



The interplay of entrepreneurial orientation and psychological traits in explaining firm performance



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ABSTRACT

Findings in management and psychological research support an integrated model of firm level as well as individual level variables in order to predict firm performance. However, previous research has not integrated the strategic firm-level entrepreneurial orientation as the strategic decision and CEOs' individual traits of dominance and self-efficacy as the managerial ability so far. We fill this void by applying a fsQCA to investigate the dependencies of CEOs' personality and firm orientations in a small firm context ($N = 723$ CEOs). In young firms, all paths explaining firm performance consist of a combination of firm and individual variables. Established firms either pursue a proactive strategy or rely on a dominant, self-confident manager. Our findings support an integrated view on firm performance as dominance and self-efficacy of CEOs serve as essential individual factors in addition to strategic decisions aligned to entrepreneurial orientation (EO).

1. Introduction

Previous quantitative as well as qualitative research in management and psychology reveals the great potential of psychological variables for predicting entrepreneurial behavior and success (e.g. Baum, Frese, & Baron, 2014; Rauch & Frese, 2007). Less research however focuses on the simultaneous effect of different psychological backgrounds in combination with firm level attributes to forecast financial and non-financial achievements. Grounded on the behavioral theory of the firm, the integration of organizational level and individual level perspectives appears promising when it comes to explaining entrepreneurial success. In this regard, a theoretical and methodological shift is required: psychology-based research in entrepreneurship should continue to explore the links between individual level and firm level perspectives to better explain entrepreneurial behavior (Hitt, Beamish, Jackson, & Mathieu, 2007; Hmieleski & Baron, 2008). A concurrent consideration of different variables requires advanced methods to address corresponding propositions.

This paper aims at providing the theoretical basis for an integrated model of potential additions to entrepreneurial orientation (EO) in the prediction of entrepreneurial success. Of particular concern for this paper is the area of small and middle-sized enterprises (SME). To fill the

identified research gap, a combined approach is adopted; to predict entrepreneurial success, EO as a variable on the firm level is joined by dominance and self-efficacy as variables on the individual level (i.e., characteristics of the entrepreneur). Furthermore, this model is investigated empirically by applying an fsQCA to infer causal relationships between these variables, a rather new technique in entrepreneurship and innovation research whose diffusion has been promoted particularly by the *Journal of Business Research* since 2013 (Kraus, Riberio-Soriano, & Schüssler, 2017).

In the first step, a brief link between the theory of firm perspective and specific psychological variables is drawn, providing a comprehensive overview of psychological variables studied in entrepreneurship research. Relevant variables for our study are subsequently introduced and discussed with regard to their potential contribution towards a better understanding of the interactions involved between them; firm level and individual level variables on the one hand, organizational success on the other, and lastly the influence of moderating variables. Building on this, our assumptions are presented, and our research design, sample, and method are introduced. After discussing the results of the fsQCA, the theoretical as well as practical implications of the findings are discussed.

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2. Theoretical framework

2.1. Firm level perspective on entrepreneurial success

One variable that is closely linked to a firm's success is entrepreneurial orientation (Lumpkin & Dess, 1996; Rauch, Wiklund, Lumpkin, & Frese, 2009; Semrau, Ambos, & Kraus, 2016; Wales, Gupta, & Mousa, 2013). EO has emerged as a major construct within strategic management and entrepreneurship literature over the years and holds a central position in the research field of entrepreneurship (Morris & Kuratko, 2002; Shane & Venkataraman, 2000). EO can be seen as a cultural construct (Knight, 2003) comprising an organization's degree of risk-taking, its innovativeness, and its proactiveness (Covin & Slevin, 1989; Miller, 1983). These dimensions best represent the conceptual view of EO (George & Marino, 2011), although other research adds additional dimensions (e.g. Lumpkin & Dess, 1996) or excludes single dimensions (e.g. Merz & Sauber, 1995).

Three different models concerning EO are discussed in the literature (Vij & Bedi, 2012). First, in the construct model, EO is studied as the dependent variable. The focus here is on identifying its antecedents (Holt, Rutherford, & Clohessy, 2007; Zahra, Jennings, & Kuratko, 1999). Second, the EO strategy model aligns the level of EO with different strategies (Covin & Slevin, 1988; Lumpkin & Dess, 1996). Third, the performance model links EO with organizational success under consideration of moderating and mediating variables related to the external and/or organizational environment (Covin & Slevin, 1989, 1991; Krauss, Frese, Friedrich, & Unger, 2005; Wales et al., 2013).

In this vein, various scientific works have demonstrated the relevance of EO for entrepreneurial success. EO has a positive effect on sales growth rate (Covin, Green, & Slevin, 2006; Harms, Reschke, Kraus, & Fink, 2010) and is capable of predicting innovation (Bouncken, Plüschke, Pesch, & Kraus, 2016; Harms et al., 2010). Rauch et al. (2009) present a meta-analysis of the link between entrepreneurial orientation and business performance. Here, EO in general and its three individual dimensions are correlated with overall entrepreneurial success. Interestingly, EO is equally capable of predicting financial performance as it is of predicting non-financial performance. Cohen (1988) describes these correlations as being moderate. EO appears to have a higher impact on firm performance for micro businesses. In addition, although service firms have a higher EO than manufacturing firms, the relationship between a firm's EO and its growth aspirations does not differ between the two types of firms (Rigtering, Kraus, Eggers, & Jensen, 2013).

EO is categorized as a firm level strategic approach (Covin & Lumpkin, 2011; Venkataraman, 1989). However, those attributes making up EO on the firm level (risk-taking, innovativeness, proactiveness) closely resemble the (identically labeled) psychological variables describing behavior on an individual level. Following this line of thought, some researchers have discussed the possibility of extending the application of entrepreneurial orientation to the individual level (Aloulou & Fayolle, 2005; Covin & Lumpkin, 2011; Covin & Slevin, 1988; Davis, Bell, Payne, & Kreiser, 2010; Frese & Gielnik, 2014; Kollmann, Stöckmann, Meves, & Kensbock, 2016; Krueger, 2006; Kuratko & Goldsby, 2004). In psychology, risk-taking, innovativeness, and proactiveness are extensively researched. For example, the importance of entrepreneurs' innovativeness for entrepreneurial success is demonstrated in several empirical studies (c.f.; Baron & Tang, 2011; Krause, 2013; Palmer, Cesinger, Gelléri, Putsch, & Winzen, 2015; Ward, 2004). Atkinson (1957) writes as early as in 1957 about the existence of a close relationship between risk-taking and achievement motivation. Rauch and Frese (2000, 2007) confirm findings for risk-taking as being an individual trait of entrepreneurs as well. A meta-analysis (Rauch & Frese, 2007) examining the links between personality traits and entrepreneurial outcomes finds the characteristics of proactiveness, innovativeness, and risk-taking to be associated with business success. Interestingly, in the field of entrepreneurship, performing a current

literature search only retrieves a limited number of papers investigating an individual perspective on EO (De Jong, Parker, Wennekers, & Wu, 2015; Kollmann et al., 2016; Krueger, 2006).

The most commonly used scale for measuring EO is based on Miller (1983), and is modified by Covin and Slevin (1989). As further described in the Method section, applying the EO scale along with psychological variables on the individual level allows the extent of overlap of EO with individual traits to be determined. This study extends beyond the simple replication of EO's potential for predicting entrepreneurial success; it contributes to a clearer understanding of EO regarding its possible extension to the individual level.

Assumption 1. Entrepreneurial orientation contributes to firm performance.

2.2. Individual level perspective on entrepreneurial success

Most of the well-known theories of the firm include information about the role of individuals in organizations. As defined by one of the modern theories of the firm, the behavioral theory states: “an organization is any social structure or system consisting of two or more persons who are interdependent and work together in a coordinated manner to attain common goals” (Baron, 1987, p. 10). Consequently, market actors not only follow their self-interests, but pursue superordinate objectives in accordance with social and financial dependencies as well. Although these objectives are typically economic goals, social and other kinds of goals are also possible here.

Put plainly: market players are not completely rational beings. They are instead error-prone, social individuals (Thaler, 2015). This is why an effective theory of the firm has to take into account the psychological and social processes occurring on the individual level in order to understand decision-making, practical action of incentives, and market behavior. On the nexus of psychology and economics, the process model of the behavioral theory of the firm (Cyert & March, 1992) offers a valuable framework, which enables us to include knowledge about the individual level in the understanding of actions on the organizational level.

The inclusion of psychological theories, constructs, and methods in entrepreneurship research is not a novel idea. Starting in the 1960s and 1970s, researchers still investigate what encourages individuals to participate in entrepreneurship. Individual traits such as the need for achievement, locus of control, self-efficacy, risk-taking propensity, family influence, educational influence, work experience, etc. are identified as important antecedents of entrepreneurial behavior and success (Vij & Bedi, 2012). There are now sound reviews on psychological entrepreneurship research (Cooper & Gimeno-Gascon, 1992; Frese & Gielnik, 2014; Rauch et al., 2009; Rauch & Frese, 2000; Ward, 2004). Along with literature reviews, meta-analyses illustrating robust relationships are also available (Brandstätter, 2011; Collins, Hanges, & Locke, 2004; Zhao & Seibert, 2006).

The findings of these meta-analytical reviews on personality and entrepreneurial status demonstrate the promising contribution of psychological aspects, even while they simultaneously illustrate a certain lack of further research, for example the inclusion of a process perspective of entrepreneurship or domain-specific analyses.

The term “psychological variable” is not limited to a special class of construct or data. In fact, it is a general term for different kinds of characteristics (and their measures) such as cognitive abilities, knowledge and skills, personality tendencies, applied social skills, and interests and preferences (Huffcutt, Conway, Roth, & Stone, 2001). Moreover, it is not limited only to individuals. Psychological variables may also describe group-, organizational-, or culture-specific behavior (von Rosenstiel, 2007). Through the scientific study of individual, group, and organizational processes, knowledge can be contributed about behavior in organizational settings in the first step (Hitt et al., 2007). In the second step, this increased knowledge can be applied to the

enhancement of organizational effectiveness and individual well-being (Baron, 1987).

SME leadership and management are much more visible and direct than in larger companies. The entrepreneur's authority in decision-making and his or her pervasive influence – both expressions of high dominance and self-efficacy – strongly shape the firm's strategy, culture, and actions and as a consequence is critical to the survival and development of SMEs (Beaver & Jennings, 2001; Davies, Hides, & Powell, 2002; Puplampu, 2005). In contrast to larger firms, where success is mainly determined by organizational variables, in SMEs firm owners are the “source of action” (Rauch & Frese, 2000), which equates to the psychological perspective of “the people make the place” and relates to the ASA (attraction, selection, attrition) theory (Schneider, 1987, 2008). Frese, van Gelderen, and Ombach (2000) emphasize the equivalence between the individual and the organizational level in small scale businesses managed by the founder.

Leadership in SMEs is highly demanding in several ways. First, flat hierarchies result in a large span of control and also require more autonomy from subordinates. Second, leaders in SMEs are intensively involved in operations. When the firm and number of employees grow, the founder will increasingly be occupied with formal leadership and micro-politics. Finally, different phases of the entrepreneurial process might require different leadership styles (or at least different foci).

As mentioned, entrepreneurial success is correlated to the entrepreneur themselves, and his or her individual profile. On the nexus of psychology and entrepreneurship, the prediction of entrepreneurial success could be improved by the consideration of particular leadership demands in SMEs. Dominance and self-efficacy are significant traits of effective leadership in general (Hammond, Neff, Farr, Schwall, & Zhao, 2011; Hoffman, Woehr, Maldagen-Youngjohn, & Lyons, 2011; Seibert, Sargent, Kraimer, & Kiazad, 2017). The reason for selecting these two individual characteristics is to match valid traits of effective leadership with the strategic decisions on the firm level reflecting EO in SMEs to explain firm performance in an integrated model. Whereas requirements for cognitive abilities and knowledge are field-specific (cf. leading a biotech firm or establishing a new consumer goods brand), personality characteristics of CEOs are expected to have a general effect on behavior, leadership style, and individual as well as firm performance.

This paper strives to combine both levels of predictors for a firm's success: the individual and firm levels. As can be seen with EO, the joint consideration of organizational assets and constructs with individual traits might better explain their single link to business performance (i.e. innovation and growth). Hornsby, Naffziger, Kuratko, and Montagno (1993) also combine organizational and individual characteristics in their interactive model of the corporate entrepreneurship process. Consequently, the research question this paper is centered on is: ‘Can a firm's innovation and growth be explained by integrating firm level characteristics and individual psychological variables?’ Thereby, the focus lies on selected personality variables associated with strategic leadership decisions of CEOs in SMEs. In line with other researchers (Mussel, Winter, Gelléri, & Schuler, 2011; Rauch & Frese, 2007; Rothstein & Goffin, 2006; Tett & Christiansen, 2007), the authors advocate the use of specific facets of personality, such as dominance and self-efficacy, over broad dimensions, like extraversion. Based on the literature review, the dominance and self-efficacy of CEOs might specifically be important drivers for firm performance along with a firm's entrepreneurial orientation(s).

2.3. Dominance

According to Shane and Venkataraman (2000) and Ward (2004), entrepreneurs must recognize, evaluate and exploit ideas or opportunities to be successful. Novel and valuable ideas are at the core of entrepreneurship. However, entrepreneurs have to be capable of doing more than simply generating new ideas (Baron, 2000). And in fact, they

need to recognize new and valuable opportunities for products or services that can successfully be established in the market.

The power motive is of great interest in explaining successful leadership and strategy implementation in SMEs (McClelland & Boyatzis, 1982; McClelland & Burnham, 1976). The corresponding trait of the need for power is dominance. Dominance is defined as the aspiration to have influence over others, and comprises the tendency to behave in assertive, forceful, and self-assured ways (Anderson & Kilduff, 2009). In the five-factor model (also known as the big five model) of personality (Costa & McCrae, 1992), dominance is assumed under extraversion, reflecting its interpersonal relevance. In the alternative HEXACO model of Ashton and Lee (2007) dominance is comparable to social self-esteem and social boldness, and both, again, are factors of the extraversion dimension. To illustrate dominant behavior, comparisons are frequently drawn to stereotypically alpha males (“the silverback gorilla”). Current research however hints at two sub-dimensions of dominance (Palmer, 2015). Intuitively, dominance goes along with socially oriented dominance in terms of gaining or maintaining status. Otherwise, dominant behavior may be exhibited to achieve goals. In these cases, dominant behavior is object-oriented. As Palmer (2015) shows, organizations require and will more likely reward an object-oriented leader than a socially aggressive alpha.

Dominance (also known as assertiveness) is recognized as a highly relevant personality trait for successful leadership and firm performance (Hoffman et al., 2011; Judge, Bono, Ilies, & Gerhardt, 2002; Reichard et al., 2011). Dominance is an important trait for exerting influence in groups and teams, and even has competence-signaling effects (Anderson & Kilduff, 2009). In SMEs, where leaders' behavior has a strong impact on company culture and actions, the importance of dominance stands out even more. As Cyert and March (1992) note: “... firms will devise and negotiate an environment so as to eliminate uncertainty. Rather than treat the environment as exogenous and to be predicted, they seek ways to make it controllable” (p. 168). In addition to the manipulation of the external environment, managers also have to predict and attempt to direct their own firm. Just as limited “optimal allocation” is seen on markets, this paucity of optimal allocation exists inside firms. In other words, what is effective for one sub-unit might be detrimental for others. Subordinates form coalitions and try to influence leaders' decisions, which requires leadership to display strategic as well as dominant behavior in dealing with this problem (Cyert & March, 1992). Meta-analyses confirm the importance of dominance for effective leadership. Judge et al. (2002) report an average correlation of $r = 0.24$ for dominance with leadership, while Hoffman et al. (2011) determine a comparable effect ($r = 0.27$) with leadership effectiveness.

Entrepreneurs score higher on extraversion (the big five dimension superior to dominance) than other occupational groups (Brandstätter, 2011; Mieg, Bedenk, Braun, & Neyer, 2012; Zhao & Seibert, 2006). Beyond this, Neider (1987) reports notably higher scores of dominance for (female) entrepreneurs compared to the general population (male and female). However, dominance, defined as “the ability to influence others,” is theoretically not only linked to leadership performance, but also to overall performance of the firm (Davis et al., 2010; Kraus, Kauranen, & Reschke, 2011; Rauch & Frese, 2000). These findings indicate the relevance of trait dominance in entrepreneurship. However, until now, no quantitative study has tested the effect of CEO dominance on firm performance in SMEs.

Assumption 2. SME leaders' dominance contributes to firm performance.

2.4. Self-efficacy

Self-efficacy (SE) is defined as an individual's judgment of “how well one can execute courses of action required to deal with prospective situations” (Bandura, 1982, p. 122). Perceived SE reflects the belief in one's capability to mobilize the motivation and cognitive resources

required to exercise control over life events (Wood & Bandura, 1989). Furthermore, the expectations of the individual's efficacy levels determine if coping behavior is activated or not. At the same time, it is relevant for the amount of effort put into a task and the durability of how long this behavior will be maintained. If an individual believes that the requested ability is beyond his or her threshold, it is most likely that he or she is not acting even if he or she knows that there is a social demand for this behavior (Bandura, 1982). Studied for more than three decades, the concept of SE shows positive correlations between SE and behavioral as well as motivational outcomes in multiple contexts such as education (Huang, 2012; Lent, Brown, & Hackett, 1994; Richardson, Abraham, & Bond, 2012; Schunk, 1995), clinical trials (Bandura, 1988; Bandura, Adams, Hardy, & Howells, 1980; Lagerveld, 2017; Sheeran et al., 2016), and organizational settings (Downes, Kristof-Brown, Judge, & Darnold, 2016; Gist, 1987; Stajkovic & Luthans, 1998; Tims, Bakker, & Derks, 2014). SE is a central construct within Bandura's social learning theory (Bandura, 1986; Wood & Bandura, 1989). In contrast to other traditional psychological theories, Bandura's social learning theory considers the causal relationships between behavior, cognition, and environment. Traditional unidirectional theories attempt to predict human behavior by either taking internal dispositions or environmental events into consideration. The social learning theory extends the scope of analysis by using triadic reciprocal causation to explain human behavior. This causation is based on behavior, environmental events, and cognitive as well as other individual factors. An example of this is how a person's behavior can change the environment, while at the same time this person's perspective of his or her environment can change as well. Furthermore, environmental influences can also lead to a change in the person's behavior. Sometimes different influences can vary in the magnitude of the effect on an individual's behavior, even though the reciprocal influences do not usually occur simultaneously. SE is known to have a self-amplifying effect. Experience and success increase SE, which in turn leads to increased future performance evaluation (Bandura, 1982; Seibert et al., 2017; Sitzmann & Yeo, 2013; Wood & Bandura, 1989).

Several SE researchers demonstrate a correlation between SE and work-related performance (Downes et al., 2016; Hill, Smith, & Mann, 1987; Hmieleski & Baron, 2008; Hmieleski & Corbett, 2008; Sitzmann & Yeo, 2013; Stajkovic & Luthans, 1998; Tims et al., 2014). As Stajkovic and Luthans (1998) show in their meta-analysis, this link is strongly moderated by task complexity. The correlation between SE and work performance is especially strong for simple tasks and decreases for moderate and high levels of task complexity. However, the authors mention the possibility of an increase in the correlation between SE and work performance with highly complex tasks whenever individuals repeat the demanding tasks and thereby become more familiar with the challenges of a complex task. To complete a highly complex task, different skills are necessary and place greater demands on cognitive abilities, memory capacity, required knowledge, information processing, behavioral facilities, physical effort, and persistence (Bandura, 1986).

SE can be seen as a central aspect of most human functioning (Schwarzer, 2014). To understand entrepreneurial career choices, the theory of planned behavior (Ajzen, 1991) is employed in a substantial number of studies (Gorgievski & Stephan, 2016). According to this framework, the actions an individual performs are mostly based on the beliefs of what he or she thinks he or she is able to accomplish rather than on the objective truth. Ajzen (1991) points to the need to incorporate SE when perceived behavioral control is studied. Overconfidence – defined as the failure to know the limits of one's knowledge and abilities (Russo & Schoemaker, 1992) and SE's downside – is often found in leaders. Furthermore, entrepreneurs are more likely to be overconfident than managers (Busenitz & Barney, 1997). Though overconfidence is a maladaptive form of SE, strong belief in one's abilities and knowledge plays an important role when starting a venture (Simon, Houghton, & Aquino, 2000). This is why SE can explain entrepreneurial

pursuits (Markman, Baron, & Balkin, 2005).

There is an ongoing debate in SE research regarding whether SE is generalized or task-specific. Bandura (1994) for instance, supports the latter view. Entrepreneurial SE was developed with entrepreneurship in mind. SE can be described as the degree an individual views his abilities to be able to successfully perform the tasks associated with entrepreneurship (Chen, Greene, & Crick, 1998). Distinguishing generalized SE from entrepreneurial SE, SE encompasses one's perception of one's own ability in order to successfully complete tasks across different situations, whereas entrepreneurial SE focuses on the capture of one's perceived abilities in regard to entrepreneurship (McGee, Peterson, Mueller, & Sequeira, 2009). Another important factor influencing the entrepreneur's performance is environmental dynamism. Because of a high level of uncertainty, entrepreneurs exhibit higher levels of anxiety and distress; to reduce these effects, entrepreneurs can cope via SE and optimism (Hmieleski & Baron, 2008). Although entrepreneurial SE is generally beneficial for entrepreneurs (Baum & Locke, 2004; Baum, Locke, & Smith, 2001; Khedhaouria, Gurău, & Torrès, 2014), Hmieleski and Baron (2008) identify certain situations when high entrepreneurial SE can have strongly negative effects on firm performance. Particularly in highly dynamic environments – typical environments for innovative entrepreneurs – high entrepreneurial SE combined with a high dispositional optimism may lead to overconfidence and in turn to excessive risk-taking and other ineffective strategies. When high entrepreneurial SE is paired with moderate optimism, the effect on firm performance is positive.

SE is described as a motivational construct, which can be seen as an influencing factor in the individual choice of occupations, personal goal setting, and commitment, as well as the resulting performance in these areas (Wood & Bandura, 1989). Learning about one's own abilities, coping strategies, motives, and behavioral strategies can lead to increased SE in regard to entrepreneurial tasks and performance. Additionally, the entrepreneur's risk propensity affects entrepreneurial SE as well. Wilson, Kickul, and Marlino (2007) investigate whether entrepreneurial SE leads to entrepreneurial intentions within a group of university students and find a positive correlation. Entrepreneurial SE can build the confidence that will allow an individual to achieve success within entrepreneurial roles, activities, and tasks (Zhao, Seibert, & Hills, 2005). Additionally, scholars report that entrepreneurs tend to exhibit a higher SE than managers or employees in general (e.g. Chen et al., 1998; Tyszka, Cieślak, Domurat, & Macko, 2011).

Markman, Balkin, and Baron (2002) investigate the different levels of SE in regard to patent inventors and the creation of new ventures, concluding that inventors who file a patent and start a business venture have higher levels of SE than patent holders who do not create new ventures. Similar results were found in a subsequent study by the same authors (Markman et al., 2005). Therefore, entrepreneurial SE can be seen as an important factor when overcoming perceptions of risk, which are associated with the creation of new ventures (Boyd & Vozikis, 1994; Hmieleski & Corbett, 2006; Kolvereid, 1996; Krueger & Brazeal, 1994; Krueger, Reilly, & Carsrud, 2000).

Moreover, scholars confirm that SE has important effects on other entrepreneurial outcomes as well. Bradley and Roberts (2004) find a positive correlation between SE and entrepreneurs' work satisfaction levels. Going further, Cooper and Artz (1995) show that the greater the entrepreneur's confidence in his or her abilities, the greater the work satisfaction – regardless of the actual performance or outcome. Finally, a positive correlation is found between the growth of a firm and the SE of an entrepreneur (Baum et al., 2001; Baum & Locke, 2004; Hmieleski & Corbett, 2008). These results can be explained in the beneficial effect of SE on general performance effectiveness. People believing in their capabilities set challenging but attainable goals, show more intrinsic motivation in related tasks, pursue more proficient strategies, and are more persistent when facing obstacles and setbacks (Chen et al., 1998; Wood & Bandura, 1989).

Accordingly, empirical findings from meta-analyses identify SE as a

better predictor of work-related performance than much of the commonly studied personality variables (Judge & Bono, 2001; Stajkovic & Luthans, 1998) – being true for either generalized SE or task-specific SE. This study follows the view of Rauch and Frese (2007); that entrepreneurial SE is less of a personality trait and more a domain-specific state depending on job characteristics (Eden, 1988), and focuses on generalized SE as a result. This idea is supported by the Entrepreneurial Personality System (EPS; Obschonka & Stuetzer, 2017). In this framework, SE is a characteristic expression of underlying basic personality tendencies, but this is changeable across time and situation and links SE directly to entrepreneurial activity. Thereby self-efficacy is predicated on broad and stable personality traits (i.e., five factors of personality) but evolves from past experience and environmental conditions. The EPS thereby supports the understanding of SE as a key competency of entrepreneurs.

Assumption 3. SME leaders' self-efficacy contributes to firm performance.

2.5. Entrepreneurial success

In entrepreneurship research, different approaches are followed to operationalize a firm's performance, and thereby entrepreneurial success. Above all, financial figures such as profitability, sales growth, ROI, ROE, and employee growth are applied (Davis et al., 2010; Hmieleski & Baron, 2008). For technology-oriented SMEs, innovation and growth are important indicators of firm performance (Harms et al., 2010). Due to difficulties in accessing information (e.g. archival data, newly founded venture, micro businesses), a survey based approach to measure performance is often applied. With high correlations between self-reports of the owner or general manager and data of growth and business volume (Chandler & Hanks, 1993), performance surveys are a valid way to obtain success data. Another category of performance indicators includes non-financial measures such as employee or customer satisfaction and global success ratings made by owners or business managers. Because entrepreneurial orientation is one of the variables used within this study, and the EO-performance relationship focuses primarily on financial aspects of performance (Rauch et al., 2009), only tangible indicators are included as performance measures (sales, profit, employees, market share).

Assumption 4. Combinations of entrepreneurial orientation, dominance, and self-efficacy contribute to firm performance of SMEs.

2.6. Company age

Models of the organizational life-cycle indicate significant differences between young firms and their more established counterparts. Young firms are typically smaller, suffer from a more limited resource base, are managed more informally, are centralized around the founder, are more flexible, and their future development is rather unclear, whereas established firms are typically larger, can draw on a significant resource base, are managed more formally, are less flexible, are more decentralized, and can build on a history of successes (Hanks, Watson, Jansen, & Chandler, 1993). Literature argues that young vs. established firms manage their EO differently (Kollmann & Stöckmann, 2014) and that EO differently relates to firm performance (Messersmith & Wales, 2013). This can also be explained by the different challenges these companies face. While young firms must face the challenge of overcoming the liabilities of newness without jeopardizing the assets of newness (Kollmann & Stöckmann, 2014), more established firms may use EO to avoid the liability of obsolescence and to rejuvenate (Kuratko, Morris, & Covin, 2011). Hence, these differences in the management of EO, together with the identified differences in the internal organization and the challenges faced should manifest in different combinations of conditions for success. Moreover, as previously pointed out, different

phases of the entrepreneurial process might require different leadership styles (or at least different foci). Contribution of a CEO's dominance and SE to firm performance in young firms should differ from its effect in established firms due to a smaller firm size, a more informal management style, and structural centralization around the founder. This is supported by previous research emphasizing the CEO as the center of action in SME (e.g. Frese et al., 2000; Rauch & Frese, 2000).

Assumption 5. Combinations of entrepreneurial orientation, dominance, and self-efficacy contributing to firm performance of SMEs differ for young vs. established firms.

3. Methodology

3.1. Sample

We collected a large-scale dataset from central Europe to investigate the underlying theoretical framework. Since the applied fsQCA technique does not allow for controlling contextual variables, only Austrian CEOs, top level managers, or founders were considered for our key informant approach to obtain a homogeneous sample in terms of economic, legal, cultural, and business backgrounds (e.g. European Commission, 2005). To achieve the most representative sample possible, a random sample from the Austrian company database AURELLA was drawn in early 2016, and left unfiltered in terms of size, branch, or availability. Managers were invited to participate anonymously via e-mail and linked to an established online survey system. As the scope of our research is on those respondents who are CEOs of small firms (< 30 employees), only those complete cases indicating this position and firm size as well as those who passed consistency checks (e.g. aged between 18 and 99) were retained for further analysis, yielding a final sample of 723 respondents. The procedure proposed by Armstrong and Overton (1977) was performed to assess a possible non-response bias. Independent *t*-tests between four equally large quartiles of early to late respondents revealed zero significant differences (lowest *p*-value: 0.11) for all items from the Measures section.

To assess our sample, we also queried common descriptive variables of personal (e.g. gender, age, education) and corporate (e.g. firm age, size, branch) backgrounds. Respondents were 81.1% (*n* = 586) male with a mean age of 49.0 years (*SD* = 10.28; minimum = 22; maximum = 81) and founded a firm in 78.3% of the cases (*n* = 566). For the reasons explained above, the complete sample relied on chief executive officers having miscellaneous educational backgrounds such as university degrees (29.6%, *n* = 214), completed school examinations (23.1%, *n* = 167), secondary school degrees (10.9%, *n* = 79), teacher trainings (10.8%, *n* = 78), technical colleges (11.2%, *n* = 81), or PhDs (7.1%, *n* = 51).

From a corporate perspective, the average firm is 25.2 years old (*SD* = 31.2; minimum = 0; maximum = 266). Moreover, the majority of represented firms generate their revenues in tertiary (75.9%, *n* = 549) or secondary (21.6%, *n* = 156) sectors.

3.2. Measures

Entrepreneurial orientation was investigated with its separate dimensions of innovativeness (five items), proactiveness (five items), and risk-taking (four items) using the fourteen items proposed by Eggers, Kraus, Hughes, Laraway, and Snyderski (2013). A composite of three different personality scales was used to assess the entrepreneur's *dominance* level. Palmer (2015) has validated this composite questionnaire for dominance. *Self-efficacy* is represented by three items (Beierlein, Kovaleva, Kemper, & Rammstedt, 2014). Finally, *entrepreneurial success* is considered as firm performance, which was assessed by four items developed by Chen, Tzeng, Ou, and Chang (2007). The original items in English were double-blind translated into German and then back-translated by independent translators, ensuring the content validity of

Table 1
Items for multi-item variables.

Latent variable	Item
Entrepreneurial orientation	We value new strategies/plans even if we are not certain that they will always work (<i>Risk-taking</i>).
	To make effective changes to our offering, we are willing to accept at least a moderate level of risk of significant losses (<i>Risk-taking</i>).
	We encourage people in our company to take risks with new ideas (<i>Risk-taking</i>).
	We engage in risky investments (e.g. new employees, facilities, debt, stock options) to stimulate future growth (<i>Risk-taking</i>).
	We continuously try to discover additional needs of our customers, of which they are unaware (<i>Proactiveness</i>).
	We consistently look for new business opportunities (<i>Proactiveness</i>).
	Our marketing efforts try to lead customers, rather than respond to them (<i>Proactiveness</i>).
	We incorporate solutions to unarticulated customer needs in our products and services (<i>Proactiveness</i>).
	We work to find new businesses or markets to target (<i>Proactiveness</i>).
	When it comes to problem solving, we value creative, new solutions more than solutions that rely on conventional wisdom (<i>Innovativeness</i>).
	We highly value new product lines (<i>Innovativeness</i>).
	We consider ourselves to be an innovative company (<i>Innovativeness</i>).
	Our business is often the first to market with new products and services (<i>Innovativeness</i>).
Self-efficacy	Competitors in this market recognize us as leaders in innovation (<i>Innovativeness</i>).
	Even in difficult situations, I can rely on my abilities.
	I can master most of the challenges I encounter.
Dominance	Generally, I can handle exhausting and complex tasks.
	Boss people around.
	Like having authority over others.
	Insist that others do things my way.
	Make demands on others.
Firm performance	Have a strong need for power.
	Am known as a controlling person.
	Last year, we achieved a higher sales growth than our (direct/indirect) competitors.
	Last year, we achieved a higher profit growth than our (direct/indirect) competitors.
	Last year, we achieved a higher growth on number of employees than our (direct/indirect) competitors.
	Last year, we achieved a higher growth on market shares than our (direct/indirect) competitors.

Notes: Names in () provide dimensions of entrepreneurial orientation (not included in questionnaire). Only 6 of the 15 dominance items are listed. Missing dominance items cannot be printed due to restricted publication rights.

our questions. All multi-item measures were applied as a 5-point Likert-type scale from *totally disagree* (1) to *totally agree* (5) (see Table 1 for labels) and summarized to factor scores by principal axis analysis (Maximum Likelihood estimator, no rotation, each measure separately).

Exploratory factor analyses (EFA) and confirmatory factor analyses (CFA) were applied to check the reliability and validity of the multiple-item measures. However, three items of dominance with EFA factor loadings smaller than 0.3 were sequentially removed (Kline, 2015). Based on this, EFA (minimum residual estimator, with PROMAX rotation – if more than one factor is extracted) and CFA (maximum likelihood estimator of a covariance based structural equation model) revealed satisfactory results for reliability, convergent validity, and discriminant validity (cf. Gerbing & Anderson, 1988).

Table 2 provides the correlations, reliability estimates, and composite means as well as standard deviations.

3.3. Method

Traditional approaches of multivariate data analysis, such as multiple regression or structural equation modeling, often suffer from

Table 2
Reliability, validity, and descriptives of the multi-item variables.

	I	P	R	D	S	F
I	<i>0.85</i>					
P	0.68	<i>0.79</i>				
R	0.45	0.49	<i>0.75</i>			
D	0.22	0.31	0.18	<i>0.77</i>		
S	0.22	0.20	0.13	0.07	<i>0.82</i>	
F	0.27	0.24	0.09	0.13	0.12	<i>0.88</i>
Mean	3.63	3.72	3.04	3.35	4.36	3.14
SD	0.93	0.98	0.07	0.95	0.63	1.00

Notes: Lower-diagonal construct correlations and reliability estimates from CFA. I = innovativeness. P = proactiveness. R = risk-taking. D = dominance. S = self-efficacy. F = firm performance. Mean = arithmetic mean. SD = standard deviation. Diagonal elements (italics) = Cronbach's coefficient alpha.

disconnections between theory and empirical testing (e.g. Woodside, 2013). These techniques are explicitly based on the *net effects* of variables, that is a majority of values for a specific independent variable with the same sign explains the direction of the dependent variable, in comparison to an optimistically small number of values with the opposite sign. Theory often dictates that an independent variable may have a positive influence on the dependent variable in some conditions and a negative one in others (Ragin, 2008). Consequently, investigating the joint conditions of some variables (configurations) that yield a specific outcome may be more appropriate than a net effect based investigation. Notwithstanding other weaknesses as well as the strengths of regression based techniques (e.g. Skarmees, Leonidou, & Saridakis, 2014; Woodside, 2013), we see substantial value in following this configurational path for our research and thus chose a Qualitative Comparative Analysis (QCA) methodology. Since all variables in our framework are measured within a Likert-type continuous interpretation (higher values indicate higher presence of the underlying construct), a fuzzy set QCA (fsQCA) is most appropriate. A fsQCA allows translation of the causal principle of QCA – a binary representation of the presence of some conditions for a given (also binary) outcome – to continuous variables by introducing fuzzy sets that represent the magnitude of a membership (e.g. 0 for non-membership, 1 for membership, 0.5 for crossover membership). State-of-the art guidelines recommend the use of quantile based thresholds to calibrate (obtain) fuzzy sets (e.g. Thiem & Dusa, 2013; Wagemann & Schneider, 2010). Based on this, and in line with previous research (e.g. Covin, Eggers, Kraus, Cheng, & Chang, 2016; Ragin, 2009; Woodside, 2013), we selected 5%, 50%, and 95% quantiles to represent non-, cross over, and full membership and allowed for empirical thresholds between these quantiles based on the previously estimated factor scores. Since we assume that respondents self-reporting certain values on a 5-point Likert-type scale indicate a likewise trait (EO, dominance, self-efficacy), a linear endpoint concept is deemed appropriate for the trait-based multi-item variables applied as conditions. The package *QCApro* was applied for all calculations, which is to date the most advanced QCA software (Thiem & Dusa, 2013). Estimation further followed the

recommendations by Wagemann and Schneider (2010) and Baumgartner and Thiem (2015). In a nutshell, only configurations that are parsimonious, sufficient, highly consistent (consistency > 0.75) and unique (unique coverage > 0.01) are used for the evaluation. For the estimation process, we separated young firms (age ≤ 12 years) from established firms (age > 12 years). Characterizing firms older than 12 years as established companies and separating these established firms from their younger counterparts is established in the literature (e.g. Bantel, 1998; Kollmann & Stöckmann, 2014). fsQCA were conducted for necessity initially. Since no necessary solutions were found, fsQCA were repeated for sufficient solutions, yielding the subsequent results.

4. Results

4.1. Overview

As proposed by Ragin (2008), the solutions are provided graphically with solid black circles illustrating the presence of a variable (condition), white circles illustrating the absence (negation) of a variable, and blank cells if the variable is irrelevant (*don't care* condition) for the outcome.

Table 3 depicts this illustration as well as important consistency and coverage statistics for all sufficient and parsimonious configurations. A sufficient configuration above a substantial coverage can be interpreted as ample evidence of the existence of a given configuration (Thiem & Dusa, 2013). In other words, only those seven combinations of entrepreneurial orientations and characteristics are relevant for entrepreneurial success in young and established firms. Since there is more than one sufficient configuration, we can assume that there are multiple, alternative paths to improving success. Moreover, consistency measures indicate that the number of supportive cases compared to all cases with a present configuration (minimum consistency > 0.75). This means that in terms of consistency (B2), 82.8% of the firms are successful when they possess the present combination of orientations and characteristics. Finally, coverages provide information about the proportion of cases that explain the outcome, comparable to *r*-squared (*R*²) in regression (Woodside, 2013). As shown, even the smallest coverage of 0.30 (A4) is considerable. Together, all five paths for young firms explain 66% of firm performance, while both paths for established

Table 3
Combinations for firm performance.

Condition	Combinations to firm performance						
	Young firms (n = 229)					Established firms (n = 367)	
	A1	A2	A3	A4	A5	B1	B2
Innovativeness	●	○	○	●	●	●	●
Proactiveness	○	●	●	○		●	○
Risk-taking			●	●	●	○	○
Dominance	●		○		●		○
Self-efficacy		●		○	○		●
Consistency	0.90	0.88	0.89	0.92	0.90	0.84	0.83
Coverage	0.43	0.43	0.34	0.30	0.33	0.48	0.50
Unique coverage	0.01	0.02	0.01	0.01	0.04	0.12	0.13
Solution consistency	<i>0.85</i>					<i>0.81</i>	
Solution coverage	<i>0.66</i>					<i>0.62</i>	

Notes: Parsimonious solutions. Black circles “●” indicate the presence of causal conditions (i.e., antecedents). White circles “○” indicate the absence or negation of causal conditions. Blank cells represent “don't care” conditions. Solution values (italics) represent overall consistency/coverage of all solutions within the effective samples. Two inessential solutions were found for young firms, but omitted due to missing unique coverage (= 0.00). Original sample sizes (young firms: 267, established firms: 441) differ from effective sample size (young firms: 229, established firms: 367) due to fsQCA truth table logical minimization.

firms explain 62%. It should be noted that unique coverage explains how percentage is unique to a configuration, and as such, the individual explanation cannot be provided by other paths. We omit two inessential solutions yielding no unique coverage.

4.2. Causal configurations for young firms

Five paths can explain firm performance by CEOs from young firms. All paths fulfill the minimum requirement for consistency (> 0.75) and unique coverage (> 0.01). Furthermore, all variables (conditions) assumed to impact on performance are relevant in at least one of the five paths. Path A1 indicates that presence of innovativeness in combination with a presence of dominance improves performance when proactiveness is absent. In this case, risk-taking and self-efficacy are irrelevant. Path A2 adds the perspective that young firm CEOs can overcome absent innovativeness with the presence of proactiveness and self-efficacy (while risk-taking and dominance are irrelevant). Path A3 suggests another way to overcome lacking innovativeness. That is, when the founders are proactive and risk-taking with absent dominance, while self-efficacy is irrelevant. Path A4 describes what is needed when proactiveness and self-efficacy are absent. In this path, innovativeness and risk-taking compensate for firm success (where dominance is irrelevant). Finally, path A5 illustrates that the joint presence of innovativeness, risk-taking, and dominance can overcome the absence of self-efficacy and irrelevance of proactiveness. A common theme found in all five paths is that innovativeness always has an influence, either through its presence (i.e. it is required) or absence (i.e. it needs to be compensated for). Moreover, in every path identified, firm performance is explained by a combination of organizational and individual factors.

4.3. Causal configurations for established firms

Innovativeness continues to play an important role in the explanation of firm success for established firms. As indicated by their CEOs, innovativeness is always required. Path B1 adds the perspective that, together with innovativeness, proactiveness can jointly overcome the absence of risk-taking, irrespective of dominance or self-efficacy. In contrast, when not only risk-taking but also proactiveness are absent, the individual variables of dominance and self-efficacy can secure high firm performance instead (path B2). Whereas all paths require some relevance from the personal variables of dominance or self-efficacy in younger firms, this is not the case for their older counterparts. Here, the personal variables serve as compensation for deficient proactiveness on the organizational level.

4.4. Negative performances for young and established firms

To further explore antecedences of firm performance, a subsequent analysis checks the inverse outcome, that is, lack of firm success. All other settings being equal, we do not find a sufficient (or necessary) solution for established firms and a lone solution for young firms (inclusion = 0.88, coverage = 0.47) that indicates two combinations to insufficient success: R1) absent innovativeness, present proactiveness, absent risk taking, present dominance, and irrelevant self-efficacy as well as R2) absent innovativeness, irrelevant proactiveness, present risk-taking, present dominance and absent self-efficacy. Combination R1 is unequal to any of the five combinations (A1–A5). Combination R2 is close to A5, but has an absent instead of a present innovativeness. Both, R1 and R2 imply that innovativeness is clearly the key factor in discriminating between successful and unsuccessful young SMEs.

5. Discussion and conclusion

5.1. Observed configurations

In general, previous findings in entrepreneurship research support

an integrated model of firm level, as well as individual level, variables in order to predict firm performance. Our study, which is based on an fsQCA of Austrian respondents, confirms this assumption. Focusing on entrepreneurial orientation as a variable on the firm level, and dominance and self-efficacy as variables on the individual level, our study reveals that there are multiple, alternative pathways to facilitating firm performance. Despite significant differences in conditions between these pathways, *Assumptions #1 to #4* comply with entrepreneurial orientation, dominance, and self-efficacy being essential predictors of firm performance. Against the background of different challenges and characteristics of young firms and their established counterparts (Hanks et al., 1993), different sets of success-relevant factors are identified. This finding agrees with *Assumption #5*. fsQCA indicates five different paths to success for young firms and two different paths for established firms, that is alternative configurations of firm level and individual variables. In young firms, all paths consist of a combination of firm and individual variables. In established firms, performance may be achieved via EO, or, more precisely, by a special combination of EO dimensions, and thus a firm level variable alone. A second possible path to firm performance, however, consists of a combination of firm and individual level variables, indicating that characteristics of the CEO still play a decisive role, in established firms as well as young firms. This is in line with general assumptions on the management of small businesses, in which owners perceive “the business as an extension of his or her personality” (Carland, Hoy, Boulton, & Carland, 1984).

Our findings reveal that young firms can facilitate firm performance in numerous ways. Five different configurations show that none of the conditions is consistently present or absent. Specifically speaking, young firms are successful when:

- absent proactiveness is compensated by innovativeness and dominance, while risk-taking or self-efficacy are irrelevant conditions (A1),
- absent innovativeness is compensated by proactiveness and self-efficacy, while risk-taking and dominance are irrelevant conditions (A2),
- absent innovativeness and dominance are compensated by proactiveness and risk-taking, while self-efficacy is an irrelevant condition (A3),
- absent proactiveness and self-efficacy are compensated by innovativeness and risk-taking, while dominance is an irrelevant condition (A4),
- absent self-efficacy is compensated by innovativeness, risk-taking, and dominance, while proactiveness is an irrelevant condition (A5).

At a glance, in none of the paths identified all three dimensions of entrepreneurial orientation are present. Path A1, A4, and A5 indicate successful, innovative, albeit traditional, firms with no or low proactiveness and risk-taking respectively. Paths A2 and A3 describe the way non-innovative firms can be successful: either by being proactive and having a self-efficient CEO, or by being proactive and risk-taking with dominance being absent in the CEO's personality. In none of the identified paths for firm performance are innovativeness and proactiveness concurrently present.

Most interestingly, in every identified combination, at least one firm level condition and one individual level condition benefits (presence) or contradicts (absence) firm performance, supporting the idea of an interplay of firm level and individual level characteristics in explaining firm performance. The finding that in none of the configurations both individual level conditions are indifferent to firm success confirms the central assumption that individual traits of the entrepreneur or manager of an SME play a major role for success. The psychological traits chosen in this study (dominance and self-efficacy) have both positive and negative impacts on firm performance. In innovative firms, the CEO's dominance seems to be a crucial success factor (path A1 and A5; dominance absent in A4). In non-innovative firms, success is explained

by either present self-efficacy (A2) or absent dominance (A3) of the CEO.

A considerably different pattern appears for the firm performance of established firms; the number of alternative ways to success is reduced to two here. Both ways build on innovativeness while sending a clear signal to avoid risk-taking.

Again, at least in one case EO is supplemented by dominance and self-efficacy. Established firms are specifically successful when:

- absent risk-taking is compensated by innovativeness and proactiveness, while dominance or self-efficacy are irrelevant conditions (B1),
- absent risk-taking and proactiveness are compensated by innovativeness, dominance and self-efficacy (B2).

At a glance, innovativeness (presence) and risk-taking (absence) seem to be the central conditions for facilitating performance in established firms. While proactiveness can join innovativeness as a facilitator, absent proactiveness can be compensated by individual-level aspects, dominance, and self-efficacy. Interestingly, both individual characteristics are needed concurrently in established companies, whereas they do not appear to complement each other in young firms; either dominance or self-efficacy prevail here. Thus, it is plausible that these two individual variables will overlap. Therefore, one compensates for the other: the correlation between dominance and self-efficacy, although small, is nevertheless relevant ($r = 0.11$, $p < 0.001$; see Table 2).

5.2. Implications of this study

5.2.1. Implications for research

As described above, previous theoretical work and empirical research suggest that a better understanding of firm performance can be gained via the simultaneous consideration of organizational attributes on the one hand, and individual characteristics of the entrepreneur on the other. Put simply, our findings support this proposition. Whereas different dimensions of entrepreneurial orientation are relevant in all paths on a firm level, individual level variables. That is, self-efficacy and dominance, emerge to compensate for missing firm level orientations. These “compensations” differ in regard to the developmental stage of the company.

Among the seven different paths to firm performance in young and established firms, there is notably no path in which all three EO dimensions are present. This finding contradicts suggestions by Covin and Slevin (1989), that it is the simultaneous pursuit of innovativeness, proactiveness, and risk-taking that positively affects firm outcomes such as growth. This finding does, however, support the multi-dimensional perspective on EO, which is promoted by researchers such as Lumpkin and Dess (1996) and advocates dimension-specific effects (e.g. Hughes & Morgan, 2007). The finding that the single EO dimensions may have detrimental effects in young firms might help to explain the non-significant overall effect of EO in young firms reported by Messersmith and Wales (2013).

The finding that innovativeness is a favorable condition for firm performance in five out of seven paths parallels the conclusion by Moreno and Casillas (2008) that innovativeness is the most important dimension for achieving growth. Nevertheless, the two cases in which the absence of innovativeness facilitates firm performance suggest that imitation strategies might be successful as well (Amason, Shrader, & Tompson, 2006), at least when they are accompanied by proactive behavior.

The result that, in six cases, proactiveness contradicts innovativeness places into question a recent reconceptualization of EO by Anderson, Kreiser, Kuratko, Hornsby, and Eshima (2015) who merge innovativeness and proactiveness into one construct. This conclusion parallels a recent suggestion by Lomberg, Urbig, Stöckmann, Marino,

and Dickson (2016).

Our research also sheds new light on the effect of risk-taking. As in other studies on young firms (e.g. Kollmann & Stöckmann, 2014), risk-taking tends to have a positive effect on the performance of those firms. There is no negative effect of risk-taking in young firms. On the contrary, our findings indicate that risk-taking is something for established firms to avoid. This might explain contradicting observations on the role of risk-taking as part of EO (e.g. Anderson et al., 2015; Kollmann & Stöckmann, 2014; Lomberg et al., 2016).

Taken together, our findings underscore the conclusion by Moreno and Casillas (2008), which stated that the relationship between EO and performance is highly complex. Our findings support Miller's (2011) assumption that in different contexts, in this case young vs. established firms, different aspects of EO are important. We add to the literature that even within a well-defined context, different ways to succeed are effective.

Literature on creativity and innovation highlights the importance of a sound implementation process for new ideas or products, and strengthens the need for dominant multipliers and persuaders (Palmer, 2016). Our findings support the relevance of dominant CEOs for young innovative firms. Furthermore, as dominance is linked to creativity (Feist, 1998; Schneewind & Graf, 1998), part of the innovativeness on the organizational level could possibly be traced back to the CEO's own creativity and his efforts to establish an innovation-friendly organizational culture (e.g. Hammond et al., 2011). The absence of dominance in one of the three configurations for the performance of young, innovative firms could be explained by the results of Demaree, DeDonno, Burns, Feldman, and Everhart (2009). Trait dominance predicts risk-taking in (financial) decisions. This is why we assume that dominance can either contribute to innovative firms' performance directly or indirectly via a CEO supporting higher levels of risk-taking on the organizational level.

In young firms that show high risk preference on the organizational level, self-efficacy is either irrelevant or absent. This finding is inconsistent with previous studies showing that executives who believe in their own abilities and their firm's competencies will take more risks (Barbosa, Gerhardt, & Kickul, 2007; Krueger & Dickson, 1994). However, Baum and Locke (2004) offer a possible explanation. Self-efficacy is related to goal setting as well as to venture growth (Wood & Bandura, 1989). If the entrepreneur's belief in his or her own capacity for performance is too strong, highly challenging or even unrealistic goals are set in place, and risk-taking is increased beyond an acceptable level. Moreover, extreme levels of confidence result in arrogance and excessive pride (Hmieleski & Baron, 2008). If innovativeness in young firms goes along with risk-taking on an organizational level (as in path A4 and A5), overconfidence of the CEO, here in terms of high self-efficacy, leads to harmful outcomes. Though self-efficacy is, in general, positively related to firm performance (Baum et al., 2001; Baum & Locke, 2004), in some environments, it is also linked to overconfidence (Hayward, Shepherd, & Griffin, 2006) and may have negative effects (Baum & Locke, 2004; Hayward et al., 2006; Hmieleski & Baron, 2008). In their hubris theory of entrepreneurship, Hayward et al. (2006) highlight the link between individual overconfidence and greater environmental dynamism, which is core to innovative and risky ventures. Accordingly, our study shows that young firms should be led by a CEO with absent self-efficacy in order to balance the risk of an innovative entrepreneurial orientation (paths A4 and A5). Thereby, they succeed by focusing on risky and innovative, yet feasible, developments.

Young firms are either successful by compensating for their lack of proactiveness by installing a dominant CEO (irrespective of risk-taking strategies on the organizational level) or by their willingness to take risky strategic decisions paired with a CEO who is not overconfident (with low self-efficacy). Comparing relevant variables regarding performance for young firms with the identified success paths for older firms might clarify mixed findings. In spite of the limitations resulting

from the nature of our data, the results suggest that successful established firms stand out by being innovative, rather than risk-taking. Furthermore, innovative established firms either operate proactively on the organizational level or compensate for lacking proactivity by employing a CEO characterized by dominance and a high level of self-efficacy. We conclude that after some time, newly founded firms should focus on innovativeness in particular and decide whether to pursue a proactive business strategy or rely on a dominant, self-assured, competent CEO who enforces faster strategic response times (Davis et al., 2010).

Taken together, our qualitative findings support previous models of entrepreneurship that describe successful entrepreneurship processes and combine organizational and individual characteristics (Hitt et al., 2007; Hmieleski & Baron, 2008; Hornsby et al., 1993; Krueger, 2006). Dominance and self-efficacy of CEOs in SMEs serve as essential individual factors for firm performance. Our results imply differential effects for both personality characteristics depending on specific combinations of EO and firm age. This highlights the importance of an integrative view on factors determining firm performance. Taking strategic orientations and firm age into account, higher values in CEO's dominance and self-efficacy are no longer generally critical success factors for firm performance. Under some conditions, firms perform better when CEOs are explicitly less dominant and have lower levels of self-efficacy.

Our study highlights the influence of a single person's characteristics on the effectiveness of strategic decisions aligned to EO. This progress was possible due to the application of methods like the fsQCA, which enables new insights into joint conditions of some variables (configurations) that yield a specific outcome and, as a consequence, indicates the substantial value of the proposed extended model. Research should therefore be open to new explanations based on new methods, and should also be encouraged to combine findings from management, entrepreneurship, and psychological research.

5.2.2. Implications for practitioners

Our findings provide evidence to support both the importance of individual factors, such as dominance and self-efficacy in established firms, and the importance of firm level factors, that is EO in young firms. With respect to managing the EO of their firm, chief executives in young firms can choose between various routes towards success. Risk-taking is not a necessary condition. They might decide to be followers, instead of a market pioneers, and enter the market with an innovation in an effort to supersede existing competitors and establish market leadership. On the contrary, they might also decide to proactively enter a new market with an adaptation of a product that is successful in another market, for example a different country. In established firms, decision makers face the challenge of being innovative without risking what they have achieved previously. This could be achieved for example by aiming for less risky, incremental, exploitative innovations rather than striving for radical, exploratory innovations with highly uncertain returns.

Entrepreneurs and managers should be aware of their own impact on firm performance. As a result, it is important to initially derive a psychometric profile of one's own strengths and weaknesses. Entrepreneurs and CEOs with low dominance or self-efficacy could (to a certain extent) strengthen their abilities. Alternatively, they could cooperate with employees, board members, or other management team members that are specifically and deliberately selected to assist in promoting the chief executive's ideas and strategic decisions. Furthermore, investors or business partners of entrepreneurs should be aware of the beneficial personality traits of entrepreneurs and managers. Characteristics on the individual level, that is dominance and self-efficacy of the CEO, are relevant in terms of implementing strategic decisions on the firm level regarding EO. Whether the traits are relevant to firm performance in a separate or joint manner differs according to a firm's age. Young firms are well advised to analyze their strategic

orientation and deviate from the psychological profile of a matching CEO. Notwithstanding the relationships between the CEO and the firm, the required fit between both creates multiple options for improving future firm performance, invoking other fields of management as well (e.g. human resource management). Established firms prove to be successful when they manage to compensate their lack of proactiveness with self-confident, assertive management.

5.3. Limitations

Although our sample size is decent, it is limited to Austrian firms. Further studies should include different countries to check whether our findings can be transferred to other regions. In addition, performance ratings given by our respondents are used. In order to expand research, other ratings or objective performance information (e.g. annual reports) should be included in order to ensure that the results are accurate and generalizable. From a methodological view, the method applied (fsQCA) does not allow for confirmation of a nomological network or quantitative hypotheses.

Self-efficacy is assessed by only three items (dominance, on the other hand, was represented by 12 items). Though the reliability of the scale is acceptable (0.81), the scale might assess self-efficacy on a general level only. For example, respondents who positively answer the item “I can rely on my own abilities in difficult situations” will not reveal that they have problems in other specific areas. This self-confession can be especially difficult for CEOs or high-level executives to make. Another issue concerning measures of self-efficacy could be that specific and general SE represent different constructs. With this in mind, it would be interesting to investigate self-efficacy with a more specific SE scale tailored for the occupational challenges that CEOs of SMEs have to face. Assessing more specific SE might add additional value to the explanation of firm performance.

This study considers dominance and SE as significant traits of CEOs. From a competence based view on entrepreneurial performance, a broader dimension of general leadership skills could be studied in further research. The understanding of contributing factors for firm performance could benefit from adding more factors, such as traits, skills, values and competencies, to the individual level and also by taking into account more factors on the organizational level (e.g. collaboration).

To deepen the understanding of the compensative or additive relationships between the organizational level and individual level variables, longitudinal data would allow the investigation of this connection throughout the transition processes, which occurs between the establishment of a venture and the managing of an established firm.

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