related decisions. Specifically, the entrepreneurial family—by virtue of its cohesion—crucially affects ambidexterity decisions at the family firm level, because of the family managers' constant exposure to organizational paradoxes, i.e., presently *latent*, and acutely emerging *salient*, paradoxical tensions. This study provides novel empirical advances on the crucial role played by paradoxical tensions in family firms, in terms of their influencing the family firm manager's social interaction with the entrepreneurial family when making innovation-related decisions in response to economic challenges. Besides the aforementioned theoretical contributions, this study has several practical implications. Firstly, it expands the current knowledge about factors that influence ambidextrous behavior in family firms. In doing so, it draws attention to the need for family firm decision-makers to use their unique abilities, so as to cope with differently perceived paradoxical tensions of a latent and a salient nature, in order to achieve ambidexterity, which has proved to be a crucial driver of innovation and, thus, future firm performance (Lubatkin et al., 2006; Lavie et al., 2010). Secondly, the study aims to increase the awareness of family firm owner-managers with regard to the negative power of salient paradoxical tensions and the alleviating mechanism of family cohesion. These findings could help family firm leaders to identify salient paradoxical tensions as they arise, and to find suitable ways within the family to address them successfully. The results clearly show that a high degree of family cohesion not only affects

the family positively, but also the family firm, by fostering organizational ambidexterity directly and indirectly, thus presenting paradoxical tensions as a 'missing link' between innovation, entrepreneurship and management.

5.2 Limitations and future research

This study has some limitations which may, however, offer opportunities for future research. Firstly, the data may be liable to 'survivorship bias', meaning that it consists of family firms that were able to successfully approach and cope with differently shaped paradoxical tensions. It would therefore be interesting for future research to search for and investigate cases where differently perceived paradoxical tensions were *not* successfully mastered. A case study approach, for example, could be interesting in shedding more light on less successful cases, and revealing reasons for these firms being less able to cope with paradoxical tensions. Here, the role of relationship conflict in particular may be important as the antithesis of family cohesion (Gordon & Nicholson, 2008).

Secondly, some of the controls used here, such as generation or degree of family ownership, seem to play a substantial role in family firm organizational ambidexterity and require further research (Kraiczy et al., 2015b). Research seems hitherto to have focused largely on structural antecedents, such as the degree of family ownership and the involvement of non-family owners (e.g. Hiebl, 2015). More recent research (e.g. Hiebl, 2015; Veider & Matzler, 2016), however, suggests that family members should be viewed as resources and capabilities that can foster organizational ambidexterity. This study has taken a first step towards focusing on the family by investigating family cohesion; future research should expand on this by investigating additional family-related processes and resources.

It is also necessary to mention the locale of this study. It investigates German family firms, which hold considerable significance for the German economy (Klein, 2000). Whilst the authors believe that the findings are generalizable beyond the German cultural context (Hofstede, 2001), it is possible that, particularly in collectivistic cultures, the effects of salient paradoxical tensions could be more pronounced, while the occurrence of such tensions may be less likely in these cultural contexts.

Furthermore, this study is cross-sectional in nature. The authors would encourage future research that utilizes a longitudinal design; this would enable a better understanding of the ability of latent paradoxical tensions and the occurrence and persistence of salient paradoxical tensions. The design choice for this study also raised common method concerns; the tests that have been performed suggest that there is no adverse effect on the results (Podsakoff & Organ, 1986). Nevertheless, the authors encourage future research that aims to capture data from multiple family members, to further mitigate these concerns.

Future research might also investigate additional values on paradoxical tension research. This study has introduced the distinction between latent and salient paradoxical tensions. Whilst family cohesion has been introduced as an element in predicting these tensions, the additional process and structural characteristics of these tensions need to be identified. For example, how do ownership, management and generational diversity in the business affect these tensions? Equally, the 'pivot point' between latent and salient tensions could be investigated: what causes tensions to come to the forefront?

Additional research on ambidexterity in family firms is also warranted. This study operationalizes ambidexterity as a dependent variable in a common configuration from the literature (He & Wong, 2004; Lubatkin et al., 2006). Not only should future research aim to establish clearer guidelines for which operationalization is the most appropriate, but it

should also investigate the outcomes of ambidexterity. Whilst generally linked to innovation and performance in family firms (i.e. Kotlar et al., 2014), other variables such as patent activity and R&D alliance form patterns that could be investigated.

Appendix

Construct—source	Item	Alpha
Dependent variable		
Organizational Ambidexterity (Lubatkin et al., 2006)	Describe the firm as one that …	0.84
Exploration dimension	Looks for novel technological ideas by thinking 'outside the box'	
	Bases its success on its ability to explore new technologies	
	Creates products or services that are innovative to the firm	
	Looks for creative ways to satisfy its customers' needs	
	Aggressively ventures into new market segments	
	Actively targets new customer groups	
Exploitation dimension	Commits to improving quality and lowering costs	
	Continuously improves the reliability of its products and services	
	Increases the levels of automation in its operations	
	Constantly surveys existing customers' satisfaction	
	Fine-tunes what it offers, to keep its current customers satisfied	
	Penetrates more deeply into its existing customer base	

Construct—source	Item	Alpha
Mediator		
Perceived latent paradoxical tension (PPT) – Ingram et al., 2016	Embracing the founding traditions that made the firm successful, whilst simultaneously looking for new opportunities	0.84
	There are pressures to explore new ways of doing things, whilst embracing company traditions	
	Decisions about reinvestment of profit in the business, versus payment of dividends	
	Feeling free to do my job of my own accord, yet my work is monitored and controlled by the older generation	
	Decisions about upholding the founding family business values versus creating new values to compete	
	Making sure retired family members have adequate dividends, but also ensuring there is enough money to grow the business	
Perceived salient paradoxical tensions (APT)—Ingram et al., 2016 and own	Embracing the founding traditions that made the firm successful, whilst simultaneously looking for new opportunities – as a consequence, I feel affected by business activities	0.87
	There are pressures to explore new ways of doing things, while embracing company traditions opportunities – as a consequence, I feel affected by business activities	
	Decisions about reinvestment of profit in the business versus payment of dividends – as a consequence, I feel affected by business activities	
	Feeling free to do my job of my own accord, yet my work is monitored and controlled by the older generation – as a consequence, I feel affected by business activities	
	Decisions about upholding the founding family business values versus creating new values to compete – as a consequence, I feel affected by business activities	
	Making sure retired family members have adequate dividends, but also ensuring there is enough money to grow the business – as a consequence, I feel affected by business activities	
Independent variable		
Family cohesion - Smyrnios et al., 2003	To what extent does your family spend special time together?	0.88
	To what extent does your family have a commitment to each other?	
	To what extent does your family have effective communication?	
	To what extent does your family deal effectively with crises?	

Construct—source	Item	Alpha
Control variable		
Performance—Lubatkin et al., 2006	Compare their firm's performance relative to that of other major competitors:	0.86
	Revenue growth	
	Growth of market share	
	Growth of number of employees	
Generation	The current generation with ownership shares	NA
Family ownership	The percentage of the business owned by members of a family	NA
Firm size	The number of full-time employees	NA

Funding Open access funding provided by University of Bern.

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