Long-term Success of Family Firms: Investigating Specific Aspects of Firm-level Entrepreneurship and Individual-level Antecedents

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"The outcomes of any serious research can only be to make two questions grow where only one grew before."

Thorstein Bunde Veblen (1857-1929), American Economist and Sociologist

This remarkable statement has been my guiding principle over the last years. However, leaving existing questions unanswered and just raising new ones in addition would not be satisfying. Thus, in my attempt to conduct serious research in the sense of Veblen, I tried to answer existing questions as good as possible, and to raise new and interesting questions simultaneously.

Viewing my research activities as an academic greenhouse, I thus tried to harvest ripe but not low-hanging fruits, while seeding new and promising plants at the same time. And being an academic gardener can be great fun. Hence, I am looking forward to more exciting years of seeding, growing more and more plants, and of course harvesting.

At this point I would like to thank my referee Prof. Dr. Urs Fueglistaller and my co-referee Prof. Dr. Thomas Zellweger for introducing me to the world of academic gardening. My special thanks go to my family for enabling me to build my own academic greenhouse.

St.Gallen, March 2011 Philipp Sieger

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List of abbreviations

cp.	compare
e.g.	exempli gratia (for example)
EO	Entrepreneurial Orientation
FL	Factor Loading
F-PEC	Power, Experience, Culture
ln	logarithm
RBV	Resource based view
SFI	Substantial Family Influence
S.D.	Standard Deviation
STEP	Successful Transgenerational Entrepreneurship Practices
VIF	Variance Inflation Factor

Executive summary

Long-term success of family firms is of utmost social and economic importance. Three of its determinants are in the center of this Dissertation: firm-level entrepreneurial orientation (EO), managers' entrepreneurial behavior, and value-creating attitudes of non-family employees. Each determinant and respective research gaps are addressed by one paper of this cumulative dissertation.

Referring to firm-level EO, scholars claim that EO is a main antecedent to firms' both short- and long-term success. However, family firms seem to be successful across generations despite rather low levels of EO. The first paper addresses this paradox by investigating EO patterns of long-lived family firms in three Swiss case studies. The main finding is that the key to success is not to be as entrepreneurially as possible all the time, but to continuously adapt the EO profile depending on internal and external factors. Moreover, the paper suggest news subcategories to different EO dimensions. With regard to entrepreneurial behavior of managers, there is a lack of knowledge how individual-level and organizational-level factors affect its evolvement.

The second paper addresses this gap by investigating a sample of 403 middle-level managers from both family and non-family firms. It introduces psychological ownership of managers as individual-level antecedent and investigates the interaction with organizational factors. As a central insight, management support is found to strengthen the psychological ownership-entrepreneurial behavior relationship.

The third paper is based on the fact that employees' justice perceptions are established antecedents of value-creating employee attitudes such as affective commitment and job satisfaction. Even though family firms are susceptible to non-family employees´ perceptions of injustice, corresponding research is scarce. Moreover, the mechanism connecting justice perceptions and positive outcomes is still unclear. Addressing these gaps, the analysis of a sample of 310 non-family

employees reveals that psychological ownership is a mediator in the relationships between distributive justice perceptions and both affective commitment and job satisfaction.

Altogether, the three papers offer valuable contributions to family business literature with respect to EO, entrepreneurial behavior, and value-creating employee attitudes. Thus, they increase current understanding about important determinants of family firms' long-term success, while opening up numerous ways of future research.

1 Introduction

1.1 Main topic and structure

In recent years, the field of family business research has grown remarkably (Sharma, 2004; Zahra & Sharma, 2004). While defining a family business can be challenging (Astrachan, Klein, & Smyrnios, 2002; Lank, 1997), scholars agree on family businesses' social and economic importance (Astrachan & Shanker, 2003; Sharma, 2004). Consequently, the determinants of their long-term success have attracted considerable scholarly attention. This Dissertation focuses on three particularly important ones. First, firm-level entrepreneurship in the form of entrepreneurial orientation (EO) has been identified as an essential success factor (Lumpkin & Dess, 1996; Nordqvist, Habbershon, & Melin, 2008; Rauch, Wiklund, Lumpkin, & Frese, 2009). Second, individual-level entrepreneurial behavior of employees, such as middle-level managers, has been established as a core element of effective corporate entrepreneurship, thus contributing indirectly to a firm's success (Hornsby, Kuratko, & Zahra, 2002; Kuratko, 2010; Kuratko, Ireland, Covin, & Hornsby, 2005). Third, scholars emphasize the importance of enhancing value-creating attitudes and behaviors of non-family employees to family firms' success in general (Barnett & Kellermanns, 2006; Chrisman, Chua, & Litz, 2003; Chua, Chrisman, & Sharma, 2003). Prominent employee attitudes are affective commitment (cp. Allen & Meyer, 1990; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002) and job satisfaction (Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Judge, Thoresen, Bono, & Patton, 2001).

Despite considerable scholarly efforts, however, important research gaps exist with respect to all these three antecedents to family firms´ long-term success. Each of the three papers of this cumulative Dissertation deals with one of these antecedents and addresses specific corresponding research gaps. The first paper is based on three Swiss case studies and investigates EO in long-lived family firms. The second paper is a quantitative study based on a sample of 403 middle-level managers from both non-family and family firms. It examines how middle-level managers' entrepreneurial behavior can be enhanced by psychological ownership and organizational-level factors. The third paper is based on a sample of 310 non-family employees and investigates how their value-creating attitudes can be fostered through justice perceptions and psychological ownership toward the family firm.

The three papers offer valuable contributions to literature on three core elements of family firms´ long-term success, and thus increase our general understanding of how long-term success and performance of this unique organizational form can be achieved.

This Dissertation is structured as follows. First, the remainder of chapter 1 gives an overview about the definition of family firms, their economic and academic importance, as well as about firm-level and individual-level antecedents to their long-term success. Chapter 2 introduces the three papers. First, it illustrates the three specific research gaps that are addressed. Second, it presents the methodologies that are applied. Third, it depicts relevant characteristics of each paper. These follow in chapters 3, 4, and 5. Chapter 6 summarizes their respective contributions to theory and practice, addresses limitations, and presents promising avenues for future research, before the final conclusion is offered (see Figure 1).

Chapter 1	Definition of family firms Economic and academic importance of family firms Firm-level entrepreneurship and family firms' success Individual-level antecedents to family firms' success			
Chapter 2	Research gaps	Paper 1	Paper 2	Paper 3
	Methodologies	Paper 1	Paper 2	Paper 3
	Key characteristics	Paper 1	Paper 2	Paper 3
Chapter 3	Entrepreneurial Orientation in Long-lived Family Firms			
Chapter 4	Entrepreneurial Middle-level Managers: The Roles of Psychological Ownership and Organizational Factors			
Chapter 5	Affective Commitment and Job Satisfaction Among Non-family Employees: Investigating the Roles of Justice Perceptions and Psychological Ownership			
Chapter 6	Summary of theoretical and practical contributions Limitations Future research Conclusion			

Figure 1: Dissertation structure

1.2 Definition of family firms

Family business scholars have been struggling to define a family business for a long time. Family firms are a very heterogeneous group with regard to size, branch, age, and structure (Birley, 2001; Handler, 1989; Sharma, 2003b). In addition, the level and characteristics of the family's involvement and influence on the business is a complicating factor (Habbershon, Williams, & MacMillan, 2003; Habbershon & Williams, 1999; Klein, Astrachan, & Smyrnios, 2005). Defining a family business is thus described as a main challenge to the family business field

(Handler, 1989; Klein, 2000; Mustakallio, Autio, & Zahra, 2002; Sharma, 2004; Wortman, 1994).[1]

Today, there is still no commonly established definition within the scientific community (Astrachan et al., 2002; Ward & Dolan, 1998; Zahra & Sharma, 2004). According to Lank (1997, p. 154) *"there are as many definitions for 'family enterprise' as there are researchers in the field"*. Habbershon and Williams (1999) state that the field has not been precise in its definition of a family firm, with more than 40 suggested definitions in the 1990s. Similarly, Zahra and Sharma (2004) state that the family business field still lacks coherence and discipline regarding the use of definitional operationalizations. Astrachan et al. (2002) conclude that *"there is no clear demarcation between family and non-family businesses."* In addition, *"[...] artificially dichotomizing family vs. non-family firms [...] creates more problems than it attempts to solve"* (p. 46). This view is supported by Tsang (2002), who argues that companies should be placed on a continuum (cp. also Chrisman, Chua, & Zahra, 2003).

While circle models (Gersick, Lansberg, Desjardins, & Dunn, 1999; Sharma, 2003a; Tagiuri & Davis, 1996) and distinct behaviour of family firms (Chua, Chrisman, & Sharma, 1999) have received scholarly attention, the family's influence on the business has emerged as main differentiating characteristic between family firms and non-family firms (Astrachan et al., 2002; Habbershon et al., 2003; Habbershon & Williams, 1999). In recent years, two instruments measuring the family's influence have emerged, namely SFI (Klein, 2000) and F-PEC (Astrachan et al., 2002). SFI (Substantial Family Influence) captures the family's influence regarding its involvement in ownership, management, and governance on a continuous scale (Klein, 2000). A company has to be influenced by a family in a substantial way in order to be classified as a family firm. Family influence is regarded as substantial *"if the family either owns the complete stock or,*

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[1] It has to be noted that the meaning of the term "family" itself may differ across cultural contexts (cp. Klein 2000). However, this discussion is not deepened, as it is not central to this Dissertation.

if not, the lack of influence on ownership is balanced through either influence through corporate governance (percentage of seats in the board/family board held by family members) or influence through management (percentage of family members in the top management team)" (Klein, 2000, p. 158). This leads to a mathematical formula, whereas family businesses' SFI is equal or larger than 1 (cp. Klein, 2000). The SFI has been used in numerous quantitative studies (Frey, Halter, Klein, & Zellweger, 2004; Klein, 2000).

The F-PEC consists of the subcategories power, experience, and culture (Astrachan et al., 2002) through which the family can influence the business. The power subscale refers to power in terms of ownership and involvement in management and governance. The experience dimension refers to the family's generational involvement and related experiences with regard to succession, as well as to the number of contributing family members. The culture subscale touches upon the overlap of family and business values as well as the family's commitment to the business. The F-PEC is a move towards a multidimensional construct with continuous measures. A respective measurement instrument has been validated by Klein et al. (2005).

In the Successful Transgenerational Entrepreneurship Practices (STEP) project, which investigates long-lived family firms on a global level, the criteria for firms to be included in the project are: self-perception as a family business; at least one active operating business; majority family ownership in the main operating business; at least second generation involved in management; at least 50 employees in the main operating business; and an ambition to pass on the business to the next generation (Nordqvist & Zellweger, 2010).

In the three papers of this cumulative Dissertation, the applied family business definitions are based on the abovementioned approaches. The first paper about EO in family firms is based on case studies that have been developed as part of the STEP project. Thus, it uses the definition applied there (cp. Nordqvist & Zellweger, 2010). The second paper analyses middle-level managers on a general level, without distinguishing between family and non-family firms. In the third paper, the criteria for being classified as a family firm are at least one family member in an operational position; majority of equity ownership of the family; and the employees' perception that it is a family business (cp. Astrachan et al., 2002; Klein, 2000; Klein et al., 2005).

1.3 Economic and academic relevance of family firms

Family firms are of crucial importance to modern economies. They provide the majority of jobs, contribute significantly to a nation's GDP, and represent the dominating organizational form (cp. Astrachan & Shanker, 2003; Frey et al., 2004; Heck & Stafford, 2001; Klein, 2000; Morck & Yeung, 2003). In Switzerland, 88.43% of all companies can be classified as family firms (Frey et al., 2004). Sharma (2004) confirms that a dominance of family businesses can be observed in most economies, both in terms of numbers and economic importance.

Despite these facts, research on family firms has only existed since the mid 1970s (Wortman, 1994). With only sporadic publications before 1975, the field has grown significantly since then (Jaskiewicz, 2006; Sharma, 2004; Zahra & Sharma, 2004). Zahra and Sharma claim that family business research has *"flourished"* in recent years (p. 331). There has been a significant increase in the number of published articles, publication outlets, schools offering family business programs, and financial support for research (cp. Sharma, 2004). In addition, Zahra and Sharma (2004, p. 331) state that *"there is a growing awareness among public policymakers of family firms' role in creating new jobs, incubating new businesses, and promoting economic development of local communities".* The dominant topics in family business research still seem to be succession, family business performance, and governance issues (cp. Zahra & Sharma, 2004).

Despite this positive development, however, family business research still struggles with emancipation and acceptance as a distinct research field (Lumpkin, Martin, & Vaughn, 2008). Scholars argue that family business research heavily borrows from other fields such as psychology, sociology, economics, and law (Bird, Welsch, Astrachan, & Pistrui, 2002; Sharma, 2004; Wortman, 1994). An example is the resource-based view (RBV) from the field of strategic management (Barney, 1991; Wernerfelt, 1984). It is used to substantiate the distinctiveness of family firms by arguing that the interaction between the family and the business system generates unique capabilities and resources, which has been labeled familiness (Habbershon et al., 2003; Habbershon & Williams, 1999). Another example is agency theory, which has long been a dominant paradigm in organization and management theory (Daily, Dalton, & Rajagopalan, 2003; Eisenhardt, 1989a; Jensen & Meckling, 1976). In the family firm context, it has been applied to investigate the design of agency contracts (Cruz, Gomez-Mejia, & Becerra, 2010) and family business specific agency costs, which may occur for example due to altruism (Schulze, Lubatkin, & Dino, 2003b; Schulze, Lubatkin, Dino, & Buchholtz, 2001). As a consequence, family business research is criticized for not sufficiently giving back to the disciplines where it borrowed from (Zahra & Sharma, 2004). Doing so, however, would aid the field to increase its legitimacy and importance in the broader academic arena (Elsbach, Sutton, & Whetten, 1999).

1.4 Firm-level entrepreneurship and family firms' success

The concept of entrepreneurship can be traced back to the seminal work of Schumpeter (1934), who linked enterprising activities with the creation of new streams of economic and social value. Put differently, entrepreneurship as the creation of new entrepreneurial actions such as innovation, new ventures, strategic renewal, and creative destruction, leads to social and economic performance within firms (Davidsson & Wiklund, 2001; Habbershon, Nordqvist, & Zellweger, 2010; Sharma & Chrisman, 1999). Entrepreneurship is thus not only important for the creation of new firms, but also for established firms to sustain their internal *"capacity to renew a firm's operations through innovation in order to create new* *capabilities"* (Habbershon et al., 2010, p. 1; Zahra, 2005). Research on entrepreneurship generally *"involves the study of sources of opportunities, the processes of discovery, evaluation, and exploitation of opportunities" [as well as] "the set of individuals who discover, evaluate, and exploit them"* (Shane & Venkataraman, 2000, p. 218).

In the field of entrepreneurship, the concept of corporate entrepreneurship refers to entrepreneurial activities within established organizations. While numerous definitions can be found (Covin & Miles, 1999; Dess et al., 2003; Phan, Wright, Ucbasaran, & Tan, 2009), the definition of Sharma and Chrisman (1999) is widely accepted. They define corporate entrepreneurship as *"the process whereby an individual or a group of individuals, in association with an existing organization, create a new organization or instigate renewal or innovation within that organization"* (p. 18).

Corporate entrepreneurship has been validated as an important antecedent to a company's short- and long-term performance (e.g., Dess et al., 2003; Zahra & Covin, 1995; Zahra, Hayton, & Salvato, 2004; Zahra, Neubaum, & Huse, 2000). Effective corporate entrepreneurship allows a firm to exploit its current competitive advantage and to explore future opportunities and required competencies (Covin & Miles, 1999; Kuratko, Ireland et al., 2005; Schendel & Hitt, 2007). More specifically, corporate entrepreneurship has been linked to a firms' financial and market performance (Zahra, 1996), and to the (family) firms' survival, profitability, and growth (Lumpkin & Dess, 1996; Rogoff & Heck, 2003; Salvato, 2004).

With regard to family firms, scholars partly disagree if that context is enhancing or impeding entrepreneurial activities. On the positive side, characteristics often attributed to family firms such as stewardship behavior (Eddleston & Kellermanns, 2006), family-to-firm-unity (Eddleston, Kellermanns, & Zellweger, 2008), or long-term horizons (Zellweger, 2007) may facilitate corporate entrepreneurship. On the negative side, long-term planning horizons

(Barringer & Bluedorn, 1999) and long-term tenure of main actors (Covin, 1991; Covin & Slevin, 1991) may lead to inertia and lower levels of entrepreneurial activities. Family firms are also assumed to suffer from risk averseness and strategic simplicity (Allio, 2004; Cabrera-Suarez, De Saa-Perez, & Garcia-Almeida, 2001; Miller, 1983; Shepherd & Zahra, 2003). In addition, family firms have an inherent need for stability, which may oppose the need for change (Schulze, Lubatkin, & Dino, 2003a).

While corporate entrepreneurship can be regarded as an umbrella term for different aspects, levels, and stages of activities and processes through which established organizations act entrepreneurially (Habbershon et al., 2010), entrepreneurial orientation (EO) has been validated as a core concept of corporate entrepreneurship, also in the context of family firms (e.g., Martin & Lumpkin, 2003; Nordqvist et al., 2008). It refers to the strategy making processes and styles of firms that engage in entrepreneurial activities (Lumpkin & Dess, 1996, 2001). As such, it captures entrepreneurial mindsets and attitudes within a company (Habbershon et al., 2010). Entrepreneurial organizations tend to engage in strategy making characterized by an active stance in pursuing opportunities, taking risks and innovation (Dess, Lumpkin, & Covin, 1997). Miller (1983, p. 771) views an entrepreneurial firm as *"one that engages in product market innovation, undertakes somewhat risky ventures, and is first to come up with 'proactive' innovations, beating competitors to the punch"*. Consequently, risk-taking, innovativeness, and proactiveness have been established as core dimensions of EO (cp. Covin & Slevin, 1989; Covin & Slevin, 1991; Wiklund, 1998). Building on the works of Miller (1983) and Stevenson and Jarillo (1990), Lumpkin and Dess (1996) add autonomy and competitive aggressiveness as dimensions of EO. They define it as *"the processes, practices, and decision-making activities that lead to new entry",* whereas new entry is *"the act of launching a new venture"* (Lumpkin & Dess, 1996, p. 136). However, EO is not limited to new ventures. Habbershon et al. (2010) define EO as a measure of mindsets and attitudes derived from actual entrepreneurial performance, which is measured as the sum of an organization's innovation, renewal, and venturing efforts (see also Dess & Lumpkin, 2005; Zahra, 1995). Numerous studies have confirmed a positive relationship between EO and company performance (cp. Rauch et al., 2009). The following table illustrates the five established basic dimensions of EO (cp. Lumpkin & Dess, 1996; Martin & Lumpkin, 2003; Nordqvist et al., 2008).

Dimension	**Description**
Autonomy	Ability of individuals and teams within organizations to act independently and autonomously, free from organizational constraints
Innovativeness	Tendency of the firm to engage in and support new ideas and experimentation to create new products, services, and markets
Risk-taking	Willingness to make large and risky resource commitments with a substantial probability of failure
Proactiveness	Opportunity-seeking attitude to introduce new products and services ahead of competition
Competitive aggressiveness	Propensity to directly and intensely challenge competitors

Table 1: The five basic dimensions of EO

1.5 Individual-level antecedents to family firms' success

While both corporate entrepreneurship and EO are firm-level constructs, they imply that employees within the firm enact entrepreneurial behavior at the group or individual level (Sharma & Chrisman, 1999). These individual-level actions can be subsumed under the term entrepreneurial behavior. It refers to all actions taken by firm members that relate to the discovery, evaluation, and exploitation of entrepreneurial opportunities (cp. Hornsby, Kuratko, Shepherd, & Bott, 2009; Pearce, Kramer, & Robbins, 1997; Shane & Venkataraman, 2000; Smith & Di Gregorio, 2002). In general terms, individual-level entrepreneurial behavior is conceptualized as the behavior through which corporate entrepreneurship is actually practiced and enacted (Kuratko, Ireland, & Hornsby, 2004; Pearce et al., 1997; Shane & Venkataraman, 2000; Smith & Di Gregorio, 2002). Put differently, it is regarded as core aspect of and antecedent for effective corporate entrepreneurship on the individual level (cp. Hornsby et al., 2002; Kuratko, Ireland et al., 2005). Entrepreneurial behavior of firm members is argued to be critical to both the creation of new ventures and renewal from within an organization (Smith & Di Gregorio, 2002). Scholars that investigate individual-level entrepreneurial behavior have mostly focused on middle-level managers (Hornsby, Kuratko, & Montagno, 1999; Hornsby et al., 2009; Kuratko, Ireland et al., 2005). This is due to the claim that this class of management is most involved in innovative and entrepreneurial activities in established companies (Morris & Kuratko, 2002).

Entrepreneurial behavior comprises implementing one’s own entrepreneurial actions, creating an entrepreneurial atmosphere, and motivating subordinates (cp. Floyd & Wooldridge, 1992; Ghoshal & Bartlett, 1994; Kuratko, 2010). Summarizing decades of research, Kuratko (2010) states that entrepreneurial behavior of middle-level managers *"manifests itself both in terms of the need for middle-level managers to behave entrepreneurially themselves and the requirement for them to support and nurture others’ attempts to do the same"* (p. 143).

In line with the conceptualization of individual-level entrepreneurial behavior as a key antecedent to corporate entrepreneurship and ultimately firm performance, family business scholars agree that fostering non-family employees' value-creating attitudes and behaviors is essential to family firms' success and survival (Barnett & Kellermanns, 2006; Chrisman, Chua, & Litz, 2003; Chua, Chrisman, & Sharma, 2003). The two most commonly investigated employee work attitudes that are conducive to company performance are affective commitment (cp. Allen & Meyer, 1990; Meyer et al., 2002; Van Dyne & Pierce, 2004) and job satisfaction (e.g., Colquitt et al., 2001; Janssen & Van Yperen, 2004; Judge et al., 2001), whereas perceptions of organizational justice have been established as their key antecedents (Colquitt et al., 2001).

2 Overview of academic papers

2.1 Addressed research gaps

With regard to EO as the first main pillar of family firms' long-term success, a puzzle can be observed. While entrepreneurship scholars suggest a positive relationship between EO and firms' short-term and long-term success (Dess et al., 2003; Zahra & Covin, 1995; Zahra & Garvis, 2000), numerous scholars who investigated family firms that have survived and prospered across generations argue that they provide a context hampering EO (Barringer & Bluedorn, 1999; Cabrera-Suarez et al., 2001; Covin & Slevin, 1991). Put differently, family firms seem to be successful over a long time despite rather low levels of EO. This opposes traditional entrepreneurship and EO wisdom (Lumpkin & Dess, 1996; Rauch et al., 2009). The question thus is: how much entrepreneurship in terms of EO is needed for long-term success of family firms? Do they have to be entrepreneurial all the time, or is there a distinct promising EO pattern? This research gap is addressed by the first paper by investigating three Swiss case studies of long-living family firms with EO as the theoretical lens.

Second, while the importance of individual-level entrepreneurial behavior for effective corporate entrepreneurship and thus company success is well-established (Hornsby et al., 2002; Kuratko, Ireland et al., 2005), it is still not fully clear how this behavior actually evolves, especially in the context of middle-level managers. Scholars agree that middle-level managers' entrepreneurial behavior is enhanced by a combination of individual and organizational factors (Kuratko, 2010; Kuratko, Ireland et al., 2005; Naffziger, Hornsby, & Kuratko, 1994). However, research on personality traits and their relationship with entrepreneurial behavior has not been able to confirm a link (Holt, Rutherford, & Clohessy, 2007). This is regrettable, given the recent claim not to abandon elements of the person in entrepreneurship research (Hmieleski & Baron, 2009; Hmieleski & Corbett, 2008; Schjoedt &

Shaver, 2007). On the organizational level, three stable antecedents have been identified, namely management support, work discretion, and rewards/reinforcement (cp. Holt et al., 2007; Hornsby, Holt, & Kuratko, 2008; Hornsby et al., 2009; Kuratko, Hornsby, & Bishop, 2005). However, hardly any studies can be found that explicitly examine the interaction between individual-level and organizational-level factors, even though this interaction is believed to be essential (cp. Kuratko, 2010; Kuratko, Ireland et al., 2005). These research gaps are addressed by the second paper. It introduces psychological ownership as individual-level antecedent to entrepreneurial behavior and examines its interaction with organizational antecedents. While entrepreneurial behavior of employees, such as middle-level managers, is of special interest in family firms (Barnett & Kellermanns, 2006; Chrisman, Chua, & Litz, 2003; Chua, Chrisman, & Sharma, 2003), its relevance is not limited to the family firm context. To increase the generalizability of findings, the second paper thus investigates middle-level managers in both family and non-family firms.

Third, while scholars agree that fostering positive work attitudes such as affective commitment and job satisfaction among non-family employees is a key antecedent to family firms' success (Barnett & Kellermanns, 2006; Chrisman, Chua, & Litz, 2003; Chua, Chrisman, & Sharma, 2003), unique challenges occur in family firms. This is due to the fact that justice perceptions of employees have been established as main factors that affect the evolvement of these attitudes. Unfortunately, family firms have been found to be especially prone to non-family employees' perceptions of injustice. Characteristics often attributed to family firms, such as paternalistic-autocratic rule, founder-centric cultures, lack of delegation, ingroup-outgroup perceptions of non-family employees, altruism, and nepotism constitute potential sources for injustice perceptions (cp. Barnett & Kellermanns, 2006; Kelly, Athanassiou, & Crittenden, 2000; Padgett & Morris, 2005; Schein, 1983; Schulze et al., 2001). Despite increasing scholarly attention, the amount of corresponding research is still insufficient (Carsrud, 2006). This is even more critical as it is not yet fully understood how exactly justice perceptions weave their way into favorable work attitudes (Choi & Chen, 2007; Judge & Colquitt, 2004). These gaps are addressed in the third paper by explicitly investigating non-family employees' justice perceptions and how they actually lead to affective commitment and job satisfaction through psychological ownership.

2.2 Methodologies

The first paper is based on case study methodology. This is suggested when little is known about a phenomenon, current perspectives seem inadequate due to a lack of empirical substantiation or conflict with each other, or *"when freshness in perspective to an already researched topic"* is needed (Eisenhardt, 1989b, p. 548). Punch (2005) argues that case study research is suitable in situations where *"knowledge is shallow, fragmentary, incomplete or non-existent"* (p. 147). While research on EO in general can be regarded as mature, research on EO in the context of long-living family firms is disparate, and knowledge is fragmented. Thus, the state of research in that context can be classified as nascent, which advocates qualitative case study research (cp. Edmondson & McManus, 2007). Consequently, the first paper is based on three in-depth case studies that have been developed as part of the STEP project in Switzerland in 2006 and 2007. Detailed information about the three companies is reported in chapter 3.4. The four to five interviews per case were audio-taped and transcribed, and supplemented by different kinds of secondary materials to achieve triangulation. Afterwards, a detailed coding procedure was enacted, which led to three case study reports. As a next step, three researchers independently assessed the levels of the five EO dimensions for every company, whereas an inter-rater agreement of more than 90% was achieved. To increase the reliability of findings, a member check with the interview partners was conducted (cp. Denzin & Lincoln, 2000). For more details about the applied case study methodology it is referred to chapter 3.4.

Papers 2 and 3 are based on the same quantitative dataset. Both research on entrepreneurial behavior of middle-level managers and on the connection between justice perceptions and attitudinal outcomes can be regarded as mature, which advocates the use of quantitative data (cp. Edmondson & McManus, 2007). A comprehensive questionnaire has thus been developed in 2009. Later in 2009, valid email addresses of 10,750 management-level employees were randomly retrieved from the largest employee database for Switzerland and Germany. The online survey's response rate of 9.5% can be regarded as acceptable (Geletkanycz, 1998; Hambrick, Geletkanycz, & Fredrickson, 1993; Koch & McGrath, 1996; MacDougall & Robinson, 1990). Among others, the survey included measures for entrepreneurial behavior, psychological ownership, organizational antecedents to entrepreneurial behavior, organizational justice perceptions, affective commitment, and job satisfaction. Only measurement instruments were used that had been validated in renowned academic journals. For the two papers, numerous statistical tests have been conducted. Examples are non-response bias tests (Oppenheim, 1966), common method bias tests, namely Harman's single factor test (Harman, 1967) and confirmatory factor analyses (cp. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), and multicollinearity tests in terms of Variance Inflation Factor (VIF) and condition indices (cp. Cronbach, 1987; Hair, Black, Babin, Anderson, & Tatham, 2006). The results of all these tests mitigate non-response bias, common method bias, and multicollinearity concerns. In the second paper, the main effects and moderation effects of the proposed theoretical model are tested with multiple regression analyses. In the third paper, a mediation model is proposed. The corresponding effects are tested with multiple regressions following the procedure outlined in Baron and Kenny (1986). For further details about the data collection procedure and data analysis it is referred to chapters 4.5 and 5.5.

2.3 Key characteristics of the three papers

The three papers each address different research gaps, apply different theoretical constructs and methodologies, and offer unique contributions to research and practice. The following table gives an overview about their key characteristics, including authorship and publication status.

Authorship	**Research gap**	**Main theoretical constructs**	**Methodology and sample**	**Contributions**	**Publication status**
Paper 1: Entrepreneurial Orientation in Long-lived Family Firms					
Thomas Zellweger & Philipp Sieger	EO in long-lived family firms	Entrepreneurship; EO	Qualitative; 3 case studies of Swiss family firms	EO and family business literature; practice	Accepted at Small Business Economics Journal (SBE), Special Issue (VHB ranking: C, no. 6 in entrepreneurship)
Paper 2: Entrepreneurial Middle-level Managers: The Roles of Psychological Ownership and Organizational Factors					
Philipp Sieger	Individual-level and organizational-level antecedents to entrepreneurial behavior	Middle-level managers' entrepreneurial behavior; psychological ownership	Quantitative; sample of 403 middle-level managers (moderation models)	Entrepreneurial behavior and psychological ownership literature; practice	Accepted at the 71st Annual Academy of Management Meeting 2011, San Antonio, USA. To be submitted to high-ranked entrepreneurship Journal in 2011.
Paper 3: Affective Commitment and Job Satisfaction Among Non-family Employees: Investigating the Roles of Justice Perceptions and Psychological Ownership					
Philipp Sieger, Fabian Bernhard, Urs Frey	Justice perceptions of non-family employees; mechanism leading to attitudes	Organizational justice; psychological ownership; affective commitment; job satisfaction	Quantitative; sample of 310 non-family employees (mediation models)	Family business, organizational justice, and psychological ownership literature; practice	Accepted at Journal of Family Business Strategy (JFBS)

Table 2: Key characteristics of the three papers

3 Entrepreneurial Orientation in Long-lived Family Firms

Thomas Zellweger & Philipp Sieger

3.1 Abstract

We apply a key construct from the entrepreneurship field, entrepreneurial orientation (EO), in the context of long-lived family firms. Our qualitative in-depth case studies show that a permanently high level of the five EO dimensions is not a necessary condition for long-term success, as traditional entrepreneurship and EO literature implicitly suggest. Rather, we claim that the level of EO is dynamically adapted over time and that the original EO scales (*autonomy*, *innovativeness*, *risk taking*, *proactiveness,* and *competitive aggressiveness*) do not sufficiently capture the full extent of entrepreneurial behaviors in long-lived family firms. Based on these considerations we suggest extending the existing EO scales to provide a more fine-grained depiction of firm-level corporate entrepreneurship in long-lived family firms.

3.2 Introduction

A wide stream of corporate entrepreneurship literature proposes that entrepreneurial attitudes and behavior are crucial antecedents for a company's short- and long-term success (e.g., Dess et al., 2003; Zahra & Covin, 1995; Zahra et al., 2000). Effective corporate entrepreneurship allows a firm to exploit its current competitive advantage while also exploring future opportunities and required competencies (Covin & Miles, 1999; Kuratko, Ireland et al., 2005;

Schendel & Hitt, 2007). In an environment of rapid change and shortened product and business model life cycles, future profit streams from existing operations are uncertain, requiring businesses to constantly seek new opportunities. Therefore, firms may benefit from adopting corporate entrepreneurship (Rauch et al., 2009).

Partly in contrast to these claims of the pivotal role of corporate entrepreneurship for organizational success, research on entrepreneurship in family firms that have survived and prospered for long periods of time is divided as to whether these organizations represent a context where entrepreneurship flourishes or is hampered (e.g., Naldi, Nordqvist, Sjöberg, & Wiklund, 2007). Scholars argue that the particular culture and power structure found in many family firms may considerably influence the extent to which entrepreneurial activities are encouraged or hindered (Hall, Melin, & Nordqvist, 2001; Salvato, 2004; Schein, 1983; Zahra et al., 2004). Some propose that family firms present unique settings for entrepreneurship to flourish: for example, stewardship behavior (Eddleston & Kellermanns, 2006), family-to-firm-unity (Eddleston, Kellermanns, & Zellweger, 2008), or long-term horizons (Zellweger, 2007). In contrast to this positive perspective, Barringer and Bluedorn (1999) suggest that reliance on long-term planning horizons runs counter to the proactive nature of the entrepreneurial process, and that a long-term tenure is optimal for conservative and less entrepreneurial firms (Covin, 1991; Covin & Slevin, 1991). Studies suggest that family firms are endangered by, for example, strategic simplicity and inertia (Cabrera-Suarez et al., 2001; Miller, 1983; Morris, 1998). Moreover, Schulze, Lubatkin and Dino (2003b) acknowledge the serious tensions that develop within the family firm between the need for change and stability, with entrepreneurship seen as an antidote to stability and strategic simplicity.

The finding that many family firms have managed to survive and flourish over long periods of time despite low levels of corporate entrepreneurship challenges traditional entrepreneurship wisdom. In light of these considerations and different findings in the literature, we see a need for further reflection on corporate entrepreneurship in the context of long-lived family firms. We specifically examine entrepreneurial orientation (EO) and treat EO as a key construct of firm-level corporate entrepreneurship (Lumpkin & Dess, 1996; Miller, 1983). We analyze corporate entrepreneurship in long-lived family firms through three in-depth case studies of Swiss firms, between 80 and 175 years old. To touch upon the uniqueness of entrepreneurship in family firms originating from the systemic interactions between the individual, the family, and the firm (Habbershon et al., 2003), we interviewed thirteen top-echelon firm managers. Following precedent, we chose a qualitative methodology to encompass the different findings on corporate entrepreneurship in the family firm realm (Eisenhardt, 1989b). Using this methodology, we strive to overcome problems associated with the use of single-respondent survey data in entrepreneurship research (Zahra, Jennings, & Kuratko, 1999) and to address the general lack of attention to the lagged effect among the antecedents, performance outcomes, and different forms of corporate entrepreneurship (Dess et al., 2003).

By investigating EO in the context of long-lived family firms, we make several important contributions to the entrepreneurship and family business literatures. We not only shed additional light on the question of whether corporate entrepreneurship is a necessary condition for long-term success, but also add to entrepreneurship literature by investigating the relationship between EO and performance (e.g., Rauch et al., 2009). Therefore, we build on and add to Zahra et al.'s (1999) reflection on equifinality, which suggests that organizations can utilize different orientations to reach the same objective and achieve the same outcome(s). Second, our analysis provides a more fine-grained perspective of EO in the context of family firms, which may help to explain the differing views in the literature about patterns of corporate entrepreneurship, such as about autonomy or risk taking (e.g., Nordqvist et al., 2008; Zahra, 2005). Because we reach beyond the existing dimensions of EO and propose additional scales that have not been incorporated thus far, we follow the continuous calls of researchers to apply established concepts from the entrepreneurship field in the family business context in order to advance both fields (e.g., Chrisman, Chua, & Sharma, 2005; Chua, Chrisman, & Steier, 2003; Hoy & Verser, 1994).

Our paper is structured as follows. First, we provide theoretical foundations by giving an overview of corporate entrepreneurship research in the context of family firms. Second, we illustrate our case research methodology and describe the firms we examined. Third, we present our case study findings regarding the five EO dimensions and, where appropriate, develop propositions as analytical generalizations. Finally, we discuss our insights, examine limitations, and provide directions for future research.

3.3 Theoretical Foundations

Corporate entrepreneurship is seen as critical to family firm success and survival across generations (Kellermanns & Eddleston, 2006; Rogoff & Heck, 2003; Salvato, 2004). It refers to entrepreneurial activities within organizations that are designed to revitalize the company's business and to establish sustainable competitive advantages (cp. Kellermanns & Eddleston, 2006; Kuratko, Ireland et al., 2005; Zahra, 1995, 1996). However, literature is discordant about the firm-level entrepreneurial tendencies of family firms. On one side, numerous researchers claim that family firms constitute an environment that is conducive to high levels of corporate entrepreneurship (Aldrich & Cliff, 2003; McCann, Leon-Guerrero, & Haley Jr., 2001; Rogoff & Heck, 2003; Zahra et al., 2004). On the other side, scholars argue that family firms exhibit lower levels of entrepreneurial activities, as they are assumed to be risk averse (e.g., conservative and resistant to change and adaptation over time) (Allio, 2004; Poza, Alfred, & Maheshwari, 1997; Shepherd & Zahra, 2003; Whiteside & Brown, 1991). Recently, a number of articles has examined factors in family firms that affect corporate entrepreneurship, such as organizational culture (Habbershon & Pistrui, 2002; Hall et al., 2001; Zahra et al., 2004), generational involvement (Kellermanns & Eddleston, 2006), or stewardship characteristics (Eddleston, Kellermanns, & Zellweger, 2008; Miller, Le Breton-Miller, & Scholnick, 2008).

Also, a steadily growing stream of literature has investigated EO as a core concept of corporate entrepreneurship in the context of family firms (e.g., Martin & Lumpkin, 2003; Nordqvist et al., 2008). EO refers to the strategy making processes and styles of firms that engage in entrepreneurial activities (Lumpkin & Dess, 1996, 2001). Since our research explores EO and its dimensions of *autonomy, innovativeness, risk taking, proactiveness,* and *competitive aggressiveness* (Lumpkin & Dess, 1996), we deem it important to examine these dimensions and related research in the context of family businesses.

Autonomy as captured in the EO construct refers to the *"independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion"* (Lumpkin & Dess, 1996, p. 140); that is, the ability and will to be self-directed in the pursuit of opportunities. In an organizational context, it refers to actions taken free of stifling organizational constraints. Thus, even though factors such as resource availability, actions by competitive rivals, or internal organizational considerations may change the course of new-venture initiatives, these are not sufficient to extinguish the autonomous entrepreneurial processes that lead to new entry. Throughout the process, the organizational player remains free to act independently, to make key decisions, and to implement policy (Lumpkin & Dess, 1996). In the context of family firms, Martin and Lumpkin (2003) show that the *autonomy* of family members of successive generations decreases. Family management limits its own *autonomy* by involving more people in decision-making processes and installing strong boards of directors. In a similar way, Spinelli and Hunt (2000) claim that a paternalistic leadership style is replaced by a more participative style in later generations. Nordqvist et al. (2008) view *autonomy* as important regarding long-term entrepreneurial performance and suggest considering *autonomy* as having both an external (autonomy from stakeholders such as banks, suppliers, customers, and financial markets) and an internal (empowering individuals and teams within an organization) dimension. Hence, literature seems to propose that while *autonomy* may be seen as an important factor of corporate entrepreneurship, both internal and external autonomy need to be considered, whereas internal *autonomy* of family members of succeeding generations decreases.

Innovativeness refers to *"a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes"* (Lumpkin & Dess, 1996, p. 142). There is typically a continuum of *innovativeness* regarding both the scope and pace of innovation in products, markets, and technologies. Wealth is created when existing market structures are disrupted by introducing new goods or services, shifting resources away from existing firms and causing new firms to grow (Schumpeter, 1942). The key to this cycle of activity is entrepreneurship: the competitive entry of innovative *"new combinations"* that propel the dynamic evolution of the economy (Schumpeter, 1934). In family firms, *innovativeness* is regarded as a highly important dimension of EO for long-term performance, together with *autonomy* and *proactiveness* (Nordqvist et al., 2008). McCann et al. (2001) find that younger and smaller family firms are more likely to be innovative than older, larger family firms. Furthermore, *innovativeness* is described as having greater potential for high performance, if it is driven by comprehensive strategic decision making and long-term orientation (Eddleston, Kellermanns, & Zellweger, 2008; McCann et al., 2001).

Risk taking, in turn, refers to *"the degree to which managers are willing to make large and risky resource commitments – i.e., those which have a reasonable chance of costly failures"* (Miller & Friesen, 1978, p. 932). Recent research draws a more fine-grained picture about the *risk taking* propensity of family firms (e.g., Gomez-Mejia, Haynes, Nunez-Nickel, Jacobson, & Moyano-Fuentes, 2007; Morck & Yeung, 2003). Gomez-Mejia et al. (2007) find that family firms take decisions based on reference points. To protect socio-emotional wealth, family firms accept risk to their performance and, at the same time, avoid decisions that aggravate risk. Naldi et al. (2007) report that *risk taking* in family firms is positively associated with *proactiveness* and innovation and negatively with financial performance. Zahra (2005) finds that CEO-founder duality has no effect on *risk taking*, while long CEO tenure has a negative effect. Nordqvist et al. (2008) find that in family firms *"there are less signs of risk-taking and competitive aggressiveness in comparison to proactiveness, innovativeness and autonomy"* (p.108). Martin and

Lumpkin (2003) find partial support for their claim that family firms are more risk averse in later generations. Thus, literature on *risk taking* in family firms is divided on whether firms are risk-averse or risk-inclined organizations. Moreover, the validity of research is undermined by inconsistencies regarding the definition and measurement of *risk taking*. Martin and Lumpkin (2003) investigate risk in terms of investing personal assets and making loans to the business, tolerance of debt, and the importance of increasing profitability. Other authors investigate willingness to innovate (Benson, 1991), variation of performance outcomes (Gomez-Mejia et al., 2007), or debt levels (Mishra & McConaughy, 1999). In light of these inconsistencies in the literature, an assessment of family firms' risk aversion is problematic.

Proactiveness refers to a firm's efforts to seize new opportunities. Lumpkin and Dess (2001, p. 431) define *proactiveness* as an *"opportunity seeking, forward-looking perspective involving introducing new products or services ahead of the competition and acting in anticipation of future demand to create change and shape the environment."* It involves not only recognizing changes, but also being willing to act on those insights ahead of the competition (Dess & Lumpkin, 2005). Similarly, Stevenson and Jarillo (1990) conceptualize *proactiveness* as the organizational pursuit of favorable business opportunities. Proactive behavior can lead to first-mover advantages and higher economic profits (Lieberman & Montgomery, 1988). According to Kreiser, Marino and Weaver (2002), the dimension of *proactiveness* has received less attention from entrepreneurship researchers than, for example, the dimensions of *innovativeness* and *risk taking*. In the context of family firms, *proactiveness* is regarded as more important, together with *autonomy* and *innovativeness* (Nordqvist et al., 2008). These authors argue that when the historical path / new path, independence / dependence and informality / formality dualities are kept taut, family firms are freer to act independently and proactively, thereby avoiding *risk taking* and *competitive aggressiveness*. Martin and Lumpkin (2003) find that *proactiveness* does not seem to be a consistent predictor of family firm success and they were not able to prove that *proactiveness* decreases with later generations. In sum, the literature presents different findings regarding the relevance of this entrepreneurship dimension.

Finally, *competitive aggressiveness* refers to *"a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is, to outperform industry rivals in the marketplace"* (Lumpkin & Dess, 1996, p. 148). *Competitive aggressiveness* can be reactive as well. For instance, a new entry that is an imitation of an existing product or service would be considered entrepreneurial if the move implies an aggressive, *head-to-head* confrontation in the market. According to Lumpkin and Dess (1996), *competitive aggressiveness* also embraces nontraditional methods of competition, such as new types of distribution or marketing. Martin and Lumpkin (2003) find that as later generations assume control and focus more on value and profitability than on directly challenging competitors to gain market share, the level of *competitive aggressiveness* decreases. In a qualitative study, Nordqvist et al. (2008) suggest that few of their interviewees choose to take a competitor head on (Lumpkin & Dess, 1996), instead competing with little consideration of competitors' actions. This seems to suggest that an essential feature of entrepreneurial behavior, *competitive aggressiveness,* is of lower relevance in the context of family firms.

In sum, research provides ambiguous findings as to whether the family firm context fosters or hampers corporate entrepreneurship. Also, scholars propose considering certain EO dimensions separately (e.g., internal and external autonomy; Nordqvist et al., 2008) to capture the full extent of entrepreneurial postures, thus questioning the applicability of the construct in the family firm context. Moreover, literature measures certain EO scales inconsistently (e.g., *risk taking)* (Zahra, 2005). In light of such concerns about levels and patterns of corporate entrepreneurship in long-lived family firms, we see a need to revisit the underlying assumptions of both corporate entrepreneurship and family business research as a first step toward a better understanding of corporate entrepreneurship in this context. Therefore, we follow Low and MacMillan's (1988) advice that the entrepreneurship field will be better served if the issue of theoretical perspective is addressed directly and if assumptions are made explicit. Considering the implicit assumption of entrepreneurship research we suggest that the entrepreneurship field has generally considered younger and often fast-growing firms, stressed the dynamic context in which firms are embedded, and often focused on owner-managed firms in the first generation, which have a short-term horizon (Gartner, 1990; Zahra & Sharma, 2004). Success is often determined in terms of growth or financial performance and the harvesting of entrepreneurial opportunities. Despite the assertion that families may assist a firm's start-up phase by investing personal assets (Aldrich, 1999; Chrisman, Chua, & Steier, 2002), the family aspect has been widely neglected in traditional entrepreneurship research. In contrast, we see family business research embedded mainly in the context of established, larger, and often multigenerational firms in mature industries, with long planning horizons and high emphasis on family aspects and relationships across all types of managerial activities (Hoy, 1992; Hoy & Verser, 1994). Success is often defined in broader terms, including nonfinancial performance or as the survival of the firm. As the focus is rather on family relationships, entrepreneurial behavior of firms is widely neglected. For a better illustration, these aspects of both entrepreneurship and family business literature are summarized in the next Table (based on Hoy and Verser (1994); Hoy (1992); Gartner (1990); Brockhaus (1994); Sharma (2004); and Zahra and Sharma (2004)). It provides a prototypical overview of these two perspectives, each containing specific assumptions about the type of firm, industry, ownership, resource challenge, planning horizon, measures of performance, and corresponding research focus.

Entrepreneurship literature	**Family business literature**
Type of firm Young, newly created, often fast growing small and mid-sized firms	Established, traditional, often multigenerational and larger firms
Type of industry Growing and dynamic industries and markets	Mature industries and saturated markets
Type of ownership Owner-managed / 1^{st} generation partnerships	(Multigenerational) family ownership
Resource challenge Adding resources to establish an organization in the competitive environment	Reconfiguring and shedding resources to continue and readjust an organization in the competitive environment
Planning horizon Short	Long
Measures of success and performance: Financial performance Taking advantage of opportunities in the market	Survival and family succession Meeting a mixed goal set of financial and non-financial performance dimensions
Main focus of research Entrepreneurial behavior (family relationships are widely neglected)	Family relationships in a business context (entrepreneurial behavior is widely neglected)

Table 3: Traditional perspectives of entrepreneurship / family business literature

The inherent danger of this artificial dichotomization is that a certain behavior (e.g., entrepreneurial) is applied or misunderstood as the normative concept of the *"right"* behavior in any context. Through the theoretical lens of corporate entrepreneurship, a family firm navigating in a stable competitive context might be considered as nonentrepreneurial, thereby lacking a fundamental precondition for its long-term success. However, there are concerns in entrepreneurship literature about equifinality, which suggests that organizations can utilize different orientations to reach the same objective (Zahra et al., 1999). Jennings and Seaman (1994) propose that performance differences may not exist between entrepreneurial and conservative firms, making the implicit assumption that first-mover firms that incur the highest risk and costs for innovative activities would always be rewarded for doing so (Zahra et al., 1999). Considering these reflections, we now describe our methodology through which we hope to gain additional insights into the levels and patterns of corporate entrepreneurship in long-lived family firms.

3.4 Research design

Our study relies on case study methodology. Eisenhardt (1989b) advocates case study research when little is known about a phenomenon, current perspectives seem inadequate due to a lack of empirical substantiation or conflict with each other, or *"when freshness in perspective to an already researched topic"* is needed (Eisenhardt, 1989b, p. 548). Punch (2005) states that case study research is suitable in situations where *"knowledge is shallow, fragmentary, incomplete or non-existent"* (p.147). Based on the previous literature review and theoretical considerations, we regard the current status of research as disparate and knowledge as fragmented. Thus, we conclude that a case study approach is legitimate for the purpose of this study. Consequently, we investigate the five EO dimensions exploratively and, where appropriate, develop propositions ex post. This methodology is supported by Punch (2005) and Yin (1994), who state that one of the goals of explorative case studies is to develop pertinent hypotheses and propositions for further inquiry.

The present paper is based on three in-depth qualitative case studies conducted in Switzerland in 2006 and 2007 as part of the STEP research project[2]. The companies are Health Pharma AG, Taste SA, and Technics AG. The next Table provides detailed information about the three cases as well as the selection criteria applied. Our case study approach corresponds to the guidelines of the STEP

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[2] STEP: Successful Transgenerational Entrepreneurship Practices is a worldwide research project, investigating entrepreneurship in the context of multi-generation family firms. See: www.stepproject.org

research project and has been applied in other studies investigating EO in a qualitative manner (e.g., Nordqvist et al., 2008).

Company name	**Health Pharma AG**	**Taste SA**	**Technics AG**
Industry	Pharmaceuticals	Consumer goods	Printing and Filtration
Employees in	340	175	2000
Company Age	140 years	80 years	175 years
Annual Sales	60 million Euros	30 million Euros	200 million Euros
Export orientation	5% of sales	30% of sales	Subsidiaries in 21 countries, representations in 75 countries
Ownership	100% family owned (2 branches, 51%:49%)	100% family owned by Taste brothers (51%:49%)	Owned by 150 descendants of the nine founding families + a few managers (ca. 95% family ownership)
Family involvement	CEO and CFO, members of the supervisory board	CEO, Director of Marketing	CEO and members of the supervisory board
No. of Interviews	5	4	4
Position and status of interviewees	CEO (family), CFO (family), Head of Marketing, Head of Production, President Supervisory Board	CEO (family), Head of Marketing (family), Export Director, Chief of Production	CEO (family), CFO, President Supervisory Board, Member Supervisory Board (family)
Family	5th	3rd	7th
Selection criteria: at least 2nd generation family ownership, ownership group of at least 2 family members, 1 family member in management, majority of family control in at least 1 of the controlled companies in the group which has to have more than 50 employees, self-perception as a family business.			

Names changed for anonymity purposes.

Table 4: Overview of selected cases of paper 1

The interview guideline, which was developed by a team of three researchers familiar with both EO and family business research, contains questions pertaining to all five EO dimensions. Additional descriptive statements or questions helped researchers choose the issues to be addressed (e.g., *"how and why family influence and/or involvement impacts a firm's innovativeness"*). In each company, two interviewers conducted four or five semi-structured interviews with both family and nonfamily members in top-echelon positions (e.g., CEO, CFO, Head of Marketing, etc.). Each interview lasted between 60 and 90 minutes. We asked the respondents to touch upon both EO at the firm-level and specific family involvement. We audiotaped all interviews and gathered secondary data from company websites, annual reports, press releases, and company documents to map out major strategic entrepreneurial actions, to describe important contingencies (industry, tax structure, or environment), to document relevant outcomes, and to accomplish "triangulation" (i.e., corroborate relevant information gathered through the interviews).

The interviews were then transcribed and coded by a PhD student who, although not involved in the interviews, was familiar with both EO and family business literature and with case writing. We chose a third person for this part of our study to further increase the reliability of our findings and interpretations and to ensure divergent perspectives (Eisenhardt, 1989b). We did not use specific coding software because the number of interviews is limited and their length is not excessive. As the interviews were conducted on a semi-structured basis, we could rapidly identify and access defined constructs under consideration. The coding led to three case study protocols, each with a length of about 30 pages.[3] These protocols were enriched with several tables, highlighting the family's and the firm's history and evolution, financials of the company, and an overview table of the five EO dimensions, including related statements of the interviewees. This helped us to become intimately familiar with each case and enabled unique patterns to emerge before cross-case comparison (Eisenhardt, 1989b). By integrating the information gained through the interviews with information gained through secondary

[3] These case study protocols are available on request from the authors.

materials, we measured EO using a combination of firm behavior and managerial perceptions (Lyon, Lumpkin, & Dess, 2000). Following Yin (1998), the case study protocols were organized by the sequence of topics in the interviews. The case study protocols and the audiotapes were then sent to the two interviewers, who independently reviewed and adapted the protocols.

Each of the three researchers independently assessed the levels of the five EO dimensions at the point of investigation for every company using a nine-point scale ranging from 1 (low) to 9 (high). To avoid overspecification, we formed three categories: low (rating 1-3), medium (rating 4-6), and high (rating 7-9). This resulted in a graphical illustration of all five EO dimensions for every company by each researcher (9 total EO profiles). The three researchers then met, discussed the case study protocols, and agreed on a final version that varied only marginally from the original version. After comparing identified EO patterns, we agreed upon one profile for each firm, reflecting our shared understanding. Of the 45 judgments of EO levels (3 researchers * 3 cases * 5 dimensions), we reached initial agreement in 42 out of 45 cases (>90%); the rare disagreements were resolved, since they referred to adjacent classifications. Consequently, we consider that inter-rater reliability was not a main concern in our study. In addition, researchers together considered possible shortcomings and extensions of the existing EO measures, resulting in a refined conceptual grid on EO in the context of long-lived family firms (cp. Denzin & Lincoln, 2000).

As a further test of the reliability of our findings, and in line with suggestions by Denzin and Lincoln (2000), we performed a member check by cross-checking our work with managers' perceptions. The interviewees had the opportunity to read and comment on the case study protocols and our assessment of the EO patterns of their companies. This procedure not only is in accordance with Yin's (1994) recommendation about construct validity, but also increases the study's reliability. The interviewees had only minor comments, which were incorporated in our analysis.

3.5 Results

In this section, we present our case-based findings regarding the five dimensions of EO. The following figures provide an overview of the levels and patterns of EO in our family firms.

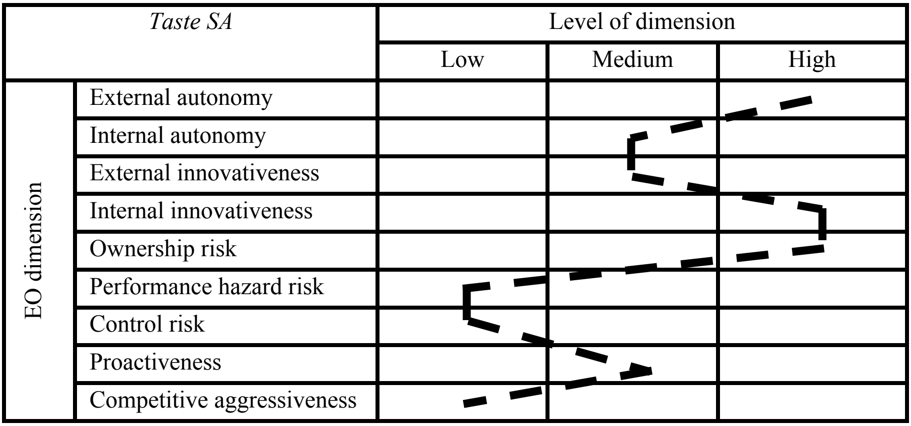

Figure 2: Refined EO profile of Taste SA

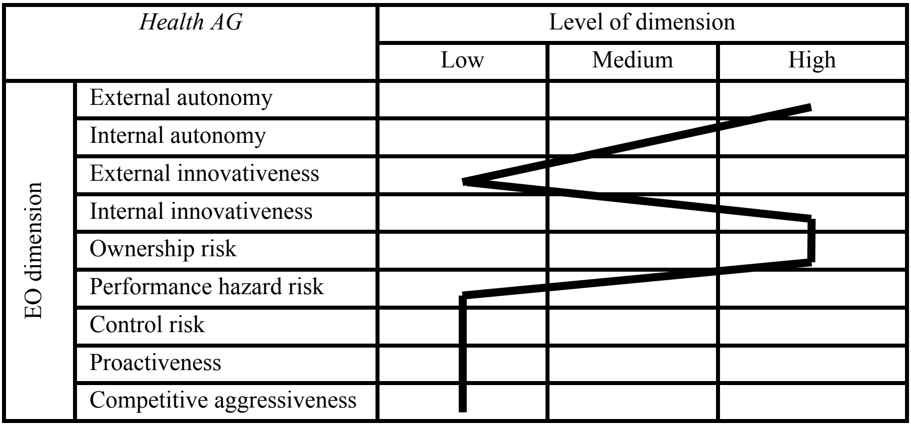

Figure 3: Refined EO profile of Health AG

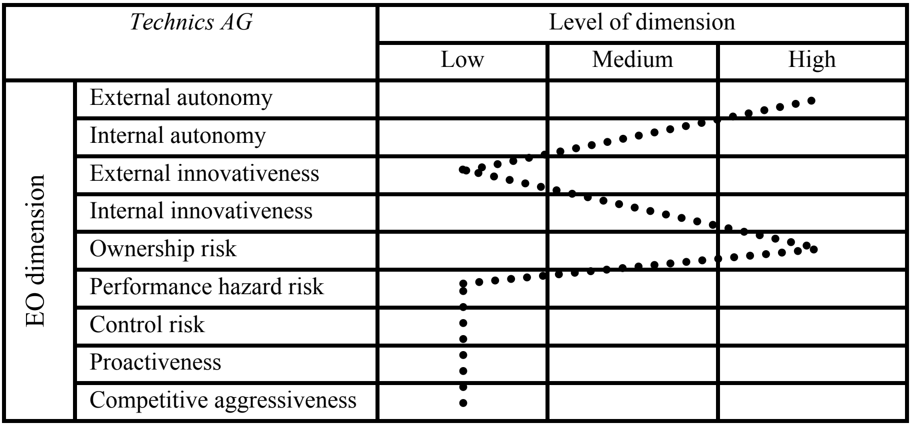

Figure 4: Refined EO profile of Technics AG

3.5.1 Autonomy

As outlined previously, there are arguments that in the context of family firms the *autonomy* of successive generations decreases (Martin & Lumpkin, 2003). Nordqvist et al. (2008) suggest considering *autonomy* as having both an external and an internal dimension. External *autonomy* refers to independence from stakeholders such as banks, suppliers, customers, and financial markets. Internal *autonomy* is related to empowering individuals and teams within an organization. Nordqvist et al. (2008) suggest that, over time, family firms may increase internal *autonomy* of their employees.

We find a clear differentiation between internal and external *autonomy*. Our family and nonfamily interviewees agree on the importance of internal *autonomy*, understood as empowering individuals and teams, as a driver of entrepreneurial activity. In-depth interviews reveal that the third Taste generation and the fifth Health generation successfully managed to overcome the more patriarchal and authoritarian leadership style of their parents (fathers). The nonfamily managers of Taste SA feel that open communication in the management team and the new management and leadership style are positive developments. Internal *autonomy* at the workplace is therefore a more recent management practice, which is adopted by later generations and is represented by the presence of more nonfamily managers. However, more emphasis has always been, and is still, placed on external *autonomy*, meaning independence from external stakeholders. The first and foremost goal of all examined companies is to secure their independence in terms of external *autonomy*. According to Jean Taste, shareholder and marketing director of Taste SA: *"One of our main goals is not to endanger the firm's independence and family control."* As Regula Blinkli, nonfamily marketing director of Health AG, points out: "*The wish for autonomy on the company level has always been a major driving force in the development of the company.*" Similarly, Karl Melber, nonfamily CFO of Technics AG, stresses that: *"Independence from external parties has always been very important."*

Our interviewees also suggest that external *autonomy* on the firm level may provide owners and managers with the freedom to implement a unique strategy that does not have to satisfy short-term-oriented shareholder demands, hence increasing internal *autonomy*. A few years ago, the 150 family shareholders of Technics AG chose not to open its shareholder structure to the public for external and internal *autonomy* reasons. Managers of Technics AG consider external *autonomy* of the organization as a means to create internal *autonomy* of managers, thus generating further entrepreneurial development.

Accordingly, our scoring of EO levels shows high levels of external and medium levels of internal *autonomy* across all firms (refer to Figure 1). We thus support the notion of Martin and Lumpkin (2003) and Nordqvist et al. (2008) that internal *autonomy* increases as later generations assume control of the business and shift to a more participative leadership style. In agreement with Nordqvist et al. (2008), we also find a clear distinction between external and internal *autonomy*, whereas external *autonomy* remains highly relevant over time across all firms. Accordingly, we propose that internal *autonomy*, at least retrospectively, cannot serve as an explanation for the continuing success of these firms. The constant presence of external *autonomy* better explains this success. In sum, we offer the following proposition:

Proposition 1: Long-lived family firms display constantly high levels of external autonomy across time, whereas internal autonomy increases as later family generations join the firm.

3.5.2 Innovativeness

Innovativeness is regarded as a highly important dimension of EO for the long-term performance of family firms (Eddleston, Kellermanns, & Sarathy, 2008). McCann et al. (2001) find that younger and smaller firms are more likely to be innovative than older and larger firms. Furthermore, *innovativeness* is described as leading to greater potential for high performance, as it is driven by comprehensive strategic decision making and long-term orientation (Eddleston, Kellermanns, & Zellweger, 2008; McCann et al., 2001). Specific patterns of *innovativeness* seem to exist. According to Frank Taste, the CEO of Taste SA, *"Innovativeness is truly important since the introduction of our top-selling chocolate bar in the 1940s was a true innovation. But customers are slow in accepting new products and often show a high preference for a product they had known for years. Consequently, the introduction of new products and the entrance to new markets has been rather slow. Still, the company earns the largest part of its sales volume with the chocolate bar."*

Similarly, Technics AG did not constantly display high levels of *innovativeness* over its nearly 180 years of existence. Revolutionary phases, sometimes with intervals of up to three decades, were interspersed with evolutionary and incremental innovation phases. As the family CEO of Technics AG, a company that is active in an industry with proven manufacturing standards, states: *"Big innovations come in waves and always have to be digested."* Health AG managed to generate sales of roughly 60 million euro in a highly regulated niche market with little innovation in new products or development of new markets. According to the family CEO, Mrs. Julia Health, the firm is *"not very innovation-driven when we look at new products, production processes, or technology."* Innovativeness is restricted by family heritage to a certain extent (e.g., products carrying the name of the former family CEO). Change occurs slowly and over time. When Regula Blinkli, nonfamily Head of Marketing, asks *"why is this so?"*, the answer often is: *"This has always been like that, it comes from the former family CEO."*

Beyond fluctuating levels across time, we identify a distinct pattern of *innovativeness* that is not captured by the traditional EO construct. We find high levels of *innovativeness* within these firms, in forms that are less visible from the outside and are not represented by *"the new"* in terms of products, services, or technological processes (i.e., external innovation). However, these firms have made improvements that are innovative and value-generating through renewal from within (i.e., internal innovation). As Health AG's CEO mentions: "*Innovation rather comes from the inside; for example, the introduction of new management systems and structures than from the product or production side*." More specifically, in recent years the firms under investigation have concentrated on implementing new management techniques such as fostering internal improvement processes or financial management systems (Health AG), introducing a balanced and effective governance structure that represents the owning families with a committed management board (Technics AG), or implementing an umbrella brand strategy (Taste SA). This focus on internal *innovativeness* could be explained by the discretionary scope of action for the owner-managers of these firms. Due to higher degrees of internal freedom and lower degrees of freedom in an industrial context dominated by large multinationals, internal changes were more easily conceivable than changes that immediately affect the marketplace. The researchers' independent scoring of internal and external *innovativeness* reveals medium to low levels of external *innovativeness* (new products, markets, and technological processes) and medium to high levels of internal *innovativeness* (new managerial processes, structures, and management systems) (refer to Figure 1).

By connecting the two insights on fluctuating levels of *innovativeness* across time and the differentiation between internal and external dimensions, we find that the family-dominated life cycle of management and ownership structure has an impact on the variation of both types of *innovativeness*. Within Taste SA and Health AG, we find high degrees of internal *innovativeness* during the first years after the transfer of control from one family generation to the next. After having assumed control from their father, the Taste brothers first built a management team and redefined leadership structures, thereby focusing on internal *innovativeness*. Once these changes were in place, their focus shifted to external *innovativeness* in terms of launching new products. Similarly, the family managers of Health AG implemented a management information system to monitor the actual financial performance of the firm before focusing on external *innovativeness*. In both cases, the preceding generations' management style was highly personalized. Therefore, the later generation assuming control first had to resolve issues surrounding internal reorganization and *innovativeness* of decision making, leadership team, and style. Only after these challenges had been met could external product and market innovations be considered.

Thus, we add two key insights to the *innovativeness* dimension within EO in the context of long-lived family firms. First, to capture the full extent of entrepreneurial behavior, *innovativeness* should differentiate between an external and an internal perspective. Second, the level of both external and internal *innovativeness* varies continuously over time and is strongly affected by generational changes. Accordingly, we develop the following propositions:

> *Proposition 2a: The level of external innovativeness (new markets, products, and technological services) and internal innovativeness (new processes, structures, and management systems) in long-lived family firms fluctuates across time.*

> *Proposition 2b: Generational changes positively impact both forms of innovativeness.*

3.5.3 Risk taking

As outlined in our theory section, ambiguous findings about levels of *risk taking* in family firms may be related to an inconsistent use of definitions and measures (for an overview refer to e.g., Gomez-Mejia et al., 2007; Morck & Yeung, 2003). Martin and Lumpkin (2003) investigate risk in terms of investing personal assets and making loans to the business, tolerance of debt, and the importance of increasing profitability. Other authors investigate willingness to innovate (Benson, 1991), variation of performance outcomes (Gomez-Mejia et al., 2007), or debt levels (leverage) as a measure of control risk (Mishra & McConaughy, 1999). Drawing on this confusion, Zahra (2005) claims that a broader definition of risk taking is needed, as it is a complex construct with presumably multiple dimensions.

Our findings shed further light on the intriguing issue of *risk taking* in family firms. Prima facie, our family firms are risk averse when measured in terms of leverage. The average share of equity from total assets is 75% in our firms. Across generations, all firms have been very *"cautious with debt capital,"* according to the family CFO of Health AG. To avoid the risk of losing control over the company (control risk), they financed investments with their own cash flow (Mishra & McConaughy, 1999).

Furthermore, the level of performance hazard risk, defined as the risk of organizational failure induced by business decisions, is low. This type of risk is measured through the probability of organizational failure or threats to survival (Hoskisson, Hitt, & Hill, 1991). We find that our family firms did take what Frank Taste labeled "*calculated business risks*"; that is, balancing the performance hazard risks associated with management decisions against existing solutions so that a project's failure would not threaten the firm's survival. As the president of the supervisory board of Technics AG states: "*We will only engage in projects that do not endanger the company as a whole."* In a similar way, the family CFO of Health AG claims that making a major step forward is difficult, *"as only small risk are taken and only low levels of debt capital accepted."* A member of Heath's supervisory board states that *"it is better to muddle through with an existing concept without making large resource commitments. Being active in niches with amortized machinery is typical for companies like ours."*

In all cases, the family's background has a negative impact on taking decisions that could increase performance hazard risk. This may be understood in light of increased ownership risk, understood as investing most of one's personal wealth in only one or a few assets with no or only limited diversification. All interviewed family owners had assumed a high ownership stake in the family firm. According to the CFO of Technics AG: *"The family shareholders prefer a stable dividend. We need to assure the dividend flow at any time, since there are family members for which the investment in our firm represents the largest part of their wealth and their pension fund."* Accordingly, our cases reveal a nuanced pattern of *risk taking* once we differentiate between control risk (measured as leverage levels), performance hazard risk (measured as probability of organizational failure), and ownership risk (measured as owners holding undiversified assets). The researchers' independent scoring reveals that all firms displayed higher levels of ownership risk and lower levels of both performance hazard and control risk (refer to Figure 1). Thus:

> *Proposition 3: Long-lived family firms display higher levels of ownership risk and lower levels of both performance hazard and control risk.*

3.5.4 Proactiveness

Inconsistent findings exist in the literature about the relevance of *proactiveness* in the context of family firms. Nordqvist and colleages (2008) argue that when the historical path / new path, independence / dependence and informality / formality dualities are kept taut, family firms are more inclined to be proactive. In contrast, Martin and Lumpkin (2003) find that *proactiveness* does not seem to be a consistent predictor of family firm success.

In our case studies, long-lived family firms displayed low to moderate levels of *proactiveness* (refer to Figure 1). Specifically, we find that in contrast to the central role entrepreneurship literature assigns to *proactiveness*, the companies in our study follow an evolutionary rather than a proactive path. A member of the supervisory board of Health AG claims that: *"You should rather postpone building facilities and work with fewer people, in particular if the outlooks are rather uncertain."* Frank Taste admits that his company has lived off its two top-selling products "*for a bit too long.*" However, along with the transition from the second to the third generation, a new entrepreneurial spirit has developed within the company. The two third generation Taste brothers and their team have successfully launched a new product line, increased export orientation, and introduced an umbrella brand strategy: the first proactive moves after a long period of a reactive competitive posture. The family CEO of Technics AG draws a comparable picture about *proactiveness* spaced across long intervals. "*In 1910 our company was at the forefront of a technological revolution, and in 1947 we introduced another product line, way ahead of our competitors. Today we strive to be proactive by reducing ecological concerns related to the use of our products."*

Hence, the firms we examined cannot be considered consistently strong proactive organizations. Taste SA and Health AG, for instance, have moved from pure trading activities to installing their own production facilities, repeatedly increasing their capacities across time. However, in most cases these investments were not undertaken as first moves, but were the result of long-term market screening and observation of competitors' actions. Even though the current management teams of Taste SA, Health AG, and Technics AG seem to display a proactive mindset, it remains unclear to what extent non-operating family shareholders would support proactive investments associated with large and risky resource commitments. As the family CEO of Health AG points out, family members not involved in firm operations would most likely inhibit a proactive move (e.g., opening overseas production facilities). In a similar way, a family supervisory board member of Technics AG states: "*As you know, our non-operating shareholders are rather risk averse. They have what I would call a "pension fund mentality." And they have said no to a recent opportunity to acquire* *a nano-technology company that would have allowed us to enter a market that could become relevant in our field."* These cases suggest that family owners not involved in business operations hinder bold proactive moves.

In sum, we contribute to research on *proactiveness* in family firms with two insights. First, our firms exhibit a dynamic pattern regarding the level of *proactiveness* over time. They show longer periods of rather low levels of *proactiveness*, interrupted by phases of carefully selected proactive moves. Most of these firms adopted a *"wait and see"* posture, waiting for the right moment to leap ahead of the competition. Second, given our findings on family shareholders not involved in firm operations, we suggest that family CEOs willing to be more proactive may be hindered by family ownership structure. More formally stated:

> *Proposition 4a: Proactiveness in long-lived family firms fluctuates over time, with periods of low levels of proactiveness interspersed with carefully selected proactive moves.*
>
> *Proposition 4b: The stronger the influence of family shareholders not involved in the firm's operations, the lower the level of proactiveness in long-lived family firms.*

3.5.5 Competitive aggressiveness

Family business research seems to indicate that *competitive aggressiveness* is of significantly lower relevance in the context of family firms (Martin & Lumpkin, 2003; Nordqvist et al., 2008). Eddleston et al. (2008) suggest that comprehensive strategic decision making and long-term orientation can be seen as antecedents to *competitive aggressiveness* and *innovativeness*.

Our case analysis reveals that all three firms under investigation display low levels of *competitive aggressiveness* (refer to Figure 1). For example, our interviewees voice a strong desire to dominate a market niche, thereby avoiding head-to-head competition and striving to be a *"hidden champion"* (Simon, 1996); with hidden understood not in terms of invisibility due to smaller size but as a competitive posture that avoids direct confrontation. By following a nonaggressive posture, our firms preferred a "live and let live" and "let them do their things" posture. As Norbert Health, CFO of Health AG, points out: *"Being aggressive would not fit our company at all. I prefer a differentiation of our company that is based on our basic values and on our tradition as a Swiss family business. We have to be cautious with our outside appearance; we have to avoid aggressiveness and pomposity. We prefer being small but nice – a pearl in the market. The aim is sustainable success and not short-term profit maximization."* In a similar way, the family marketing director of Taste SA claims: *"Recently, a competitor tried to increase his market share with a radical change of the product's packaging. However, the customers did not accept the fancy changes, since the product itself remained the same. The resulting damage for the brand and also the company is tremendous. Such aggressive marketing campaigns would never have happened in our company."*

We interpret these statements on lower *competitive aggressiveness* not only in light of the resource constraints these firms face in comparison to the industry giants they are competing with, but also as a concern for firm reputation. Family managers might be particularly hesitant to be seen as aggressive, since a negative corporate reputation for aggressive firm behavior might negatively affect the reputation of the family and the manager. This is due to identity overlaps between the firm, family, and individual and is reinforced by the inability to leave the family or to easily switch management structures (Dyer & Whetten, 2006; Martin & Lumpkin, 2003). Tying back to existing research, we partly support the findings of Martin and Lumpkin (2003) that *competitive aggressiveness* might be lower for later-generation family firms. However, we reach beyond their assertion that decreasing *competitive aggressiveness* across generations may be induced by increasing levels of family orientation. We propose a reputation based rationale for why *competitive aggressiveness* should be lower in long-lived family firms. Reputation strengthens over time and is dependent on governance and ownership structures (Rindova & Fombrun, 1999). Our three companies have built strong reputations over decades whereby this reputation is supported by the stable governance and ownership and structures, and all family members are concerned that aggressive behavior might destroy that image, including negative effects on personal reputation due to overlapping identities (Dyer & Whetten, 2006). More formally stated:

> *Proposition 5: Competitive aggressiveness of long-lived family firms decreases over time due to reputation concerns of the controlling family.*

3.6 Discussion and Implications

We set out to investigate the concept of firm-level corporate entrepreneurship measured through the EO construct in the context of long-lived family firms, given the inconsistent results in the literature about how entrepreneurship should be understood in this specific context (Schulze et al., 2003b; Zahra et al., 2004). Through three in-depth case studies of family firms, each between 80 and 175 years old, in which we interviewed 13 family and nonfamily managers, we touch upon the uniqueness of firm-level corporate entrepreneurship that arises from the systemic interaction of individual, family, and firm. With this case-based methodology, we strive to overcome problems associated with the use of single-respondent survey data in entrepreneurship research (Zahra et al., 1999) and address the general lack of attention to lagged effects among the antecedents, performance outcomes, and different forms of corporate entrepreneurship (Dess et al., 2003). We thereby gain several theoretical insights into the manifestation of corporate entrepreneurship in this specific context.

First, and in contrast to the prevailing view in the entrepreneurship field, interviews seem to indicate that our firms exhibit low, or at best medium, levels of the five salient EO dimensions. This partly contradicts the assumption that lower levels of EO should endanger organizational survival and prosperity (e.g., Covin, Green, & Slevin, 2006; Dess et al., 2003; Wiklund, 2006; Wiklund & Shepherd, 2005). Our research reveals that the key to generation-spanning success is not dependent on consistently reaching the maximum degree of all EO dimensions. "More is better" does not always seem to be true. To achieve success across generations, continuous adaptation of the company's EO profile seems to be necessary. Accordingly, we claim that generational change has a strong impact on EO and we provide a dynamic perspective of EO in family firms. The observed contradiction to general EO wisdom might be related to the fact that the EO construct is inherently static, as it is developed and used to measure entrepreneurial behavior at a certain point in time. As such, we add to Zahra et al.'s (1999) reflection on equifinality, which suggests that organizations can utilize different orientations to reach the same objective.

Second, we provide a more fine-grained and somewhat different perspective on several dimensions of EO. Regarding *autonomy,* we support Nordqvist et al.'s (2008) suggestion to distinguish between external and internal *autonomy.* More specifically, over time, we find increasing levels of internal *autonomy* and a consistently high level of external *autonomy*. Accordingly, we propose that internal *autonomy*, at least retrospectively, cannot serve as an explanation for the continuing success of these firms and that the constant presence of external *autonomy* better explains this success. As a consequence, we suggest that long-lived family firms display consistently high levels of external *autonomy*, whereas internal *autonomy* increases when later family generations join the firm.

Regarding *innovativeness,* we expand existing knowledge by finding that the corresponding scale of EO is not perfectly suitable to examine long-lived family firms. While our firms score low on the traditional *innovativeness* scale that measures new products, markets, and technological processes (Lumpkin & Dess, 1996), the interviews revealed high levels of internal and *"invisible"* innovations such as exploiting existing solutions and the improvement of management systems and governance structures (i.e., internal process redesign). Although these internal innovations also contribute to success, they are not captured by the traditional *innovativeness* scale of EO. As our interviewees point out, *innovativeness* fluctuates over time, since innovations must be absorbed and may not be immediately apparent. We add to the calls by researchers to consider the lagged effects of corporate entrepreneurship (Dess et al., 2003) and suggest that the family life cycle has a strong effect on *innovativeness*. We propose that generational changes can increase the level of internal and external *innovativeness* in family firms, which is in line with Hoy's (2006) claim that the life-cycle stage of family members is a decisive factor regarding family firm entrepreneurial behavior, and especially innovativeness.

As for *risk taking,* we propose that risk is multidimensional and suggest extending the *risk taking* dimension to overcome the fragmentary picture presented by the traditional measure (Naldi et al., 2007; Zahra, 2005). Specifically, we propose three different aspects of risk, leading to a more fine-grained understanding of this dimension. First, we identify high levels of ownership risk, resulting from increased levels of undiversified wealth tied to the family firm. Second, as a result of heightened ownership risk, we find a lower willingness to take risky business decisions, defined as performance hazard risk. Third, we reveal an aversion to high levels of control risk, measured in terms of leverage. Also, we cannot find support for the claim by Martin and Lumpkin (2003) that the level of risk, in whatever form, decreases as later generations join the firm.

We also add new insights into the *proactiveness* dimension, with two major findings. First, our firms exhibit a dynamic pattern regarding the level of *proactiveness* over time, with longer periods of rather low levels of *proactiveness* interspersed with phases of carefully selected proactive moves. In most cases, these firms adopted a *"wait and see"* posture, waiting for the right moment to leap ahead of the competition. Second, given our findings on family shareholders not involved in firm operations, we suggest that the strong influence of non-operating family members can hinder the proactive moves of family CEOs. Our findings might help to reconcile the divergent insights in the literature on the relevance of *proactiveness* (e.g., Martin & Lumpkin, 2003; Nordqvist et al., 2008).

Regarding the *competitive aggressiveness* dimension, a main outcome of our research is that high levels of *competitive aggressiveness* do not seem to be a necessary precondition for generation-spanning success, despite the presumably pivotal role of *competitive aggressiveness* within EO (Lumpkin & Dess, 1996). While we partly support the argument of Martin and Lumpkin (2003) that *competitive aggressiveness* decreases in later generations, we suggest that this decrease may be due not only to increasing family orientation, as these authors state, but also to possible negative spillover effects on personal and family reputation.

3.7 Limitations

Our research is not without limitations. In our attempt to investigate entrepreneurship in the context of family firms, we follow a "common denominator" approach (Dyer & Handler, 1994; Hoy & Verser, 1994); that is, examining an element or characteristic held in common. We are aware that this approach is limited in terms of its explicative power. If the goal is to study family businesses through the lens of entrepreneurship, as in our case, then that common denominator will define what actually can and will be studied. However, specific family-related aspects, such as family structures, succession plans, and family harmony, cannot be fully understood through the lens of corporate entrepreneurship or EO. A second possible limitation is the generalizability of our findings, a common criticism of case study research (Punch, 2005). However, we see our interpretations and the derived propositions as analytical rather than statistical generalizations derived through rigorous research. Additionally, as our cases all stem from the same cultural background (Switzerland), the applicability of our results to long-lived family firms from other cultures may be limited. Finally, as we extrapolate from our findings to the population of long-lived family firms, we need to address the issue of heterogeneity (e.g., Hall & Nordqvist, 2008; Sharma, 2003b). Given the selection of cases, our findings might be particularly suited to explain entrepreneurial behavior in mid-sized and later-generation family firms. Our considerations might be of less relevance in the context of small and young family firms.

3.8 Directions for future research

We suggest several avenues for future research. One possibility is to test both our propositions and our challenging of the implicit assumption regarding EO that "more is better." This could be done with a cross-sectional study, investigating the stable subdimensions of EO (i.e. external autonomy, ownership risk and control risk) that we have identified in our case studies. For capturing the changing EO subdimensions over time, this study could be conducted at two points of time, for example before and after a younger generation has taken over the family business. Furthermore, we call for additional case study research for further substantiation of our findings. Both the survey(s) and the case studies could take place in different cultural and industrial contexts to further improve the generalizability of our results. There is an opportunity to explore what we might label "liability of oldness," as opposed to the "liability of newness" (Stinchcombe, 1965). Whereas young firms may act aggressively in general (due to newness), more established organizations might challenge their competitors purely to assure their own market presence, established reputation and survival (due to oldness). In addition, researchers could consider the question of how the EO profile of long-lived family firms can be transformed over time and which factors support or hinder such attempts. Entrepreneurship researchers might follow our suggestion to rethink the definitions of the *autonomy*, *innovativeness,* and *risk taking* dimensions according to the insights gained in the family business context, which could enrich research in other contexts. Additionally, conducting research in the context of long-established nonfamily firms could lead to valuable insights regarding the extent to which our findings are applicable to non-family firms.

3.9 Conclusion

Tying back to our research question, we examined the boundaries of the EO construct when applied in the context of long-lived family firms. Our cases show that these firms have been successful over time, even with moderate or low levels of overall corporate entrepreneurship. To fully capture the patterns of corporate entrepreneurship in family firms and to understand these firms' continuing success, we propose several extensions to the existing EO dimensions. In such a refined EO profile, long-lived family firms seem to display a consistent pattern of entrepreneurship that partly challenges accepted wisdom. Thus, we hope to inspire future entrepreneurship and family business scholars with our findings and propositions. In this way, we could fulfill our goal of giving back to the field that has enriched our work.

4 Entrepreneurial Middle-level Managers: The Roles of Psychological Ownership and Organizational Factors

Philipp Sieger

4.1 Abstract

Despite the importance of middle-level managers' entrepreneurial behavior there is still a lack of knowledge about its determinants. Especially the role of individual-level factors and their interactions with organizational antecedents are unclear. Based on a sample of 403 middle-level managers this paper introduces psychological ownership as individual-level trigger for their entrepreneurial behavior. The analysis of combinations of psychological ownership and established organizational antecedents reveals that management support strengthens the psychological ownership - entrepreneurial behavior relationship, whereas no moderation effects are found for work discretion and rewards/reinforcement. These findings constitute valuable contributions to entrepreneurial behavior and psychological ownership literatures, as well as to practice.

4.2 Introduction

Middle-level managers' entrepreneurial behavior has been conceptualized as core aspect of and antecedent for effective corporate entrepreneurship (cp. Hornsby et al., 2002; Kuratko, Ireland et al., 2005). This behavior comprises implementing one's own entrepreneurial actions, creating an entrepreneurial atmosphere, and motivating subordinates (cp. Floyd & Wooldridge, 1992; Ghoshal & Bartlett, 1994; Kuratko, 2010). Despite the crucial importance of middle-level managers' entrepreneurial behavior, and even though scholars have devoted significant efforts to investigate its determinants, there is still a lack of understanding of how it actually comes into being.

Scholars agree that middle-level managers' entrepreneurial behavior is fostered by a combination of individual and organizational factors (Kuratko, 2010; Kuratko, Ireland et al., 2005; Naffziger et al., 1994). Existing research on corresponding individual-level antecedents has mainly focused on individual characteristics such as personality traits (Begley & Boyd, 1987; Gartner, 1989; Rauch & Frese, 2007). However, Holt, Rutherford and Clohessy (2007) were not able to confirm a relationship of the Big Five personality traits with employees' propensity to act entrepreneurially in an organizational setting. Given recent calls not to abandon elements of the person in entrepreneurship research (Hmieleski & Baron, 2009; Hmieleski & Corbett, 2008; Schjoedt & Shaver, 2007), further research on individual-level factors that influence middle-level managers' decision to act entrepreneurially is promising.

On the organizational level, literature has converged to five main antecedents (cp. Hornsby et al., 2002; Kuratko, Ireland et al., 2005), whereas empirical studies offer stable and consistent support for three of them: management support, work discretion, and rewards/reinforcement (cp. Holt et al., 2007; Hornsby et al., 2008; Hornsby et al., 2009; Kuratko, Hornsby et al., 2005). So far, however, hardly any study has explicitly investigated the interaction between individual-level and organizational-level factors, which is necessary given its established importance (cp. Kuratko, 2010; Kuratko, Ireland et al., 2005).

This paper addresses the illustrated research gaps in two ways. First, it introduces the concept of psychological ownership as an individual-level trigger for middle-level managers' entrepreneurial behavior. Psychological ownership has been defined as "the state in which individuals feel as though the target of ownership or a piece of that target is 'theirs' " (Pierce, Kostova, & Dirks, 2003: 86).

While psychological ownership of employees toward the firm they work for has been found to induce various pro-organizational behaviors, such as organizational citizenship behavior and affective commitment (cp. Avey, Avolio, Crossley, & Luthans, 2009; Van Dyne & Pierce, 2004), the link to entrepreneurial behavior has not been explored in detail yet. Second, to investigate the interaction between individual-level and organizational-level antecedents, this paper explores the moderation effects of management support, work discretion, and rewards/reinforcement, in the psychological ownership - entrepreneurial behavior relationship. The hypotheses are tested on a sample of 403 middle-level managers from companies based in Germany and German-speaking Switzerland.

The contributions of this paper are manifold. First, the paper adds to the growing literature on middle-level managers’ entrepreneurial behavior. Speaking to scholars who investigate individual-level differences in the context of entrepreneurship (cp. Holt et al., 2007; Hornsby, Naffziger, Kuratko, & Montagno, 1993; Rauch & Frese, 2007), the study introduces psychological ownership as an individual-level state of mind that differentiates non-entrepreneurial from entrepreneurial middle-level managers. Furthermore, the study sheds a nuanced light on the interaction between individual-level and organizational-level antecedents (cp. Kuratko, Ireland et al., 2005; Kuratko et al., 2004). The significant moderation effect of management support and the insignificant moderation effects of work discretion and rewards/reinforcement offer unique insights into how psychological ownership and organizational factors interact in fostering middle-level managers' entrepreneurial behavior, which addresses entrepreneurial behavior scholars in general (e.g., Goodale, Kuratko, Hornsby, & Covin, 2010; Hornsby et al., 2009; Kuratko, Ireland et al., 2005). Second, the paper contributes to psychological ownership research, as it is the first to introduce psychological ownership in the context of middle-level managers' entrepreneurial behavior, which speaks to scholars who investigate behavioral consequences of psychological ownership (e.g., Avey et al., 2009; O’Driscoll, Pierce, & Coghlan, 2006). Third, for business practitioners, this study illustrates new and promising ways of how middle-level managers' entrepreneurial behavior can be fostered in practice, namely by a meaningful and strategic management of both individual-level and organizational-level factors.

The paper is structured as follows. First, I present the theoretical foundations of middle-level managers' entrepreneurial behavior and psychological ownership. Second, I derive the hypotheses, describe the sample and methods, and present the empirical findings. I then discuss results and contributions, limitations, and avenues for future research. The paper closes with a final conclusion.

4.3 Theoretical foundations

4.3.1 Entrepreneurial behavior of middle-level managers

In general terms, entrepreneurial behavior captures all actions by firm members that relate to the discovery, evaluation, and exploitation of entrepreneurial opportunities (Shane & Venkataraman, 2000; Smith & Di Gregorio, 2002). It is thus the behavior through which corporate entrepreneurship is practiced (Hornsby et al., 2002; Kuratko, Ireland et al., 2005; Shane & Venkataraman, 2000; Smith & Di Gregorio, 2002). Corporate entrepreneurship is comprehensively understood as *"the process whereby an individual or a group of individuals, in association with an existing organization, create a new organization or instigate renewal or innovation within that organization"* (Sharma & Chrisman, 1999, p. 18). Entrepreneurial behavior of firm members is argued to be critical to both the creation of new ventures and renewal from within an organization (Smith & Di Gregorio, 2002).

The major part of entrepreneurial behavior literature has focused on middle-level managers (Hornsby et al., 1999; Hornsby et al., 2009; Hornsby et al., 2002; Kuratko, Ireland et al., 2005), whose roles and tasks differ from those of top-level managers and operative-level managers. King, Fowler, and Zeithaml (2001) argue that middle-level managers reconcile top-level managers' perspectives with implementation issues that appear at lower management levels. Top-level managers are primarily concerned with strategic decisions, and operative-level managers implement the directives they receive from middle-level managers (cp. Floyd & Lane, 2000; Fulop, 1991).

In the context of entrepreneurship, Ghoshal and Bartlett (1994) see middle-level managers as enablers of individual entrepreneurial action by facilitating information flows from top to bottom, with a crucial role in creating an environment that encourages innovation and entrepreneurship (cp. Floyd & Wooldridge, 1992; Ginsberg & Hay, 1994). They are seen as stimulating interest in entrepreneurship, fostering the commitment of subordinate employees to related activities (Hornsby et al., 2002), and encouraging subordinates to take risks, to innovate, and to engage in autonomous entrepreneurial activities (cp. Hornsby et al., 2002; Kanter, 1985). Kuratko et al. (2005) conclude that middle-level managers *"endorse, refine, and shepherd entrepreneurial opportunities and identify, acquire, and deploy resources needed to pursue those opportunities"* (p. 705). Middle-level managers are described as the class of management that is most involved in innovative and entrepreneurial activities in established companies (Morris & Kuratko, 2002). Summarizing decades of research, Kuratko (2010) states that entrepreneurial behavior of middle-level managers *"manifests itself both in terms of the need for middle-level managers to behave entrepreneurially themselves and the requirement for them to support and nurture others' attempts to do the same"* (p. 143). This two-dimensional nature is thus the key characteristic of middle-level managers' entrepreneurial behavior.

Despite significant scholarly efforts the antecedents of middle-level managers' entrepreneurial behavior are still insufficiently understood. Numerous scholars agree that individual and organizational factors work together (see also Kuratko, 2010; Naffziger et al., 1994). According to Kuratko et al. (2005), middle-level managers' entrepreneurial behavior depends on both conducive organizational antecedents and their individual decisions to act. This view is supported by Baum, Locke and Smith (2001) who highlight the interaction of individual, organizational, and environmental domains. Similarly, Kuratko et al. (2004) propose that entrepreneurial behavior is a product of individual and organizational antecedents. Further supporting this argument, Goldsby, Kuratko, Hornsby, Houghton, and Neck (2006) state that people are certainly *"influenced but not dominated by their environments",* and *"still have to make behavioral choices"* (p. 24).

Referring to the individual level, research on personal characteristics and traits has mainly tried to differentiate entrepreneurs from business managers and the general population, whereas business creation and ventures' success have mostly been used as dependent variables (Gartner, 1989; Rauch & Frese, 2007). In an organizational setting, however, Holt et al. (2007) were not able to validate the proposed effects of the Big Five model of personality (cp. Zhao & Siebert, 2006) on employees' propensity to act entrepreneurially.

On the organizational level, research in the last decades has come to the conclusion that there are five main organizational antecedents of middle-level managers' entrepreneurial behavior, namely management support, work discretion, rewards/reinforcement, time availability, and organizational boundaries (cp. Hornsby et al., 1999; Hornsby et al., 2002; Kuratko, Ireland et al., 2005). All these factors affect the internal organizational context, which determines interest in and support of entrepreneurial initiatives (Burgelman, 1983; Hornsby et al., 2002). These antecedents not only have to exist, but also have to be perceived as such (cp. Hornsby et al., 2002). Middle-level managers interpret these antecedents as indications of an internal environment supporting entrepreneurial behavior, and actually exhibit this behavior if they perceive that its value exceeds the value of other behaviors (cp. Chen, Greene, & Crick, 1998). Building on previous research (Hornsby et al., 1999; Kuratko, Montagno, & Hornsby, 1990), Hornsby et al. (2002) developed the Corporate Entrepreneurship Assessment Instrument (CEAI) to measure middle-level managers' perceptions of these five factors. Numerous empirical studies applying this measure offer stable and consistent support for the dimensions of management support, work discretion, and rewards/reinforcement (cp. Hornsby et al., 2008; Hornsby et al., 1999; Hornsby et al., 2009; Kuratko, Hornsby et al., 2005). However, in contrast to theoretical expectations, scholars sometimes report insignificant or even negative relationships with entrepreneurial behavior for the time availability dimension (Holt et al., 2007; Hornsby et al., 2009), and the organizational boundaries dimension seems to suffer from measurement problems (cp. Holt et al., 2007; Hornsby et al., 2008; Hornsby et al., 2009). Consequently, the present paper focuses on the stable dimensions of management support, work discretion, and rewards/reinforcement.

Management support has been identified as a central organizational prerequisite for middle-level managers' entrepreneurial behavior (Kuratko, 2010; Kuratko, Ireland et al., 2005; MacMillan, Block, & Narasimha, 1986). It is understood as the extent to which one perceives that top-level managers are willing to facilitate and promote entrepreneurial activities in the firm (cp. Kuratko, Hornsby, Naffziger, & Montagno, 1993; Pearce et al., 1997; Stevenson & Jarillo, 1990). This perceived top-management support can occur by championing new ideas, providing resources, or institutionalizing entrepreneurial activity.

Work discretion refers to the extent to which one perceives that senior managers are committed to tolerate failure, to delegate authority and responsibility to lower-level managers, to provide decision-making latitude, and avoid excessive oversight (cp. Burgelman, 1983; Hornsby et al., 2009; Kuratko, Ireland et al., 2005; MacMillan et al., 1986). This, in turn, increases middle-level managers' ability or willingness to take risks in the pursuit of innovation (Kuratko et al., 2004). Work discretion in that sense may be used for entrepreneurial experimentation by middle-level managers (Kuratko, Ireland, & Hornsby, 2001).

Finally, rewards/reinforcement refers to the extent to which employees perceive that the organization uses reward systems that are based on performance and highlight significant achievements (Kuratko, 2010). These systems should honor entrepreneurial activity and success, which elicits and supports entrepreneurial actions (Hornsby et al., 2002; Kuratko, Hornsby et al., 2005). Scholars argue that such systems should consider goals, feedback, individual responsibility, and result-based incentives, and also encourage pursuit of challenging work (cp. Block & Ornati, 1987; Kanter, 1985; Kuratko, Ireland et al., 2005; Sathe, 1985). Appropriate rewards such as increased responsibilities or special recognition can also increase middle-level managers' willingness to assume risks associated with entrepreneurial actions (Kuratko, Ireland et al., 2005).

The abovementioned interaction of individual-level and organizational-level antecedents, however, has not been addressed explicitly by existing research (cp. Hornsby et al., 1999; Hornsby et al., 2009; Kuratko, Hornsby et al., 2005). This would be promising, as *"research is needed to further clarify the linkage between the presence of specific qualities and properties in an organizational context and individuals' (such as middle-level managers) decisions to act entrepreneurially"* (Kuratko, Ireland et al., 2005, p. 711).

Thus, there is a need for research on individual-level antecedents that foster middle-level managers' entrepreneurial behavior and on their interaction with organizational factors. This paper addresses these gaps by introducing psychological ownership as an individual-level state of mind that triggers middle-level managers to act entrepreneurially and by investigating the moderation effects of three organizational factors.

4.3.2 Psychological Ownership

In recent years, the concept of psychological ownership has received considerable scholarly attention when investigating the relationship between the employee and the organization (cp. Avey et al., 2009; Pierce et al., 2003; Pierce, O'Driscoll, & Coghlan, 2004; Pierce, Rubenfeld, & Morgan, 1991). Pierce et al. (2003, p. 86) define psychological ownership as *"the state in which individuals feel as though the target of ownership or a piece of it is 'theirs'."* It is thus conceptualized as a psychological state of mind, in contrast to a stable personality trait (cp. Pierce et al., 2003; Pierce, Kostova, & Dirks, 2001). The concept of psychological ownership builds on the long history of philosophical and psychological research on the genesis of possessive tendencies and the psychology that something is *"mine"* (Etzioni, 1991; Furby, 1978b; Sartre, 1969). While formal or legal ownership is not necessary to develop feelings of ownership (Pierce et al., 2003; Pierce et al., 2001), scholars also claim that formal ownership has to induce feelings of ownership as a first step to have any effects (Pierce & Furo, 1990). Psychological ownership as a psychological state of mind satisfies three underlying human motives (cp. Pierce et al., 2001). First, it can nurture feelings of efficacy, since *"to have"* is the ultimate form of control, whereby being in control leads to the perception that one *"is the cause"* and that one has altered or is able to alter the circumstances (Beggan, 1992). Second, ownership helps people define themselves, express their self-identity to others and maintain the continuity of the self. As such, possessions or what is perceived to be mine can have an identity forging and maintaining function (Kamptner, 1989; Price, Arnould, & Folkman Curasi, 2000). Finally, psychological ownership scholars suggest that having a place, and hence the need for territoriality and security may also be nurtured by ownership (Porteous, 1976). The target of ownership feelings finally becomes part of the psychological owner's identity; one's possessions are felt as extensions of the self (Belk, 1988; Dittmar, 1992; Pierce *et al.*, 2001).

Due to the sense of possession as the conceptual core (cp. Furby, 1978b; Rudmin & Berry, 1987), psychological ownership is distinctive from concepts such as organizational commitment, organizational identification, and job involvement (cp. Pierce et al., 2001; Van Dyne & Pierce, 2004). Psychological ownership asks, *"How much do I feel this organization is mine"* (Van Dyne & Pierce, 2004, p. 443). In contrast, organizational commitment asks, *"Why should I maintain my membership in this organization"* (cp. Meyer & Allen, 1997); organizational identification asks, *"Who am I"* (Dutton, Dukerich, & Harquail, 1994); and job involvement asks, *"How important is the job and job performance to my self-image?"* (Lawler & Hall, 1970).

Research has documented numerous pro-organizational attitudinal and behavioural consequences of employees' psychological ownership toward the organization including affective commitment (Avey et al., 2009; Pendleton, Wilson, & Wright, 1998), extra-role behavior (Pierce, Van Dyne, & Cummings, 1992; VandeWalle, Van Dyne, & Kostova, 1995), and organizational citizenship behavior (Avey et al., 2009; Van Dyne & Pierce, 2004). However, a relationship with middle-level managers' entrepreneurial behaviour has not been explored yet. As this paper argues in the following, there is good reason to believe that psychological ownership will induce middle-level managers to exhibit entrepreneurial behaviour.

4.4 Hypotheses

4.4.1 Psychological ownership and entrepreneurial behavior

There are numerous attitudinal and behavioral consequences when middle-level managers exhibit psychological ownership toward the firm they are working for. In the presence of feelings of a sense of place, belonging and personal space, middle-level managers will experience *"mere ownership"* (Beggan, 1992) and develop feelings of attachment and belonging. As a result, the firm will be experienced as part of the middle-level manager's extended self, part of their identity (Belk, 1988; Dittmar, 1992). In turn, the human desire to maintain, protect, and enhance that identity leads to heightened feelings of responsibility for the ownership target (Dipboye, 1977; Druskat & Kubzansky, 1995; Korman, 1970; Pierce et al., 2001). These feelings, in turn, lead to the investment of time and energy to advance the cause of the organization, to be protective, caring, and nurturing (Pierce et al., 2001). In other words, middle-level managers who are psychological owners of the company feel responsible for it; they want to protect, care for, and nurture it; to make it prosper, grow, and survive. Entrepreneurial behavior is proposed as a suitable means to achieve these aims. With both of its main elements, namely own entrepreneurial actions and support of others' attempts to do the same, it is a core aspect of corporate entrepreneurship (e.g., Hornsby et al., 2002; Kuratko, Ireland et al., 2005; Pearce et al., 1997), which in turn has positive effects on firm performance, for instance in the form of profitability, survival, and growth (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Rogoff & Heck, 2003). Put differently, middle-level managers' desire to enhance the firm induced by psychological ownership can be satisfied by behaving entrepreneurially.

Furthermore, supporting such an argument for a positive relationship between psychological ownership and entrepreneurial behavior, it has been suggested that ownership feelings are accompanied by self-initiated behavior that adds value to the firm because such behavior satisfies the personal need for control and strengthens the feeling of personal efficacy (Pierce et al., 2001). It has also been proposed that ownership feelings and perceptions of psychological empowerment (Spreitzer, 1995) are positively related to a hands-on work attitude (Crant, 2000) and the inclination to take the initiative and move ahead with novel ideas. In other words, middle-level managers who perceive being in control and having the right to have a voice through ownership feelings will be inclined to achieve organizational goals by exhibiting entrepreneurial behavior.

In addition, scholars claim that legal ownership in a firm enhances the proclivity to invest in innovation and novel ways of action (Cho, 1998; Hill & Snell, 1989). For legal ownership to generate these effects, Pierce and Furo (1990) argue that ownership feelings have to evolve as a first step. As these ownership feelings, in turn, are also possible in the absence of legal ownership (Pierce et al., 2003; Pierce et al., 2001), for instance when a middle-level managers perceives that the organization he or she works for is *"his"* or *"her"* even though he or she does not own company shares, these psychological owners are likely to exhibit an increased proclivity to innovation and novel ways of action as well, which manifests itself in entrepreneurial behavior.

Moreover, scholars propose that psychological ownership may turn agents, such as non-owning middle-level managers, into psychological principals from an agency theory perspective (Pierce et al., 2003). Consequently, the interests of principals and middle-level managers that perceive ownership feelings will be aligned (Eisenhardt, 1989a; Jensen & Meckling, 1976). Company performance has been established as ultimate goal of principals (Daily, Certo, Dalton, & Roengpitya, 2003; McDonald, Khanna, & Westphal, 2008). As shown before, corporate entrepreneurship is a main antecedent of company performance, whereas middle-level managers' entrepreneurial behavior is a core aspect of the former. Put differently, psychological ownership will bring middle-level managers to share the principals' ultimate goal of company performance. Entrepreneurial behavior, in turn, is a suitable means to contribute to this goal's achievement. The preceding arguments lead to the following hypothesis:

> *Hypothesis 1: Middle-level managers' psychological ownership toward the firm is positively related to their entrepreneurial behavior.*

4.4.2 Psychological ownership, organizational antecedents, and entrepreneurial behavior

As illustrated previously, management support occurs by top-level management championing new ideas, providing resources, or institutionalizing entrepreneurial activity (Hornsby et al., 2002; Kuratko, Ireland et al., 2005; Stevenson & Jarillo, 1990). When top-level management is willing to champion and support psychological owners' novel ideas, and if it is also perceived as such, this is an important signal. Middle-level managers then realize that ideas and entrepreneurial actions are welcome, and that they will be implemented in the organization, thus contributing to corporate entrepreneurship. Put differently, middle-level managers see that entrepreneurial actions will actually have an impact, which for instance helps to satisfy psychological owners' feelings of responsibility and their desire to care for, nurture, and enhance the organization (Pierce et al., 2001). Management support thus strengthens middle-level managers' willingness to implement own entrepreneurial actions and to support those of others. In addition, when top-level management provides middle-level managers with resources that are necessary to implement own entrepreneurial actions and to support other's entrepreneurial behavior, this has positive effects as well. For example, support in the form of time, money and other resources enables middle-level managers to work on own ideas, to experiment, and to actually put new ideas into practice. Similarly, given the intermediary role of middle-level managers between top-level and operative-level managers (Floyd & Wooldridge, 1992; Kuratko et al., 2004), they can use resources such as time and money to actively support entrepreneurial actions of subordinates, for example by assigning resources to entrepreneurial projects or giving subordinates free time that can be used for idea generation.

In sum, management support signals middle-level managers who are psychological owners that entrepreneurial actions are highly valued and will actually make an impact. In addition, it provides middle-level managers with the resources that actually enable them to put this behavior in practice. When management support is low, psychological owners will perceive that entrepreneurial actions are not much appreciated, and have less resources at their hands to develop own ideas or to support others in doing so. Following these arguments it is proposed here that the positive relationship between psychological ownership and entrepreneurial behavior is stronger for situations with high management support than for situations with low management support. More formally stated:

> *Hypothesis 2: Perceived management support moderates the relationship between middle-level managers' psychological ownership toward the organization and their entrepreneurial behavior, such that the relationship is stronger for high management support than for low management support.*

When middle-level managers perceive to have work discretion in the form of authority, responsibility and decision-making latitude, and when failure is tolerated and excessive oversight is missing (Burgelman, 1983; Kuratko, Ireland et al., 2005; MacMillan et al., 1986), this also has important effects. In the presence of authority, responsibility and decision-making latitude, middle-level managers are likely to use this freedom and autonomy to satisfy their psychological ownership-induced desire to enhance the organization through entrepreneurial behavior (Pierce et al., 2001). On one hand, they may use their possibilities to pursue own ideas and entrepreneurial ventures within the company by independently deciding on corresponding projects and actions. In addition, if excessive oversight is missing, they do not have to report and justify every move they make, which enables them to follow creative ideas without organizational constraints. Hence, work discretion can actually be used for entrepreneurial experimentation (Kuratko et al., 2001).

Moreover, as work discretion increases middle-level managers ability and willingness to take risks in the pursuit of innovation, they will be more inclined to pursue own risky ideas and entrepreneurial ventures. These elements of work discretion can also be used for supporting subordinates' entrepreneurial behavior, for instance by approving and championing entrepreneurial projects of others without being forced to justify every decision in front of top-level management. Furthermore, the increased ability and willingness to take risks and the permission to learn from failures allows middle-level managers to support and take responsibility for risky entrepreneurial projects of subordinates. Given the desire of middle-level managers to act entrepreneurially induced by psychological ownership, they are likely to actually make use of the opportunities and freedom provided by high levels of work discretion. In situations with low work discretion, psychological owners have less power, autonomy, and freedom to put the desired entrepreneurial behavior into practice.

Furthermore, their willingness to assume risk is lower, and they are eager to avoid mistakes. These aspects restrict their ability to implement own entrepreneurial actions, as well as their possibilities to support the action of others. Hence, it is proposed here that the positive relationship between psychological ownership and entrepreneurial behavior is stronger for situations with high work discretion than for situations with low work discretion, which leads to the following hypothesis:

> *Hypothesis 3: Perceived work discretion moderates the relationship between middle-level managers' psychological ownership toward the organization and their entrepreneurial behavior, such that the relationship is stronger for high work discretion than for low work discretion.*

When psychological owners perceive that reward systems are in place that honor entrepreneurial behavior by for instance positive feedback, recognition, and increased responsibilities, they have an additional incentive to exhibit such behavior. Put differently, entrepreneurial behavior will not only satisfy psychological owners' desire to protect, care for, and nurture the organization (Pierce et al., 2001), but it will also lead to official and desirable rewards by the organization. Consequently, middle-level managers have an additional incentive to implement own entrepreneurial actions and to support others'. Furthermore, as appropriate reward systems may increase middle-level managers' willingness to assume risk associated with entrepreneurial actions (Kuratko, Ireland et al., 2005), this will induce them to actually develop and pursue own ideas and entrepreneurial projects with the inherent risk of failure. In addition, these middle-level managers are also more willing to take responsibility for ideas and entrepreneurial actions of subordinates that might fail, which allows subordinates to pursue these actions. In case of low perceived rewards/reinforcement, however, the additional incentive for entrepreneurial behavior is lower, as is psychological owners' willingness to assume risk associated with entrepreneurial actions. This leads to the hypothesis that the positive relationship between psychological ownership and entrepreneurial behavior is stronger for situations with high rewards/reinforcement than for situations with low rewards/reinforcement. More formally stated:

Hypothesis 4: Perceived rewards/reinforcement moderates the relationship between middle-level managers' psychological ownership toward the organization and their entrepreneurial behavior, such that the relationship is stronger for high rewards/reinforcement than for low rewards/reinforcement.

4.5 Method

4.5.1 Sample and data collection

The sample consists of the responses of 1,024 employees of companies based in Germany and German-speaking Switzerland. In October 2009, valid email addresses of 10,750 management-level employees were randomly retrieved from these countries' largest employee database. An identification-based online survey instrument prevented multiple responses. The response rate of 9.5% was achieved using one reminder email. Research has found that a 10-12% response rate is typical for studies that target executives in upper echelons (Geletkanycz, 1998; Hambrick et al., 1993; Koch & McGrath, 1996) and managers in small to mid-sized firms (MacDougall & Robinson, 1990). In addition, sending out emails including a survey link without prior notice has been found to generate a lower response rate than other approaches (Kaplowitz, Hadlock, & Levine, 2004). Accordingly, the study's response rate is regarded as comparable to studies in similar settings using a comparable data collection methodology.

Respondents represented various departments of companies from different industries. For the analysis, only questionnaires in which all items necessary for the paper's purposes received responses were included. Due to the unique role of middle-level managers (cp. Floyd & Lane, 2000; Floyd & Wooldridge, 1992), top-level managers and operative-level managers were excluded. Respondents were asked in the questionnaire to indicate which hierarchy level best described their current position in the company. This reduced the final sample to 403 responses.

Average company size was 1001 employees; respondents' average age was 44.72 years; 34.8% of respondents were female; and average organizational tenure was 12.10 years. 50.2% of the respondents were working in companies based in Germany.

4.5.2 Measures

4.5.2.1 *Psychological ownership*

Psychological ownership toward the organization was measured with a seven-item instrument developed and validated by Pierce et al. (1992), with further validation evidence provided by Pierce et al. (2004). It is commonly used in empirical psychological ownership studies (e.g., O'Driscoll et al., 2006; VandeWalle et al., 1995). Sample items include *"This is my organization"* and *"I feel a very high degree of personal ownership for this organization*". The seven-point Likert-type scale ranged from 1 = strongly disagree to 7 = strongly agree. After translating the scale from English into German, two independent bilingual experts who did not know the original scale retranslated the items from German into English. Together with a native English speaker, the original English version of the scale was compared with the translation. No major differences were found. This translation procedure was applied for all measures used in this study that can be found in Appendix A. Cronbach's Alpha for psychological ownership was 0.89.

4.5.2.2 *Organizational factors*

Here the CEAI items for perceived management support, work discretion and rewards/reinforcement were used (Hornsby et al., 2002); those with factor loadings below 0.6 were excluded (cp. Nunnally & Bernstein, 1994). The excluded items were the same ones that failed to reach factor loadings of 0.6 in Hornsby et al. (2002). This resulted in 10 items for management support, 7 for work discretion, and 3 for rewards/reinforcement. Sample items are *"People are often encouraged* *to take calculated risks with new ideas around here"* for management support, *"I have much autonomy on my job and am left on my own to do my own work"* for work discretion, and *"My supervisor will increase my job responsibilities if I am performing well in my job"* for rewards/reinforcement. All items were rated from 1 = strongly disagree to 7 = strongly agree on a seven-point Likert-type scale. Cronbach's Alpha was 0.92 for management support, 0.93 for work discretion, and 0.79 for rewards/reinforcement.

4.5.2.3 *Entrepreneurial behavior*

As illustrated, the two main elements of middle-level managers' entrepreneurial behavior are own entrepreneurial actions, for instance in the form of idea generation, and the support and encouragement of others' entrepreneurial behavior (cp. Ghoshal & Bartlett, 1994; Kuratko, 2010; Kuratko et al., 2004). Consequently, both of these dimensions need to be considered. While other studies focus on the first dimension only by capturing the number of ideas suggested and/or implemented with or without organizational approval (Hornsby et al., 1999; Hornsby et al., 2009; Kuratko, Hornsby et al., 2005), this study applies a more comprehensive measure. For the first dimension I used four items inspired by Dyer, Gregersen, and Christensen (2008) and Hornsby et al. (1999; 2009). Examples are *"I often come up with new and innovative ideas"* and *"I often generate new ideas by observing our customers*". To capture the second dimension four items from Pearce et al. (1997) were adapted, such as *"I encourage others to take the initiative for their own ideas"* and *"I actively promote the good ideas of others"*. Items were rated from 1 = strongly disagree to 7 = strongly agree on a seven-point Likert-type scale. Cronbach's Alpha reached 0.82.

4.5.2.4 *Control variables*

As the competitive environment of a company may impact entrepreneurial activities (cp. Antoncic & Hisrich, 2001), two dummy variables for industry and service sectors were included. Legal arrangements and social programs that may influence employee conceptualizations of ownership can differ between countries

(Rousseau & Shperling, 2003), hence, dummy variables for Switzerland and Germany were used. Additional control variables similar to other empirical studies on middle-level managers' entrepreneurial behavior were company age and size, as well as respondents' age, gender, and tenure (see e.g., Goodale et al., 2010; Hornsby et al., 2009). Company size, measured in number of employees, was not normally distributed and thus transformed with the natural logarithm. In addition, the existence of stock ownership of middle-level managers was included as a dummy variable, as formal ownership may affect employees' pro-organizational behaviour (Daily, Dalton et al., 2003; Dalton, Daily, Certo, & Roengpitya, 2003). Moreover, remuneration systems that are tied to company success might have an effect (e.g., Block & MacMillan, 1993), and a corresponding dummy variable was thus used. Last, membership of the owning family, if there is one, was accounted for with a dummy variable, as this might also lead to behavioural consequences (Sharma & Manikutty, 2005).

4.6 Analysis

To explore the possibility of non-response bias, data from early and late respondents was compared using ANOVA. This test is based on the assumption that late respondents are more similar to non-respondents than are early respondents (Oppenheim, 1966). There were no significant differences in the mean scores of the variables, which mitigates non-response bias concerns. I also conducted an ANOVA between respondents who answered all relevant questions and those who did not. Again, no significant differences emerged. To address the potential of common method bias, Harman's single factor test (1967) as suggested by Podsakoff and Organ (1986) was applied. Even though it has limitations (cp. Podsakoff et al., 2003), this procedure is still used as an initial test for common method bias. After entering all study variables into an exploratory factor analysis (cp. Podsakoff *et al.*, 2003), a six-factor solution emerged, which accounted for 61.51% of the total variance. The first factor explained 17.46% of the variance, which provides initial evidence that common method bias was not a major problem because no single factor accounted for the majority of variance. As an additional precaution against common method bias and to assess the validity and distinctiveness of the measures of psychological ownership, management support, work discretion, and rewards/reinforcement, a confirmatory factor analysis was conducted (Podsakoff *et al.*, 2003). I compared the fit of a four-factor structure to that of a one-factor structure. The four-factor structure the data significantly better that the one-factor structure (difference in $\chi 2=6136.596$, $df=6$, $p<0.001$), which indicates that the applied measures were not only theoretically, but also empirically distinguishable. This further mitigates common method bias concerns (cp. Podsakoff et al., 2003). To test for the potential of multicollinearity, I centered the variables (cp. Cronbach, 1987) and found that the Variance Inflation Factor did not exceed 2.11, and the condition index did not exceed 3.75. These levels suggest that multicollinearity is not a concern (Hair et al., 2006).

4.7 Results

Means, standard deviations, and Pearson correlations are presented in the following Table. Similar to other empirical CEAI studies the correlations between the CEAI factors were quite high (cp. Holt et al., 2007; Hornsby et al., 1999; Hornsby et al., 2009; Kuratko, Hornsby et al., 2005).

	Mean	S.D.	1	2	3	4	5	6	7	8	9
Switzerland (1)	0.50	0.50	1								
Germany (2)	0.50	0.50	-1.000**	1							
Industry (3)	1.43	.50	.341**	-.341**	1						
Service (4)	1.73	.45	-.256**	.256**	-.706**	1					
Company age (5)	80.54	64.00	.152**	-.152**	.015	-.049	1				
Company size (ln) (6)	6.04	1.03	.104*	-.104*	.086	-.108*	.194**	1			
Family membership (7)	1.99	.12	.039	-.039	-.017	.016	.023	.049	1		
Employee age (8)	44.72	8.57	.106*	-.106*	-.024	-.002	.056	.021	.059	1	
Gender (9)	1.35	.48	.059	-.059	.087	-.042	-.034	-.085	.045	-.205**	1
Tenure (10)	12.10	9.02	-.074*	.074*	-.016	.000	.050	.026	.083	.533**	-.141**
Stock ownership (11)	1.89	.31	-.036	.036	-.064	.046	-.081	-.234**	.023	.036	.073
Performance-based salary (12)	1.42	.49	-.030	.030	.034	-.035	-.013	-.248**	-.061	-.005	.125**
Management support (13)	3.99	.94	.108*	-.108*	.085	-.043	.076	.084	.099*	.035	.059
Work discretion (14)	5.67	.85	.092	-.092	.059	-.022	-.014	.012	.092	.021	.058
Rewards/reinforcement (15)	4.46	1.23	.165**	-.165**	.092	-.028	.049	.111*	.118*	.010	.108**
Psychological ownership (16)	4.12	1.28	.030	-.030	.080	-.042	.040	.075	.056	.070	-.063
Entrepreneurial behavior (17)	5.05	.74	-.018	.018	.082	-.060	.058	.101*	.051	-.009	-.067

N = 403, * p< .05, **p<.01

Table 5: Means, standard deviations, and Pearson correlations of paper 2

	Mean	S.D.	10	11	12	13	14	15	16	17
Switzerland (1)	0.50	0.50								
Germany (2)	0.50	0.50								
Industry (3)	1.43	.50								
Service (4)	1.73	.45								
Company age (5)	80.54	64.00								
Company size (ln) (6)	6.04	1.03								
Family membership (7)	1.99	.12								
Employee age (8)	44.72	8.57								
Gender (9)	1.35	.48								
Tenure (10)	12.10	9.02	1							
Stock ownership (11)	1.89	.31	-.037	1						
Performance-based salary (12)	1.42	.49	.025	.152**	1					
Management support (13)	3.99	.94	.109*	-.039	-.176**	1				
Work discretion (14)	5.67	.85	.102*	-.004	-.087	.486**	1			
Rewards/reinforcement (15)	4.46	1.23	.022	-.030	-.153**	.556**	.427**	1		
Psychological ownership (16)	4.12	1.28	.130**	-.083	-.159**	.373**	.256**	.261**	1	
Entrepreneurial behavior (17)	5.05	.74	.037	-.061	-.071	.371**	.306**	.243**	.246**	1

N = 403, *p< .05, **p < .01

Table 5: Means, standard deviations, and Pearson correlations of paper 2 (continued)

The results of the regression analyses are reported in the following Table.

Variables	**Model 1**	**Model 2**	**Model 3**
Constant	4.375	2.983	2.629
Control variables			
Germany	0.038	0.078	0.062
Industry	0.099	0.059	0.051
Service	-0.006	-0.020	-0.022
Company age	0.035	0.025	0.018
Company size (ln)	0.075	0.071	0.068
Family membership	0.052	0.018	0.031
Employee age	-0.051	-0.033	-0.048
Gender	-0.042	-0.078	-0.075
Tenure	0.026	-0.043	-0.037
Stock ownership	-0.041	-0.038	-0.036
Performance-based pay	-0.041	0.043	0.047
Independent variables / moderator			
Management support		0.238***	0.277***
Work discretion		0.158**	0.159*
Rewards/reinforcement		0.018	0.026
Psychologial ownership		0.106*	0.148**
Interaction terms			
P.O. times Management support			0.144*
P.O. times Work discretion			-0.033
P.O. times Rewards/reinforcement			0.034
Adjusted R^2	0.005	0.150	0.161
F-Statistics	1.199	5.722***	5.278***
Delta R^2		0.149***	0.017*
N=403; *$p < .05$; **$p < .01$; ***$p < .001$			

Table 6: Results of regression analyses of paper 2

Model 1 constitutes the control model. In model 2, the main effects of psychological ownership and the three CEAI factors management support, work discretion, and rewards/reinforcement were added, which significantly increased the explained variance over and above model 1. Psychological ownership had a significant and positive relationship with entrepreneurial behavior (coeff = .106, p < .05), which supports hypothesis 1. The main effects of management support and work discretion on entrepreneurial behavior were also positively significant (coeff = .238, p < .001 and coeff = .158, p < .01). In model 3, I estimated the full model by adding the three interaction terms, which significantly increased the explained variance over and above model 2. The interaction term of management support and psychological ownership was positively significant (coeff = .144, p < 0.05). This supports hypothesis 2. As the interactions terms of both work discretion and rewards/reinforcement with psychological ownership failed to reach significance, hypotheses 3 and 4 have to be rejected. The nature of the significant moderation effect of management support in the psychological ownership - entrepreneurial behavior relationship is plotted in figure 1, with simple slopes one standard deviation below and above the mean of the management support measure.

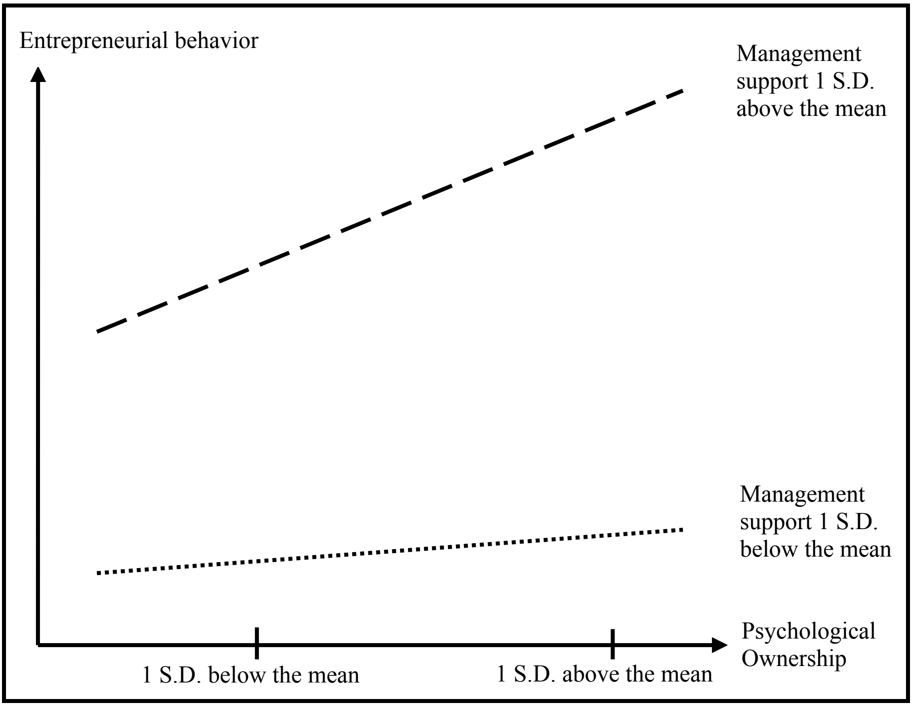

Figure 5: Interaction plot of management support and psychological ownership

As figure 1 shows, with increasing levels of psychological ownership, there is an increase in entrepreneurial behavior. This increase is greater for middle-level managers with high perceived management support than for managers with low perceived management support, in accordance with hypothesis 2.

4.8 Discussion

The present study set out to shed a more nuanced light on the evolvement of middle-level manager's entrepreneurial behavior. Analysis of a sample of 403 middle-level managers leads to a number of valuable findings and contributions.

First, the study contributes to entrepreneurial behavior literature. Psychological ownership is introduced as an individual-level state of mind that triggers middle-level managers' entrepreneurial behavior. The study thus validates an individual-level factor that differentiates entrepreneurial from non-entrepreneurial middle-level managers by making them decide to act entrepreneurially. This supports the argument that also individuals' decisions matter with regard to entrepreneurial behavior (Goldsby et al., 2006; Kuratko, Ireland et al., 2005). On a more general level, this finding supports the view of many scholars that elements of the person should not be abandoned in entrepreneurship research (Hmieleski & Baron, 2009; Hmieleski & Corbett, 2008; Schjoedt & Shaver, 2007). The study also adds to the field by explicitly investigating a combination of individual-level and organizational-level factors in the context of middle-level managers' entrepreneurial behavior. Results show that management support is able to strengthen the relationship between psychological ownership and entrepreneurial behavior. Hence, providing psychological owners with active support and resources, for instance in terms of money or time, allows them to fully exploit their entrepreneurial potential. This illustrates the potential of a meaningful combination of individual and organizational factors and supports the argument of numerous scholars (e.g., Kuratko, 2010; Kuratko, Ireland et al., 2005; Naffziger et al., 1994).

However, no moderation effect for work discretion can be found. This could be explained by the underlying effects of psychological ownership. As illustrated, psychological ownership nurtures feelings of efficacy and being in control, leading to the perception that one is able to alter the circumstances (Beggan, 1992; Pierce et al., 2001). In addition, psychological ownership can lead to self-initiated behavior, a hands-on working attitude, feelings of empowerment, and the inclination to take the initiative and move ahead with novel ideas (Crant, 2000; Pierce et al., 2001; Spreitzer, 1995). With regard to work discretion this could mean that psychological owners do not care if they are officially authorized by top management to decide on certain things. It is therefore suggested that as psychological owners feel in control, empowered, and able to alter their environment, they boldly move ahead, ignoring formal or organizational restrictions and boundaries. Consequently, in cases with officially granted high work discretion, the additional effect on entrepreneurial behavior will be almost non-existent, as psychological owners take their freedom regardless of formally granted work discretion. Also rewards/reinforcement fails to strengthen the psychological ownership – entrepreneurial behavior relationship. This could be due to the claim that psychological ownership may turn agents, such as non-owning middle-level managers, into psychological principals. In that case, their interests will be aligned with those of the principals, which is expressed in increased entrepreneurial behavior. For those psychological owners, it may be irrelevant if they get official rewards or reinforcement by the organization, as they already behave in its interest in the absence of these rewards. Altogether, these findings illustrate the potential of psychological ownership as an antecedent to middle-level managers' entrepreneurial behavior. Another contribution to the field is that this study is the first to apply a measure that explicitly incorporates the two main elements of middle-level manager's entrepreneurial behavior, namely implementing own entrepreneurial actions and supporting others' entrepreneurial behavior (Floyd & Lane, 2000; Kuratko, 2010). Previous studies have focused on middle-level managers' idea generation only (e.g., Hornsby et al., 2009; Kuratko, Hornsby et al., 2005).

Second, the paper adds to psychological ownership literature by introducing the concept in the context of middle-level managers' entrepreneurial behavior. Validating entrepreneurial behavior as a correlate of psychological ownership speaks to scholars who investigate behavioral consequences of psychological ownership (Avey et al., 2009; Pendleton et al., 1998; Van Dyne & Pierce, 2004). The same is true for the finding that psychological ownership interacts with organizational factors when producing its effects. Finally, business practitioners can benefit from the results. They are strongly encouraged to foster their middle-level managers' psychological ownership, as it has a strong effect on their entrepreneurial behavior. Moreover, management support in terms of resources should be increased, as it can strengthen this effect. Action with regard to work discretion and rewards/reinforcement, in contrast, does not seem to be necessary when psychological ownership is present.

4.9 Limitations and future research

There are some limitations that must be acknowledged. Because the study is based on cross-sectional survey data, uncertainty in terms of causality may exist. However, the theoretical considerations as well as the validated moderation effects should lend validity to the interpretation. Second, all respondents worked in firms based in Germany or German-speaking Switzerland, which could lead to a cultural bias compared to studies in other settings (Rousseau & Shperling 2003). Third, all variables were measured by the self-perceptions of a single source. However, at least for psychological ownership and perceptions of organizational factors, theory requires the use of middle-level managers’ self-perceptions. In addition, up to date statistical tests mitigate common method bias concerns.

This study spurs future research in several ways. Given the important role that psychological ownership plays in the context of middle-level managers' entrepreneurial behavior, more research is needed on how the maximum entrepreneurial potential of middle-level managers that are psychological owners could be exploited. Most importantly, the interplay of psychological ownership with organizational factors should be explored further. For example, three-way interactions between psychological ownership and organizational factors could be investigated. In addition, it would be interesting to see if the effects of organizational factors differ when own entrepreneurial actions and supporting others' actions are investigated separately. Moreover, the study's insights are not necessarily limited to middle-level managers. As Hornsby et al. (2009) have shown, results may differ depending on managers' hierarchy level, which could be investigated further. In addition, research could be done in the context of family firms. Business families are especially reluctant to implement employee stock ownership plans, as they oppose the dominant wish of many families to control legal ownership across generations (Chua et al., 1999; Gomez-Mejia et al., 2007). Thus, psychological ownership as an alternative mechanism to foster agents' pro-organizational behavior, such as entrepreneurial behavior, is of special interest. Here, family business specific factors in the psychological ownership – entrepreneurial behavior relationship could be explored. Lastly, the study's findings could be verified in a different cultural context.

4.10 Conclusion

Summing up, this study introduces psychological ownership as an individual-level antecedent to middle-level managers' entrepreneurial behavior and investigates its interaction with organizational antecedents. The analysis of a sample of 403 middle-level managers shows that psychological ownership is indeed positively related to entrepreneurial behavior, whereas this relationship is strengthened by management support. These findings constitute valuable contributions to entrepreneurial behavior and psychological ownership literatures, as well as to practice.

4.11 Appendix

Variable / α	**Item text**
Psychological ownership (0.89)	This is MY organization. I sense that this organization is OUR company. I feel a very high degree of personal ownership for this organization I sense that this is MY company. This is OUR company. Most of the people that work for this organization feel as though they own the company. It is hard for me to think about this organization as MINE (reversed)
Management support (0.92)	My organization is quick to use improved work methods My organization is quick to use improved work methods that are developed by workers Upper management is aware and very receptive to my ideas and suggestions. Many top managers have been known for their experience with the innovation process. Individual risk takers are often recognized for their willingness to champion new projects, whether eventually successful or not. People are often encouraged to take calculated risks with new ideas around here. The term "risk taker" is considered a positive attribute for people in my work area. This organization supports many small and experimental projects realizing that some will undoubtedly fail. A worker with a good idea is often given free time to develop that idea. There is considerable desire among people in the organization for generating new ideas without regard to crossing departmental or functional boundaries.
Work discretion (0.93)	I feel that I am my own boss and do not have to double check all of my decisions. This organization provides the chance to be creative and try my own methods of doing the job. This organization provides freedom to use my own judgment I have the freedom to decide what I do on my job. It is basically my own responsibility to decide how my job gets done. I almost always get to decide what I do on my job. I have much autonomy on my job and am left on my own to do my own work.

Table 7: Scale items and reliabilities of paper 2

Rewards / reinforcement (0.79)	My supervisor will increase my job responsibilities if I am performing well in my job. My supervisor will give me special recognition if my work performance is especially good. My manager would tell his / her boss if my work was outstanding.
Entrepreneurial behavior (0.82)	I often come up with new and innovative ideas. I often generate new ideas by observing the world. I often get new ideas by observing our customers. I often come to new ideas when observing how people interact with our products and services. I encourage others to take the initiative for their own ideas. I inspire others to think about their work in new ways. I actively help others find new ways to improve our products and services. I actively promote the good ideas of others.

Table 7: Scale items and reliabilities of paper 2 (continued)

5 Affective Commitment and Job Satisfaction Among Non-family Employees: Investigating the Roles of Justice Perceptions and Psychological Ownership

Philipp Sieger, Fabian Bernhard, and Urs Frey

5.1 Abstract

Due to numerous characteristics often attributed to family firms, they constitute a unique context for non-family employees' justice perceptions. These are linked to non-family employees' pro-organizational attitudes and behaviors, which are essential for family firms' success. Even though scholarly interest in non-family employees' justice perceptions has increased, more research is still needed, also because the mechanism connecting justice perceptions and favorable outcomes is not fully understood yet. We address this gap by explicitly investigating non-family employees' justice perceptions and by introducing psychological ownership as a mediator in the relationships between justice perceptions (distributive and procedural) and common work attitudes (affective commitment and job satisfaction). Our analysis of a sample of 310 non-family employees from Germany and German-speaking Switzerland reveals that psychological ownership mediates the relationships between distributive justice and affective commitment as well as job satisfaction. This represents valuable contributions to family business research, organizational justice and psychological ownership literature, and to practice.

5.2 Introduction

Family firms are often linked with characteristics such as paternalistic-autocratic rule, founder-centric cultures, lack of delegation, ingroup-outgroup perceptions of non-family employees, altruism, and nepotism (cp. Barnett & Kellermanns, 2006; Kelly et al., 2000; Padgett & Morris, 2005; Schein, 1983; Schulze et al., 2001). These unique aspects constitute potential sources of injustice perceptions of non-family employees (Barnett & Kellermanns, 2006; Blondel, Carlock, & Heyden, 2000; Carsrud, 2006). This is critical for family firms, as employees' justice perceptions have been linked to positive work outcomes such as affective commitment (cp. Allen & Meyer, 1990; Meyer et al., 2002; Van Dyne & Pierce, 2004) and job satisfaction (e.g., Colquitt et al., 2001; Janssen & Van Yperen, 2004; Judge et al., 2001). Fostering these attitudes among non-family employees is essential to family firms' success and survival (Barnett & Kellermanns, 2006; Chrisman, Chua, & Litz, 2003; Chua, Chrisman, & Sharma, 2003). As a consequence, justice perceptions of non-family employees in family firms have received increasing scholarly attention in recent years (cp. Barnett & Kellermanns, 2006; Lubatkin, Ling, & Schulze, 2007). However, the amount of existing research in that context is still regarded as insufficient (Carsrud, 2006), also because it is not yet fully understood how exactly justice perceptions weave their way into favorable work attitudes. Even though scholars have intensively tried to explain this mechanism, for example by applying social exchange theory (e.g, Masterson, Lewis, Goldman, & Taylor, 2000; Tekleab, Takeuchi, & Taylor, 2005), Choi and Chen (2007) point out that *"there is still very limited knowledge of any mechanism through which they are connected"* (p. 688).

We address this gap by empirically investigating justice perceptions of non-family employees, explicitly focusing on the mechanism how they lead to affective commitment and job satisfaction. We introduce the concept of psychological ownership as a factor that connects non-family employees' justice perceptions and these work attitudes. Psychological ownership is defined as *"the state in which individuals feel as though the target of ownership or a piece of that target is 'theirs' "* (Pierce et al., 2003, p. 86). This approach is promising as formal equity ownership among non-family employees is uncommon due to the dominant wish of many families to control legal ownership across generations (Chua et al., 1999; Gomez-Mejia et al., 2007). Feelings of ownership, however, can exist without formal ownership, and can have similar effects as intended by formal ownership (Pierce et al., 2003). Thus, ownership feelings are of special relevance for family firms. Moreover, psychological ownership seems to fit well into the context of justice perceptions and positive work outcomes. This is because on the one hand, recent initial findings indicate that there may exist a link between justice perceptions and psychological ownership (Chi & Han, 2008). On the other hand, scholars have established positive relationships between psychological ownership and both affective commitment (Bernhard & O'Driscoll, 2011; Mayhew, Ashkanasy, Bramble, & Gardner, 2007; O'Driscoll et al., 2006) and job satisfaction (Avey et al., 2009; Van Dyne & Pierce, 2004). However, to date, these fragmented insights have not yet been integrated, and they have not been applied in the family firm context either.

Hence, we hypothesize that psychological ownership mediates the relationships between two dimensions of organizational justice perceptions (distributive and procedural) and two common work attitudes (affective commitment and job satisfaction). We test the hypotheses on a random sample of 310 non-family employees from family firms based in Germany and German-speaking Switzerland. The findings based on mediation analysis constitute valuable contributions to family business research, organizational justice and psychological ownership literature, as well as to practice.

The paper is structured as follows. First, we introduce the theoretical foundations of the main concepts of this study. Second, we theoretically derive our hypotheses. Third, we illustrate the sample as well as the methods used. Fourth, we present the empirical findings. Fifth, we enter into a discussion of the results, contributions, and limitations of the study, and suggest avenues for future research. We then offer our final conclusions.

5.3 Theoretical foundations

5.3.1 Organizational justice

Due to the interaction between the family and the business system, family firms constitute a special environment for non-family employees to work (cp. Beehr, Drexler, & Faulkner, 1997; Habbershon et al., 2003; Lansberg, 1983). They face the unique situation that they are part of the business but not part of the family system (Mitchell, Morse, & Sharma, 2003). This situation entails unique effects on non-family employees' justice perceptions (Barnett & Kellermanns, 2006).

Examples for potential family business specific peculiarities that might lead to perceptions of injustice among non-family employees are nepotism (Padgett & Morris, 2005), authoritarian leadership style (Tagiuri & Davis, 1992), human resource practices generally biased against non-family members (Barnett & Kellermanns, 2006; Lubatkin et al., 2007; Schulze et al., 2001), ingroup-outgroup perceptions of non-family employees (Barnett & Kellermanns, 2006), founder-centric cultures (Schein, 1983), and lack of delegation (cp. Kelly et al., 2000). In addition, when the owning family uses its power and authority to serve family rather than business interests, for instance by seeking perquisites for private consumption (Davis, Allen, & Hayes, 2010), this behavior can give rise to non-owners' perceptions of injustice. Even though perceptions of injustice among non-family employees may not occur in all family firms in general (cp. Barnett & Kellermanns, 2006), family firms seem to be particularly susceptible to factors leading to these perceptions. For that reason, understanding non-family employees' justice perceptions and how they impact pro-organizational outcomes on the individual level is a topic of essential relevance to family firms.

In recent years, a few conceptual works on justice perceptions in family firms have emerged. Barnett & Kellermanns (2006) theorized how the degree of family involvement may influence non-family employees' justice perceptions through fair or unfair human resource practices. Lubatkin et al. (2007) drew on organizational justice literature to explain agency costs in family firms. However, empirical research on non-family employees' justice perceptions is regarded as scarce (Barnett & Kellermanns, 2006; Carsrud, 2006).

In contrast, organizational behavior literature has intensively investigated organizational justice (cp. Colquitt et al., 2001; Cropanzano, Byrne, Bobocel, & Rupp, 2001). It is concerned with employees' subjective fairness perceptions in their employment relationship (Byrne & Cropanzano, 2001; Greenberg, 1990). While four dimensions of organizational justice have been established, scholars agree that employees mainly draw on distributive and procedural justice perceptions when deciding how to react to the overall organization, whereas interpersonal and informational justice perceptions seem to be more relevant when referring to authority figures such as supervisors (cp. Bies & Moag, 1986; Colquitt et al., 2001; Walumbwa, Cropanzano, & Hartnell, 2009). In the light of this paper's goal to investigate the link between justice perceptions and non-family employees' *organization-related* attitudes, we limit our considerations to distributive and procedural justice.

Distributive justice refers to the perceived fairness of outcome distributions (cp. Colquitt et al., 2001). Typical examples of organizational outcomes are salaries, benefits, or promotions (cp. Colquitt, 2001; Colquitt et al., 2001). A distribution is perceived to be just if it is consistent with chosen allocation norms (Fortin, 2008) such as the widely applied equity theory (e.g., Adams, 1965; Colquitt et al., 2001). Equity theory states that people are less concerned about the absolute level of outcomes for the individual but rather whether the outcomes are fair (Colquitt et al., 2001). In family firms, non-family employees thus compare their own input/output ratio to that of other individuals within their reference frame, for example with family members that are also working in the company. If the ratios are unequal, inequity is perceived, and the distribution is regarded as unjust. Procedural justice refers to the perceived fairness of the allocation process that leads to outcomes (Colquitt et al., 2001; Walumbwa et al., 2009). Thibaut and

Walker (1975) found that the ability to influence or control the allocation process is able to increase individuals' perceived fairness, even if the outcome itself cannot be influenced. Existing research has linked these two justice dimensions with affective commitment (e.g., Begley, Lee, & Hui, 2006; Jones & Martens, 2009; Masterson et al., 2000), job satisfaction (e.g., Jones & Martens, 2009; Lam, Schaubroeck, & Aryee, 2002; Masterson et al., 2000), trust in the organization (Colquitt et al., 2001; Masterson et al., 2000), and organizational citizenship behavior (Aryee, Budhwar, & Chen, 2002; Tepper & Taylor, 2003). Recently, Chi and Han (2008) found initial evidence for a potential link to psychological ownership.

Various scholars have given insight into the mechanism that connects justice perceptions with outcomes such as affective commitment and job satisfaction. The most widely applied perspective is social exchange theory (cp. Erdogan, Liden, & Kraimer, 2006; Masterson et al., 2000; Tekleab et al., 2005), whereas also self-esteem (Tyler & Blader, 2000), trust (e.g., Lind, 2001; Van den Bos, Lind, & Wilke, 2001), and organizational identification (Carmon, Miller, Raile, & Roers, 2010) have been investigated. Despite these efforts, Choi and Chen (2007) refer to the relationship between distributive justice and affective commitment and point out that "there is still very limited knowledge of any mechanism through which they are connected" (p. 688). Similarly, Aryee et al. (2002) conclude that existing social exchange research is *"not without limitations"* (p. 268). Judge & Colquitt (2004) state that the underlying theoretical mechanisms are *"less clear*" compared to the effects of justice (p. 395).

In the organizational justice literature, both distributive and procedural justice perceptions are commonly situated in the context of appraisal interviews (Colquitt et al., 2001). Correspondingly, distributive justice refers to the outcome employees receive from their work (pay and promotion) that has been agreed on in their last appraisal interview. Procedural justice, in turn, refers to the process that was applied in that interview to negotiate the abovementioned outcomes (cp. also Masterson et al., 2000). Referring to family firms, Barnett & Kellermanns (2006) argue that different family business specific factors, such as the level of family influence, affect human resource practices in terms of performance appraisal, compensation, and promotion (cp. also Lubatkin et al., 2007; Schulze et al., 2001). Thus, we believe that investigating non-family employees' justice perceptions in the appraisal interview context is appropriate.

5.3.2 Psychological ownership

Employees' ownership feelings toward the organization they work for, labeled psychological ownership, have received considerable scholarly attention in recent years (Avey et al., 2009; Pierce & Jussila, 2009; Pierce et al., 2003). When employees perceive ownership of the organization, it becomes part of the psychological owner's identity and is felt as extension of the self (Belk, 1988; Dittmar, 1992). In general, psychological ownership may exist independently of formal ownership (Pierce et al., 2001). Pierce et al. (2003; 2001) argue that psychological ownership can satisfy three underlying human motives. First, it can nurture feelings of efficacy, since *"to have"* is the ultimate form of control, whereby being in control leads to the perception that one *"is the cause"* and that one has altered or is able to alter the circumstances (Beggan, 1992). Second, ownership feelings help people define themselves, express their self-identity to others and maintain the continuity of the self. As such, possessions or what is perceived to be mine can have an identity forging and maintaining function (Kamptner, 1989; Price et al., 2000). Finally, having a place, and hence the need for territoriality and security may also be nurtured by ownership feelings (Porteous, 1976). Furthermore, Pierce et al. (2001; 2003) conceptualize three potentially interrelating routes that lead to psychological ownership: intimately knowing the target of ownership feelings, having control over it, and investing oneself into it. So far, only the route of control has been empirically validated (Pierce et al., 2004). Research still has to address *"the conditions in organizations, work groups and individuals that enhance psychological ownership"* (Avey et al., 2009, p. 186).

On the outcome side, numerous positive effects of psychological ownership among employees have been validated, such as affective commitment (e.g., Avey et al., 2009; Mayhew et al., 2007; Van Dyne & Pierce, 2004), job satisfaction (Avey et al., 2009; Pierce et al., 1992; Van Dyne & Pierce, 2004), organizational citizenship behavior (Avey et al., 2009), and organization-based self-esteem (Van Dyne & Pierce, 2004).

Psychological ownership is a distinct concept because of the sense of possession as conceptual core (cp. Pierce et al., 2001; Van Dyne & Pierce, 2004). Psychological ownership asks, *"How much do I feel this organization is mine"* (Van Dyne & Pierce, 2004, p. 443); organizational commitment asks, *"Why should I maintain my membership in this organization"* (cp. Meyer & Allen, 1997; Van Dyne & Pierce, 2004); organizational identification asks, *"Who am I*" (Dutton et al., 1994); and job involvement asks, *"How important is the job and job performance to my self-image?*" (Lawler & Hall, 1970) Only recently, scholars have begun investigating psychological ownership in the family business context (e.g., Bernhard & O'Driscoll, 2011; Bernhard & Sieger, 2009; Sieger, 2010). This seems promising, as employee stock ownership plans, which are commonly used to foster employees' favorable work attitudes and behaviors, oppose the dominant wish of many families to control legal ownership across generations (Chua et al., 1999; Gomez-Mejia et al., 2007). Psychological ownership, in contrast, can exist in the absence of formal ownership, while potentially leading to similar effects. For the actual evolvement of ownership feelings, family firms may constitute a unique context. For instance, when the family business is closely controlled by the family, non-family employees might perceive a low level of own personal control over the business, one of the main routes to psychological ownership. In addition, ingroup-outgroup perceptions (cp. Barnett & Kellermanns, 2006) might bring non-family employees to perceive themselves as being outside the group of owners, which might impede the evolvement of ownership feelings. In contrast, when non-family employees perceive to be part of the family, for example through very long tenure, this might foster ownership feelings. As outlined in the following, also perceptions of justice or injustice may affect non-family employees' ownership feelings.

5.3.3 Affective commitment and job satisfaction

Affective commitment and job satisfaction are described as *"the two most commonly researched employee attitudes"* (Van Dyne & Pierce, 2004, p. 440). Meyer and Allen (1991) differentiate between affective, normative, and continuance commitment. Affective commitment is regarded as the most widely studied form (Lavelle et al., 2009; Meyer et al., 2002; Pierce et al., 2003). It is defined as *"affective or emotional attachment to the organization such that the strongly committed individual identifies with, is involved in, and enjoys membership in the organization"* (Allen & Meyer, 1990, p. 2). In the context of family firms, affective commitment is of special relevance. For instance, family firms are characterized by long term orientation (Chua et al., 1999; Klein et al., 2005). In addition, they have a stronger tendency to keep their employees even in times of economic crises (Lee, 2006). Altogether, this is likely to lead to increased trust, feelings of job security, and a higher level of affective commitment (Astrachan & Kolenko, 1994; Le Breton-Miller & Miller, 2006). Fostering non-family employees' affective commitment is essential as family firms may have disadvantages in attracting new hires and thus have to rely more on existing employees (Michael-Tsabari, Lavee, & Hareli, 2008). Moreover, recent findings indicate that non-family employees' affective commitment is positively related to the profitability and survival of family firms (Vallejo, 2009). Thus, it is surprising that there is relatively little literature specifically dedicated to the affective commitment of non-family employees in family businesses (cp. Bird et al., 2002; Dyer, 2003).

Job satisfaction is another important work attitude (cp. Heller & Watson, 2005; Ilies, Wilson, & Wagner, 2009; Van Dyne & Pierce, 2004). It has been commonly defined as an attitudinal evaluative judgment of one's job or job experiences (Ilies et al., 2009). It basically asks, *"How do I evaluate my job?"* (Van Dyne & Pierce, 2004, p. 444). Family business literature has mainly investigated job satisfaction with regard to family members. In that context, numerous scholars have concentrated on the relationships between work and family domains and their effects on job satisfaction (cp. Edwards & Rothbard, 2000; Kossek & Ozeki, 1998). Investigated factors in that context are work-family conflict, family cohesion and family adaptability (Boles, 1996; Lee, 2006). While Lumpkin, Martin and Vaughn (2008) pointed out that the family orientation of non-family employees might have an effect on their job satisfaction, there are very few empirical studies explicitly examining non-family employees' job satisfaction (for instance, see Beehr et al., 1997).

5.4 Hypotheses

5.4.1 Organizational justice dimensions and psychological ownership

5.4.1.1 *Distributive justice and psychological ownership*

Equity theory posits that employees perceive justice when they receive resource allocations that commensurate with their contribution to the firm (Adams, 1965). Family firms, however, may be prone to violating that allocation norm. For instance, the concept of altruism implies that the welfare of the parent is positively linked to that of his or her children (Schulze et al., 2003b; Schulze et al., 2001). As a consequence, parental altruism can bias the family's perception about the performance of family members, and business families are incentivized to offer perquisites, promotional opportunities and salaries to family employees regardless of their individual contribution to the firm (Lubatkin et al., 2007). An example is appointing a family member to a specific position even though a non-family employee would be better qualified (Gersick, Davis, Hampton, & Lansberg, 1997). When the norm of merit (cp. Lansberg, 1983) is replaced or weakened through altruism or general favoritism of family members (Lubatkin et al., 2007; Schulze et al., 2001), this is likely to lead to perceptions of distributive injustice by non-family employees. Even though non-family employees might expect or even accept a certain extent of preferential treatment of family members (Gersick et al., 1997), perceptions of injustice may arise as soon as the *"non-family employees' zone of indifference"* is left (Lubatkin et al., 2007, p. 965). As mentioned previously, however, even though family firms are particularly vulnerable to the violation of distributive justice rules, this does not necessarily have to be the case.

The level of justice that non-family employees perceive with regard to outcome distributions such as pay and promotion has important effects on their relationship with the organization. Accountability considerations imply that individuals identify the party that is responsible for justice or injustice, which in turn affects their attitudes toward that party (cp. Folger & Cropanzano, 1998). Pay policies, compensation and promotion schemes in firms are mostly set by the firm itself (see also Walumbwa et al., 2009). Consequently, when non-family employees perceive pay and promotion to be unjust, they are also likely to perceive the family firm as unjust. In contrast, if these outcomes are perceived as just, this applies to the family firm as well. This, in turn, supports a more favorable relationship between the employee and the organization (cp. Colquitt et al., 2001; Fortin, 2008). With increased justice, a just family firm appears attractive to non-family employees. Favorable judgments are related to possessive feelings (Beggan, 1992), and Pierce et al. (2003) state that *"attributes like attractiveness [...] render the target more or less subject to psychological ownership"* (p. 94).

Also resource investment considerations may play a role. Janssen, Lam and Huang (2009) propose that employees who perceive their resource investments to be fairly compensated by the organization will be motivated and encouraged to increasingly invest their personal resources. These personal resources can be intelligence, experience, training, skill, time, energy, and cognitive and emotional labor (Janssen et al., 2009). A high level of distributive justice thus fosters the employees' resource investment. In a similar vein, Loi, Hang-yue and Foley (2006) argue that when employees perceive distributive justice in an economic exchange relationship, they are motivated to repay and increase their self-investment in the organization. At the same time, the investment of "time, ideas, skills and physical, psychological, and intellectual energies" (Pierce et al., 2001: 302) has been proposed to be one of the three main routes leading to psychological ownership (Pierce et al., 2003; Pierce et al., 2001).

Summing up, there is good reason to believe that distributive justice perceptions render the family firm into a more attractive object to be psychologically appropriated, and that they will also foster the investment of non-family employees’ personal resources. This will ultimately strengthen non-family employees' ownership feelings toward the family business. More formally stated:

> *Hypothesis 1: Distributive justice perceptions of non-family employees are positively related to their psychological ownership toward the family business.*

5.4.1.2 *Procedural justice and psychological ownership*

For procedural justice, six criteria have been established that employees normally evaluate. Just procedures are suggested to be based on accurate information, free of bias, applied consistently across people and time, have a mechanism to correct flaws, consider the opinions of several affected groups, and conform to ethical standards (Colquitt et al., 2001; Leventhal, 1980). Family firms face a higher risk of violating one or several of these rules. For instance, family firms are sometimes described to avoid establishing formal procedures, which can impede the quality and accuracy of internal information flows (Gomez-Mejia, Nunez-Nickel, & Gutierrez, 2001; Schulze et al., 2001). Moreover, due to non-family employees’ family outsider status, they have less institutional influence to suggest corrective actions and to express their opinion compared to family members (Lubatkin et al., 2007). The danger of violating the six criteria may be exacerbated for instance by founder-centric cultures (Schein, 1983) or authoritarian leadership styles (Tagiuri & Davis, 1992). The allocation process through which outcomes such as pay and promotion are distributed is then likely to be conducted top-down, without the possibility for non-family employees to adequately have a voice. Even though scholars found that non-family employees regularly complain about a lack of voice with respect to family firm decision making (Van der Heyden, Blondel, & Carlock, 2005), this might not be necessarily the case for all family firms. Rather, if the controlling family is aware of these dangers, they can take actions and implement mechanisms to avoid such situations .

The extent to which procedures applied in the context of an appraisal interview, the most commonly investigated allocation process (cp. Barnett & Kellermanns, 2006; Colquitt et al., 2001), are affected by these factors, has a direct effect on non-employees' procedural justice perceptions and their subsequent ownership feelings for the organization. Appraisal interview procedures are likely to be developed by the organization and are only carried out by a supervisor. Drawing from the discussion about sources of justice perceptions (Malatesta & Byrne, 1997; Masterson et al., 2000; Masterson & Taylor, 1996) and accountability (Folger & Cropanzano, 1998), the family firm will then be held accountable for justice or injustice (Masterson et al., 2000). Hence, non-family employees tend to consider the family firm to be just, if they perceive the procedures to be just (cp. Folger & Cropanzano, 1998). This link can also be clarified by considering the difference between event-based and entity-based judgments. Event-based judgments refer to an individual's fairness assessment of a specific event or experience, such as an appraisal interview. Entity-based judgments, in turn, are aggregated event perceptions to form a summary judgment of a social entity, such as an organization (cp. Cropanzano et al., 2001). Fair procedures go along with the perception of a fair organization, which is supported by Hollensbe, Khazanchi and Masterson (2008). Additional empirical support for a high correlation between event and entity-based judgments is provided by Konovsky and Pugh (1994). When the family firm as a whole is consequently perceived as just, it becomes a more desirable object to be psychologically appropriated (Pierce et al. 2003).

Furthermore, just procedures allow non-family employees to control, predict, and maximize the favorability of outcomes in the long term (cp. Cropanzano et al., 2001; Greenberg, 1990; Shapiro, 1993; Thibaut & Walker, 1975). If just procedures are in place and are perceived as such, non-family employees perceive to have influence and control over the instruments and processes through which relevant job-related outcomes are determined. This can be regarded as a proxy for control over the employee's work environment and related issues in general (cp. Pierce et al., 2001). Perceived control, in turn, satisfies the human motive of efficacy and is the only empirically validated main route to psychological ownership (Pierce et al., 2004).

Summing up, just procedures in the context of an appraisal interview will make non-family employees perceive that the family firm as a whole is just, which facilitates the evolvement of ownership feelings. In addition, just procedures give non-family employees a sense of influence and control, which is one of the main antecedents to psychological ownership. Based on these considerations we offer the following hypothesis:

> *Hypothesis 2: Procedural justice perceptions of non-family employees are positively related to their psychological ownership toward the family business.*

5.4.2 The mediating effects of psychological ownership

We propose psychological ownership of non-family employees as a mediator in the relationships between justice perceptions and favorable work outcomes due to numerous reasons. First, many studies have reported positive relationships between both distributive and procedural justice and affective commitment (e.g., Begley et al., 2006; Greenberg, 1994; Jones & Martens, 2009; Lowe & Vodanovich, 1995), and between both justice dimensions and job satisfaction (Jones & Martens, 2009; e.g., Lam et al., 2002; Masterson et al., 2000). This should also hold in the context of family firms. When non-family employees perceive that they are fairly compensated and treated in the procedure to arrive at these outcomes, this is likely to have positive effects on their affective commitment to the family firm and to their job satisfaction (cp. also Kets de Vries, 1993). Second, as illustrated above, we propose a positive relationship between both distributive and procedural justice perceptions and psychological ownership of non-family employees. Third, psychological ownership has been linked to both affective commitment and job satisfaction. Feelings of ownership satisfy the basic human need for place (Porteous, 1976), and non-family employees thus view the family firm as a place in which to dwell (Dittmar, 1992; Furby, 1978a; Pierce et al., 2001). This induces a feeling of attachment and belonging, which is the essence of affective commitment (cp. Van Dyne & Pierce, 2004). Scholars also argue that feelings of possession enhance general satisfaction and provide a context or environment in which job satisfaction is embedded and positively influenced (Kozlowski & Klein, 2000; Van Dyne & Pierce, 2004). We believe that these relationships also apply to the context of non-family employees in family firms.

Based on above assertions it seems reasonable to introduce psychological ownership as a mediator between distributive justice and both affective commitment and job satisfaction, as well as between procedural justice and the same attitudinal outcomes. When family firms are able to induce perceptions of justice among their non-family employees despite potential family business specific pitfalls, this will give rise to ownership feelings, which in turn will positively affect non-family employees' affective commitment and job satisfaction. These arguments lead us to the following mediation hypotheses:

> *Hypothesis 3: Psychological ownership of non-family employees toward the family business mediates the relationship between their distributive justice perceptions and their affective commitment.*

> *Hypothesis 4: Psychological ownership of non-family employees toward the family business mediates the relationship between their procedural justice perceptions and their affective commitment.*

Hypothesis 5: Psychological ownership of non-family employees toward the family business mediates the relationship between their distributive justice perceptions and their job satisfaction.

Hypothesis 6: Psychological ownership of non-family employees toward the family business mediates the relationship between their procedural justice perceptions and their job satisfaction

The theoretical model is illustrated with the following figure.

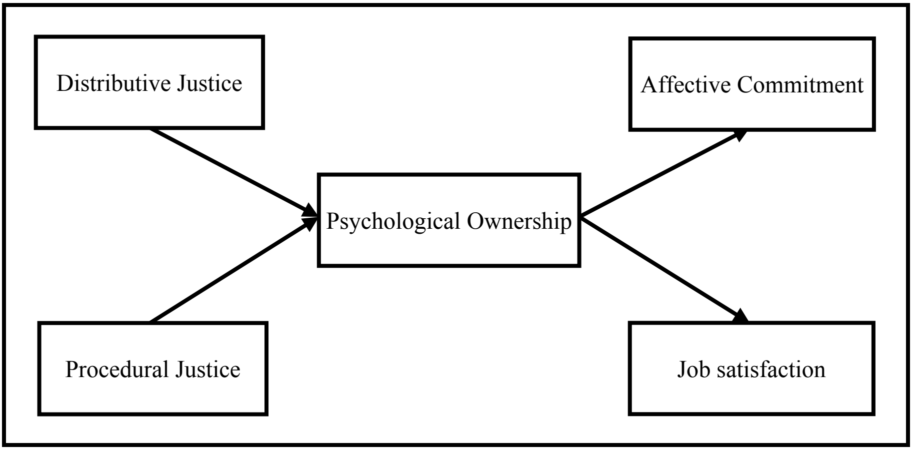

Figure 6: Theoretical model of paper 3

5.5 Method

5.5.1 Sample and data collection

The sample consists of the responses of 1,024 employees of companies based in Germany and German-speaking Switzerland. In 2009, we randomly retrieved 10'750 valid email addresses of management-level employees from these countries' largest employee database. An identification-based online survey instrument prevented multiple responses. We achieved a response rate of 9.5% by using one reminder email. Research has found that a 10-12% response rate is typical for studies that target executives in upper echelons (Geletkanycz, 1998; Koch & McGrath, 1996) and managers in small to mid-sized firms (MacDougall & Robinson, 1990). In addition, sending emails without prior notice generates lower response rates than other approaches (Kaplowitz et al., 2004). Given the circumstances, our response rate can thus be regarded as adequate. We only included fully completed questionnaires and respondents that were working in a family firm. The criteria were at least one family member in an operational position, majority of equity ownership in the family's hands, and the employees' perception that it is a family business (cp. Astrachan et al., 2002; Nordqvist & Zellweger 2010). In addition, family members were excluded, which reduced the final sample to 310 employees. 26% of them were female, with an average age of 45.25 years, and an average tenure of 12.06 years. Average company age was 81.2 years, and average company size was 847.64 employees.

5.5.2 Measures

To measure distributive and procedural justice we relied on a validated German version (Maier, Streicher, Jonas, & Woschée, 2007) of the widely applied measure by Colquitt (2001). Following Colquitt (2001), distributive justice referred to the outcome non-family employees receive from their work (pay and promotion) based on their last appraisal interview, and procedural justice referred to the process applied in that interview (cp. also Masterson et al., 2000). Sample items were *"Does your appraisal interview outcome (e.g., salary, promotion, raise) reflect the effort you have put into your work?"* (distributive justice) and *"Have you been able to express your views and feelings during your last appraisal interview?"* (procedural justice). All items in the study were rated from 1 = *strongly disagree* to 7 = *strongly agree* on a seven-point Likert-type scale. We pre-tested the scale with 90 employees and found low factor loadings (< 0.6) for the same items as Maier et al. (2007), leading to 4 items for distributive and 5 items for procedural justice (cp. Nunnally & Bernstein, 1994). A factor analysis confirmed this factor structure. Cronbach's Alphas were 0.95 and 0.85. All items used in this study can be found in the Appendix.

For psychological ownership we relied on a seven item measure developed by Pierce et al. (1992), with further validation provided by numerous scholars (e.g., Mayhew et al., 2007; O'Driscoll et al., 2006; Pierce et al., 2004). Sample items included *"I feel a very high degree of personal ownership for this organization"* and *"This is MY organization"*. After translating the scale into German, two independent bilingual experts who did not know the original scale retranslated it into English. Together with a native English speaker we compared the English version of the scale with our translation. No major differences were found. Cronbach's Alpha was 0.89. For affective commitment we relied on the scale by Allen and Meyer (1990) and its validated German version (Felfe, Six, Schmook, & Knorz, 2004). We used the six items that exhibited the highest factor loadings (> 0.6) in our pre-test. Sample items were *"I would be very happy to spend the rest of my career with this organization"* or *"This organization has a great deal of personal meaning for me"*. Cronbach's Alpha was 0.93. We used a three item measure inspired by van Dyne and Pierce (2004), Mayhew et al. (2007), and Zhou, Li, Zhou and Su (2008) to measure job satisfaction, whereas the same translation procedure as described above was enacted. Sample items were *"I like the things that I do at work"* and *"In general, I am very satisfied with my job"*. Cronbach's Alpha was 0.81.

We used several control variables. As conceptualizations of ownership can differ between countries due to varying legal arrangements and social programs (Rousseau & Shperling, 2003), we included dummy variables for Germany and Switzerland. Moreover, the competitive environment may impact firm behaviour (Antoncic & Hisrich, 2001; Porter, 1985), and consequently employees' feelings and attitudes. Thus, we added dummy variables for industry and service sectors. We also controlled for employees' age (McFarlin & Sweeney, 1992), gender (Lee, Pillutla, & Law, 2000), tenure (Meyer et al., 2002), hierarchy level (Begley et al., 2006), and stock ownership (Daily, Dalton et al., 2003; Van Dyne & Pierce, 2004). Other controls were firm age and size, whereas the latter was measured by the number of employees (cp. Choi & Chen, 2007; Wallace, 1995). As it was not normally distributed, we transformed it using the natural logarithm. Furthermore, we included the company's current performance, as the study variables might be affected when the company is perceived as successful and thus attractive (cp. Pierce et al., 2003). We adapted a measure by Eddleston and Kellermanns (2007), including three items pertaining to the company's development of sales, market share, and profits in comparison to its competitors. Cronbach's Alpha was 0.91.

5.6 Analysis

To explore the possibility of non-response bias, we compared early and late respondents using ANOVA, as late respondents are more similar to non-respondents than early respondents (Chrisman, Chua, & Litz, 2004; Oppenheim, 1966). No significant differences in the mean scores of the variables were found. To address the potential of common method bias we used Harman's one factor test (1967) as suggested by Podsakoff and Organ (1986). Following Podsakoff, MacKenzie, Lee, & Podsakoff (2003), we entered all our study variables into a factor analysis, extracting a 11-factor solution, accounting for 74.32% of total variance. The first factor explained 25.23% of variance, providing initial evidence that common method bias was not a major problem because no single factor accounted for the majority of variance. As an additional precaution and to assess the validity and distinctiveness of our measures, we conducted a confirmatory factor analysis (Podsakoff et al., 2003). Specifically, we compared the fit of a five-factor structure with our main variables to that of a one-factor structure. The five-factor structure fits the data significantly better (difference in $\chi 2$=3180.922, df = 10, $p < 0.001$). This indicates that our measures were not only theoretically but also empirically distinguishable, and further mitigate common method bias concerns (Podsakoff et al., 2003). To deal with potential multicollinearity we centered the variables (cp. Cronbach, 1987) and found that the Variance Inflation Factor did not exceed 2.357, and the condition index did not exceed 13.752, suggesting that multicollinearity is not a concern (Hair et al., 2006). While our statistical tests mitigate common method bias and multicollinearity concerns, we have to note that the correlation between distributive and procedural justice is high. This is regrettable, but seems to be a common problem in organizational justice research (cp. Choi & Chen, 2007; Erdogan et al., 2006; Judge & Colquitt, 2004; Spell & Arnold, 2007; Walumbwa et al., 2009). To investigate the mediating effects we followed Baron and Kenny (1986) and tested the mediation effects' significance with the Sobel test (cp. MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).

5.7 Results

Means, standard deviations, and Pearson correlations are reported next.

		Mean	S.D.	1	2	3	4	5	6	7	8
1	Switzerland	0.52	0.5	1							
2	Germany	0.32	0.47	-0.723**	1						
3	Industry	0.33	0.47	0.252**	-0.171**	1					
4	Service	0.91	0.28	-0.184**	0.166**	-0.445**	1				
5	Employee age	45.25	8.67	0.110*	-0.027	0.039	-0.024	1			
6	Gender	1.27	0.45	-0.018	0.036	0.051	-0.040	-0.231**	1		
7	Tenure	12.06	8.84	-0.056	0.111*	0.026	0.003	0.486**	-0.127*	1	
8	Hierarchy level	5.08	0.94	0.145**	-0.024	0.075	-0.031	0.286**	-0.409*	0.091	1
9	Share ownership	1.93	0.26	-0.108*	0.093	-0.064	0.132*	0.034	0.018*	-0.048	-0.076
10	Company age	81.20	59.37	0.209**	-0.160**	0.016	-0.038	0.071	-0.011	0.125*	0.035
11	Company size (ln)	5.785	1.13	-0.015	-0.042	0.068	-0.109*	-0.028	-0.085	0.041	-0.012
12	Current performance	4.70	0.87	0.173**	-0.108*	0.166**	-0.140*	0.031	-0.035	-0.033	0.095
13	Distributive justice	4.91	1.23	0.149**	-0.110*	0.141*	-0.069	0.026	0.072	-0.032	0.134*
14	Procedural justice	5.17	1.01	0.140**	-0.202**	0.121*	-0.074	-0.028	0.004	-0.076	0.089
15	Psychological ownership	4.44	1.29	0.043	-0.027	0.155**	-0.074	0.194**	-0.203**	0.141**	0.356**
16	Affective commitment	5.39	1.06	0.044	0.017	0.098	-0.071	0.131*	-0.062	0.185**	0.235**
17	Job satisfaction	5.81	0.71	0.140**	-0.094	0.185**	-0.068	0.013	-0.018	0.027	0.082

N = 310, *$p < .05$, **$p < .01$

Table 8: Means, standard deviations, and Pearson correlations of paper 3

		Mean	S.D.	9	10	11	12	13	14	15	16
1	Switzerland	0.52	0.5								
2	Germany	0.32	0.47								
3	Industry	0.33	0.47								
4	Service	0.91	0.28								
5	Employee age	45.25	8.67								
6	Gender	1.27	0.45								
7	Tenure	12.06	8.84								
8	Hierarchy level	5.08	0.94								
9	Share ownership	1.93	0.26	1							
10	Company age	81.20	59.37	-0.057	1						
11	Company size (ln)	5.785	1.13	-0.035	0.167**	1					
12	Current performance	4.70	0.87	-0.106	-0.006	0.217**	1				
13	Distributive justice	4.91	1.23	-0.070	-0.019	0.094	0.239**	1			
14	Procedural justice	5.17	1.01	-0.060	-0.049	0.124*	0.265**	0.682**	1		
15	Psychological ownership	4.44	1.29	-0.100	0.024	0.010	0.174**	0.222**	0.173**	1	
16	Affective commitment	5.39	1.06	-0.093	-0.085	-0.036	0.257**	0.301**	0.237**	0.418**	1
17	Job satisfaction	5.81	0.71	-0.028	-0.043	0.020	0.258**	0.434**	0.360**	0.275**	0.545**

N = 310, *p < .05, **p < .01

Table 8: Means, standard deviations, and Pearson correlations of paper 3 (continued)

Our hypotheses are tested in in the next Table[4]. Hypotheses 1 and 2 are investigated in model 1. Adding distributive and procedural justice significantly increases explained variance over and above the control model (adjusted R square = 0.177). We find a significant and positive relationship between distributive justice and psychological ownership (r = 0.148, $p < 0.05$), which confirms hypothesis 1. However, the relationship between procedural justice and psychological ownership is not significant, which rejects hypothesis 2.

For mediation to occur, three conditions must be met (Baron & Kenny, 1986). First, the independent variable must affect the mediator. This applies only for distributive justice (model 1). Second, the independent variable must affect the dependent variable. In model 2, we find a significant relationship between distributive justice and affective commitment (r = 0.212, $p < 0.01$), but not for procedural justice and affective commitment, while the explained variance of the model increases significantly (adjusted R square = 0.209). Third, when investigating the effects of the independent variable and the mediator on the dependent variable simultaneously, the effect of the mediator has to be significant, and the effect of the dependent variable has to be weaker than in condition 2 (cp. Baron & Kenny, 1986). Model 3 shows that psychological ownership is significantly related to affective commitment (r = 0.298, $p < 0.001$), while the effect of distributive justice is weaker but significant (r = 0.168, $p < 0.05$). Adding psychological ownership significantly increases explained variance over and above model 2 (adjusted R square = 0.280). This indicates partial mediation and supports hypothesis 3. The Sobel test confirms this finding (z = 3.687, $p < 0.001$). Hypothesis 4, however, has to be rejected. Referring to job satisfaction, adding both dimensions of justice perceptions increases explained variance of model 4 over and above the control model (adjusted R square = 0.228). Model 4 shows that distributive justice is significantly related to job satisfaction (r = 0.313, $p < 0.001$), while procedural justice is not. When psychological ownership is added in model 5, which significantly increases explained variance compared to model 4 (adjusted

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4 To improve readability we did not report the different control models.

R square = 0.257), psychological ownership is significant (r = 0.197, p < 0.001), whereas the effect of distributive justice is weaker but significant (r = 0.284, p < 0.001). The Sobel test confirms this effect (z = 2.846, p < 0.01), lending support to hypothesis 5, whereas hypothesis 6 has to be rejected.

Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Dependent variable	Psych. ownersh.	Affective comm.	Affective comm.	Job satisf.	Job satisf.
Control variables					
Switzerland	-0.133	-0.034	0.005	0.052	0.078
Germany	-0.081	-0.012	0.012	0.005	0.020
Industry	0.115	0.039	0.005	0.119*	0.096
Service	0.006	-0.015	-0.017	0.036	0.034
Employee age	0.061	-0.059	-0.077	-0.041	-0.053
Gender	-0.096	0.029	0.058	0.015	0.034
Tenure	0.079	0.252***	0.228***	0.078	0.063
Hierarchy level	0.255***	0.206**	0.130*	0.019	-0.032
Share ownership	-0.065	0.000	0.019	0.035	0.047
Company age	0.035	-0.040	-0.050	0.013	-0.020
Company size (ln)	-0.031	-0.125*	-0.115*	-0.099	-0.093
Current perf.	0.102	0.230***	0.200***	0.164**	0.144**
Independent variables / mediator					
Distributive justice	0.148*	0.212**	0.168*	0.313***	0.284***
Procedural justice	0.031	0.011	0.001	0.113	0.107
Psychological ownership			0.298***		0.197***
Adjusted R^2	0.177	0.209	0.280	0.228	0.257
F-Statistics	5.758***	6.842***	9.009***	7.509***	8.133***
Delta R^2	0.026**	0.042***	0.070***	0.138***	0.031***

Sobel test (for distributive justice and affective commitment): z = 3.687, p < 0.001
Sobel test (for distributive justice and job satisfaction): z = 2.846, p < 0.01
N=310; **p* < .05; ***p* < .01; ****p* < .001

Table 9: Results of regression analyses of paper 3

5.8 Discussion

Our study set out to investigate non-family employees' justice perceptions and how they are connected with pro-organizational outcomes through psychological ownership. The gained insights constitute a number of valuable contributions.

First, we add to family business literature. Research on justice perceptions of non-family employees is scarce, and our study represents one of the very few empirical studies (cp. Barnett & Kellermanns, 2006; Carsrud, 2006). By drawing a fine-grained picture of how justice perceptions of non-family employees weave their way into relevant outcomes, we increase the understanding of how family firms can foster their employees' value-creating attitudes (Barnett & Kellermanns, 2006; Chrisman, Chua, & Litz, 2003; Chua, Chrisman, & Sharma, 2003). We are the first to both theoretically and empirically link non-family employees' justice perceptions and ownership feelings in the family firm context. Moreover, we are able to validate psychological ownership as a mediator between distributive justice and both affective commitment and job satisfaction. Compensating non-family employees in a just manner despite potential family business-specific pitfalls can induce ownership feelings towards the family firm, and ultimately positive attitudinal outcomes, which offers a new explanation how the mechanism connecting justice perceptions and favorable outcomes might look like. In contrast, our finding that a just process in the context of appraisal interviews is not able to trigger ownership feelings indicates that non-employees rather regard the supervisor responsible for justice, and that this assessment is not transferred to the family business as a whole. Furthermore, we elaborated that psychological ownership can be especially interesting for family firms that avoid sharing formal ownership with non-family members. Potentially inducing similar effects as traditional equity ownership plans, it avoids the inherent disadvantages of these programs. Our empirical results confirm the unique potential of psychological ownership in the family firm context.

Second, we contribute to the field of organizational justice. On one hand, we offer detailed theoretical reasoning and validate the relationship between distributive justice and psychological ownership. On the other hand, psychological ownership offers a new perspective in understanding the mechanism that connects justice perceptions and organization-related outcomes, which complements existing approaches (e.g., Masterson et al., 2000; Tyler & Blader, 2000; Van den Bos et al., 2001) and addresses an acknowledged research gap (Choi & Chen, 2007). Moreover, our finding that procedural justice perceptions do not affect non-employees‘ attitudes toward the organizational as a whole might challenge traditional assumptions of organizational justice scholars (e.g., Bies & Moag, 1986; Walumbwa et al., 2009).

Third, we add to psychological ownership literature. In general, our study joins the young stream of research that investigates psychological ownership in a family firm context. We are the first to validate psychological ownership as a mediator between justice perceptions and both affective commitment and job satisfaction, which adds to knowledge on psychological ownership in general (Pierce et al., 2003). Establishing a link between distributive justice perceptions and psychological ownership extends the initial findings of Chi & Han (2008) and addresses the call of Avey et al. (2009) to further investigate psychological ownership's antecedents (cp. also Pierce et al., 2004).

Fourth, our insights are of value for family business practitioners. We encourage them to pay close attention to the distribution of salaries and promotions. Related perceptions of injustice can impede the evolvement of ownership feelings, and ultimately affective commitment and job satisfaction. Family business practitioners should thus be aware of the dangers of altruism and favoritism of family members, and should try to allocate salaries and promotions strictly depending on the contribution that each individual adds to the family firm. In general, distributive justice seems to be more essential than procedural justice when fostering non-family employees' value-creating attitudes. In addition, due to the positive effects of psychological ownership, we encourage family business practitioners to take actions beyond fostering distributive justice in order to enhance ownership feelings, such as for instance increasing perceptions of control.

5.9 Limitations

First, we have to address the issue of causality in this study. As the study is based on cross-sectional data, we cannot derive solid claims about the direction of our effects. It could be argued that when non-family employees exhibit ownership feelings toward the family firm they are working for, this could induce them to evaluate the distribution of outcomes as well as the corresponding process in a more favorable manner. However, even though we cannot substantiate the direction of the effects empirically, previous theoretical considerations lend support to the presented model (Chi & Han, 2008; Pierce et al., 2003; Pierce et al., 1991). Another limitation is that all variables were measured by the responses of a single source. However, due to theoretical reasons we have to rely on non-family employees' subjective justice perceptions, ownership feelings, and their individual affective commitment and job satisfaction. Thus, this measurement approach can be justified. In addition, several tests mitigate common method bias concerns. Lastly, respondents were all working in firms based in Germany or German-speaking Switzerland, which could lead to a cultural bias.

5.10 Future research

Our research opens up several avenues for future research. Most importantly, we strongly encourage other researchers to further investigate the role of psychological ownership in the relationship between justice perceptions and attitudinal outcomes of non-family employees. Here, the influence of family business specific variables could be addressed as a next step, such as level of family involvement (Barnett & Kellermanns, 2006), family ownership, family conflicts (Boles, 1996), governance systems, or image and reputation. In addition, we only found partial mediating effects for psychological ownership, which speaks for the existence of other mechanisms and processes in the distributive justice – affective commitment and distributive justice – job satisfaction relationships. We therefore encourage future studies to develop comprehensive models addressing the specific role and weight of psychological ownership compared with other suggested mediators such as self-esteem (Tyler & Blader, 2000), trust (e.g., Lind, 2001; Van den Bos et al., 2001), and organizational identification (Carmon et al., 2010). Furthermore, psychological ownership as a mediator could be applied to other outcomes such as organizational citizenship behavior or company performance. Exploring causality effects with longitudinal data and validating our results in other cultural contexts may also be fruitful avenues of future research. For psychological ownership scholars it may be worthwhile to examine the link between different justice dimensions and psychological ownership in more detail. For example, a mediating effect of employees' perceived control in these relationships could be explicitly studied (cp. Pierce et al., 2003).

5.11 Conclusion

Addressing the important issue of non-family employees' justice perceptions and how they lead to pro-organizational outcomes, we successfully validate psychological ownership as an alternative mediator in the relationship between organizational justice perceptions and affective commitment as well as job satisfaction. Our findings constitute valuable additions to family business research, organizational justice and psychological ownership literature, and to practice.

5.12 Appendix

Construct	Item text	FL	α
Distributive Justice	*The following items refer to your outcome (e.g. salary, promotion, raise) of your last appraisal interview. To what extent:*		0.95
	Does your appraisal interview outcome (e.g. salary, promotion, raise) reflect the effort you have put into your work?	0.91	
	Is your outcome of the appraisal interview (e.g. salary, promotion, raise) appropriate for the work you have completed?	0.89	
	Does your appraisal interview outcome (e.g. salary, promotion, raise) reflect what you have contributed to the organization?	0.88	
	Is your outcome of the appraisal interview (e.g. salary, promotion, raise) justified, given your performance?	0.89	
Procedural Justice	*The following items refer to the procedures used to arrive at your outcomes at your last appraisal interview. To what extent:*		0.85
	Have you been able to express your views and feelings during the appraisal interview?	0.51	
	Have you had influence over the outcome (e.g. salary, promotion, raise) arrived at by the appraisal interview?	0.31	
	Have the appraisal interviews been applied consistently?	0.71	
	Have the appraisal interview been based on accurate information?	0.74	
	Have the appraisal interview upheld ethical and moral standards?	0.51	
Psycholo-gical Ownership	*Please indicate the degree to which you agree to the following statements.*		0.89
	This is MY organization.	0.81	
	I sense that this organization is OUR company.	0.66	
	I feel a very high degree of personal ownership for this organization	0.84	
	I sense that this is MY company.	0.85	
	This is OUR company.	0.66	
	It is hard for me to think about this organization as MINE (reversed)	0.69	

Table 10: Scale items, factor loadings, and reliabilities of paper 3

Affective Commitment	*Please indicate the degree to which you agree to the following statements.*		0.93
	I would be very happy to spend the rest of my career with this organization.	0.66	
	I feel like 'part of the family' at my organization.	0.81	
	I feel 'emotionally attached' to this organization.	0.87	
	I really feel as if this organization's problems are my own.	0.83	
	I feel a strong sense of belonging to my organization.	0.88	
	This organization has a great deal of personal meaning for me.	0.87	
Job satisfaction	I like the things that I do at work.	0.79	0.81
	My job is very pleasing.	0.83	
	In general, I am very satisfied with my job.	0.60	

Table 10: Scale items, factor loadings, and reliabilities of paper 3 (continued)

6 Concluding chapter

6.1 Summary of theoretical and practical contributions

Each of the three papers enhances existing knowledge about one core element of family firms' long-term success. Taken together, they thus contribute to our general understanding of how long-term success of family firms can be achieved. The main contributions of each paper are summarized in the following.

Based on three Swiss case studies on long-living family firms, the first paper reveals that these firms were able to prosper and survive across generations despite rather low levels of EO, which contradicts traditional EO assumptions (e.g., Covin et al., 2006; Dess et al., 2003; Wiklund, 2006; Wiklund & Shepherd, 2005). The more the better, as implicitly suggested by EO literature, does not seem to be true. Instead, successful long-living family firms are able to continuously adapt their EO profile depending on external and internal conditions. As such, we strongly advocate a dynamic perspective on EO. In addition, our case studies show that some of the traditional EO dimensions do not seem to fully capture the entrepreneurial reality in long-lived family firms. In line with Nordqvist et al. (2008), we suggest splitting the autonomy dimension in an external and an internal dimension. The same applies to the innovativeness dimension, whereas we identify three distinct subcategories of risk taking, namely ownership risk, performance hazard risk, and control risk. These findings, together with the unique family business specific patterns that we identified for each dimension, constitute valuable extensions to literature on EO in the context of family firms (e.g., Martin & Lumpkin, 2003; Nordqvist et al., 2008). In addition, these insights on how EO affects long-term success could also be of value in the context of non-family firms and EO in general (Lumpkin & Dess, 1996; Rauch et al., 2009). By this, family business research could give back to where it originally borrowed from (Zahra & Sharma, 2004). Family business practitioners could also benefit from the study's results. We clearly illustrate that they do not have to try to be as entrepreneurial as possible all the time. Rather, we encourage them to be aware of their EO profile with our newly suggested subcategories, and to carefully evaluate and adapt it depending on both internal and external conditions.

By investigating the evolvement of middle-level manager's entrepreneurial behavior, the second paper contributes to different streams of literature. First, it adds to literature on entrepreneurial behavior of middle-level managers. On one hand, psychological ownership is introduced as an individual-level antecedent, which addresses an important research gap (Goldsby et al., 2006; Hmieleski & Baron, 2009; Hmieleski & Corbett, 2008; Kuratko, Ireland et al., 2005; Schjoedt & Shaver, 2007). On the other hand, this study is one of the few to explicitly investigate the combination of individual-level and organizational-level antecedents. The validated moderation effect of management support in the relationship between psychological ownership and entrepreneurial behavior illustrates the potential of this approach (cp. Kuratko, 2010; Kuratko, Ireland et al., 2005; Naffziger et al., 1994). Another finding is that psychological ownership can make organizational factors such as work discretion and rewards/reinforcement obsolete, as psychological owners boldly move ahead and take their freedom regardless of organizational constraints, and do not need additional rewards and motivation by the organization. The study also contributes to entrepreneurial behavior literature by being the first to apply a measure that incorporates the two main elements of middle-level manager's entrepreneurial behavior, namely implementing own entrepreneurial actions and supporting others' entrepreneurial behavior (Floyd & Lane, 2000; Kuratko, 2010). Second, by validating entrepreneurial behavior as new effect, the paper addresses the call of scholars to further investigate outcomes of psychological ownership (Avey et al., 2009; Pendleton et al., 1998; Van Dyne & Pierce, 2004). Third, a few important recommendations to practitioners can be made. While they should try to increase ownership feelings among their employees, they should evaluate carefully how the organizational surrounding should be designed. While increasing management support can be positive, there seem to be no effects of increased work discretion and rewards/reinforcement. Thus, practitioners could direct their efforts elsewhere. In general, these findings are applicable in both the family and non-family firm context. In the family firm context, however, their importance is assumed to be even higher, as traditional means to increase positive employee attitudes and behaviors, such as stock ownership programs, are not applicable (Chua et al., 1999; Gomez-Mejia et al., 2007).

Most importantly, the third paper that investigates non-family employees' justice perceptions and how they are connected with pro-organizational outcomes through psychological ownership, contributes to family business literature. Representing one of the very few empirical studies on non-family employees' justice perceptions (cp. Barnett & Kellermanns, 2006; Carsrud, 2006), it increases our understanding of how family firms can foster non-family employees' value-creating attitudes (Barnett & Kellermanns, 2006; Chrisman, Chua, & Litz, 2003; Chua, Chrisman, & Sharma, 2003). Second, the validated mediation effect of psychological ownership in the distributive justice - affective commitment and job satisfaction relationships offers a new explanation to organizational justice scholars of how justice perceptions and favorable work attitudes are connected (e.g., Masterson et al., 2000; Tyler & Blader, 2000; Van den Bos et al., 2001). With this finding the paper also adds to psychological ownership literature by addressing the call of Avey et al. (2009) to further investigate psychological ownership's antecedents (cp. also Pierce et al., 2004). These insights could also be transferred to the non-family firm context. Lastly, this paper offers valuable recommendations to family business practitioners. They are encouraged to objectively evaluate how salaries and promotions are distributed within their company. Family businesses are especially prone to perceptions of injustice due to potential altruism or nepotism. This will have a strong effect on non-family employees' ownership feelings, and ultimately positive work attitudes. Thus, family business practitioners have to be aware of these dangers They should focus more on distributive justice than on procedural justice, whereas also other possibilities to enhance psychological ownership, such as perceptions of control, should not be neglected.

6.2 Limitations

It has to be noted that firm-level entrepreneurship and individual-level antecedents such as entrepreneurial behavior, affective commitment, and job satisfaction, are of course not the only antecedents to long-term success of family firms. However, they are certainly very important ones of special relevance in family firms. The three papers of this cumulative dissertation thus contribute to our understanding of family firms' long-term success, even though also other explaining factors exist.

The limitations of each paper are illustrated in detail in the corresponding subchapters. A few central ones, however, should be emphasized here. Regarding the first paper, it has to be mentioned that we use a common denominator approach (Dyer & Handler, 1994; Hoy & Verser, 1994) by using EO as theoretical lens, which is applied in three case studies of mid-sized and long-lived family firms from the same country. This might impose certain limitations to the generalizability of the respective findings, as the situation in small and young family firms or non-family firms might be different. The second and the third paper are based on the same dataset, and thus share the same limitations. Even though theoretical considerations support the causality of effects that are proposed in both papers, they cannot be validated empirically due to the cross-sectional nature of the data. In addition, all variables were measured by the self-perceptions of a single source, which might lead to biases. These, however, are mitigated by statistical tests. Lastly, all employees were working in (family) firms based in Germany and German-speaking Switzerland, which might limit the generalizability of the findings to other cultural contexts.

6.3 Future research

Under the umbrella of investigating essential determinants of family firms' long-term success, the different papers each open up promising ways of future research. The most central ones are highlighted in the following.

The findings of the first paper should encourage scholars to examine the specific characteristics of EO in long-lived family firms in more detail. This could be done by a longitudinal quantitative study, ideally covering a specific event such as a generation change, which would lead to unique insights on how the transition between generations impacts the EO profile. In addition, more case studies in more countries and industrial contexts could be done. Particular attention could also be drawn to the process and influencing factors of how the EO profile is adapted across time. This would further enhance our understanding of how the concept of EO contributes to long-term success of family firms.

Future research could build on the findings of the second paper by investigating the interaction of psychological ownership with organizational factors in more detail. While the findings of the second paper apply to both non-family and family firms, explicit research in the family firm context could incorporate family business specific factors such as culture or governance systems, which might lead to additional valuable insights. Moreover, the findings could be verified by collecting longitudinal data from multiple respondents, ideally from supervisors and subordinates from the same firm. Through this, additional insights on how middle-level managers' entrepreneurial behavior evolves could be gained. A better understanding of the genesis of effective corporate entrepreneurship, and ultimately long-term firm success, would be of great value to both research and practice.

The third paper could inspire researchers to further investigate the mechanism connecting justice perceptions and favorable work outcomes through psychological ownership, for instance by including family business specific variables such as level of family involvement or family conflicts (Barnett & Kellermanns, 2006;

Boles, 1996). Also here, the study's findings could be validated with longitudinal and multi-source data. Consequently, this would further add to existing literature of how value-creating attitudes of non-family employees can be enhanced, which ultimately leads to an increased understanding of how long-term success of family firms can be achieved.

6.4 Conclusion

While the long-term success of family firms is of utmost social and economic importance, there is still a need for further research on its determinants. Each of the papers in this dissertation addresses one main factor, namely firm-level EO, individual-level entrepreneurial behavior, and both affective commitment and job satisfaction of non-family employees. The insights gained through case study research (first paper) and quantitative research (second and third paper) constitute valuable contributions to existing knowledge on specific aspects of these three antecedents. Taken together, they constitute an important step in increasing our general understanding of how long-term success can be achieved in family firms, opening up promising avenues for future research.

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